



monthly water inventory report for ohio

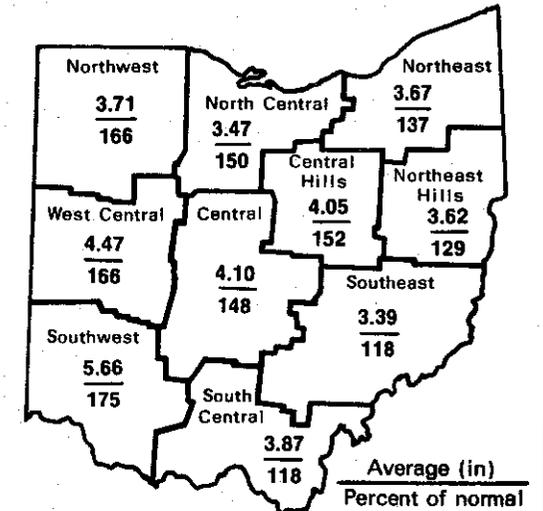
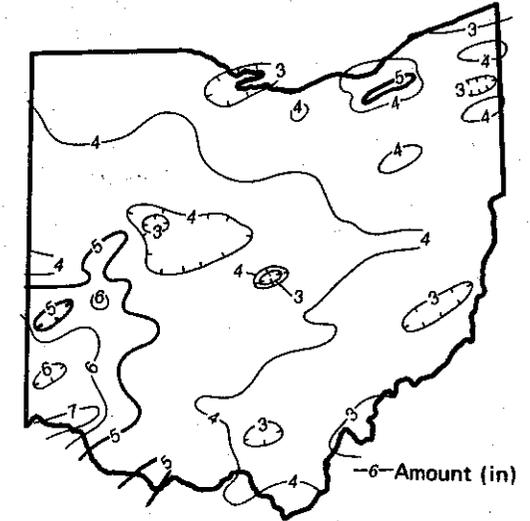
Compiled by Leonard J. Harstine

PRECIPITATION

PRECIPITATION for January was above normal throughout the state. This is in marked contrast to the situation in 1981 when January set a mark as the driest January of record with only 0.66 inch of precipitation. The average for the state as a whole in January 1982, however, was 4.00 inches, 1.24 inches above normal. Regional averages ranged from 5.66 inches, 2.43 inches above normal, for the Southwest region to 3.39 inches, 0.51 inch above normal, for the Southeast region. Perintown, Clermont County, reported the greatest amount of precipitation for the month, 7.49 inches, and Jackson, Jackson County, reported the least amount, 2.01 inches. Generally, the northern and eastern portion of the state received between 2.5 and 4 inches of precipitation for the month and the central and southwestern portion received between 4 and 7.5 inches.

There were substantial amounts of precipitation during every week of the month throughout most of the state. However, the bulk of the month's precipitation occurred during the last two days of the month. The storm on the 30th and 31st produced between 2 and 3.5 inches of precipitation throughout most of the state. Most of this precipitation came in the form of snow in the northern portion of the state and rain in the southern portion. Runoff from this storm caused considerable flooding in low lying areas along most streams. The storm was heaviest in the southwestern portion of the state where serious flooding was observed in the vicinity of Miamitown, Hamilton County. In the northwest and north central areas, 13 to 20 inches of snow remained on the ground at the month end.

Cumulative precipitation was generally above normal for the first time during the 1982 water year; the only exceptions are in the Northeast Hills, South Central, and Southeast regions where cumulative precipitation remains below normal. The average for the first four months for the state as a whole was 11.02 inches, 0.76 inch above normal. Regional averages range from 13.40 inches, 2.20 inches above normal, for the Southwest region to 8.99 inches, 2.19 inches below normal, for the South Central region. The above normal precipitation for the water year thus far has resulted in excellent recharge to water supplies and additional recharge should be forthcoming from the month end rains.



SUMMARY

The water supply situation showed marked improvements throughout the state from the above normal precipitation in January. Streamflow, reservoir storage and ground-water storage showed noticeable improvements during the month. Lake Erie mean level showed normal declines but remained noticeably above normal for the month.

NOTES AND COMMENTS

NEW PUBLICATIONS

The Division of Water announces the availability of the following publications:

THE GROUND-WATER RESOURCES of DEFIANCE COUNTY by James J. Schmidt.

THE GROUND-WATER RESOURCES of FRANKLIN COUNTY by James J. Schmidt.

THE GROUND-WATER RESOURCES of VAN WERT COUNTY by James J. Schmidt.

These maps are three of a series of county ground-water resources maps being completed for each of Ohio's counties. The maps are designed as a guide to locating new ground-water supplies or as an aid for expanding supplies already established. They will be useful to homeowners, developers, and planners.

In addition, ground-water resources maps are available for the following 30 counties:

ALLEN	HANCOCK	PICKAWAY
ASHLAND	HARRISON	PORTAGE
ASHTABULA	HOLMES	RICHLAND
CHAMPAIGN	KNOX	ROSS
COLUMBIANA	LAKE	SANDUSKY
CRAWFORD	LORAIN	STARK
CUYAHOGA	MAHONING	SUMMIT
DELAWARE	MARION	TRUMBULL
FAIRFIELD	MEDINA	UNION
GEAUGA	MORROW	WAYNE

The maps are available for \$2.50 each plus \$0.14 cents tax and \$0.25 cents mailing charge from the Publications Center, Ohio Department of Natural Resources, Fountain Square, Columbus, Ohio 43224. Checks or money orders should be made payable to the ODNR Publications Center.

ACKNOWLEDGMENTS

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

Precipitation data:

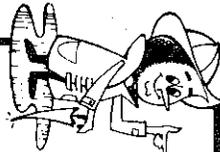
U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service; The Miami Conservancy District; U.S. Army Corps of Engineers, Muskingum Area.

Streamflow and reservoir storage data:

U.S. Geological Survey, Water Resources Division.

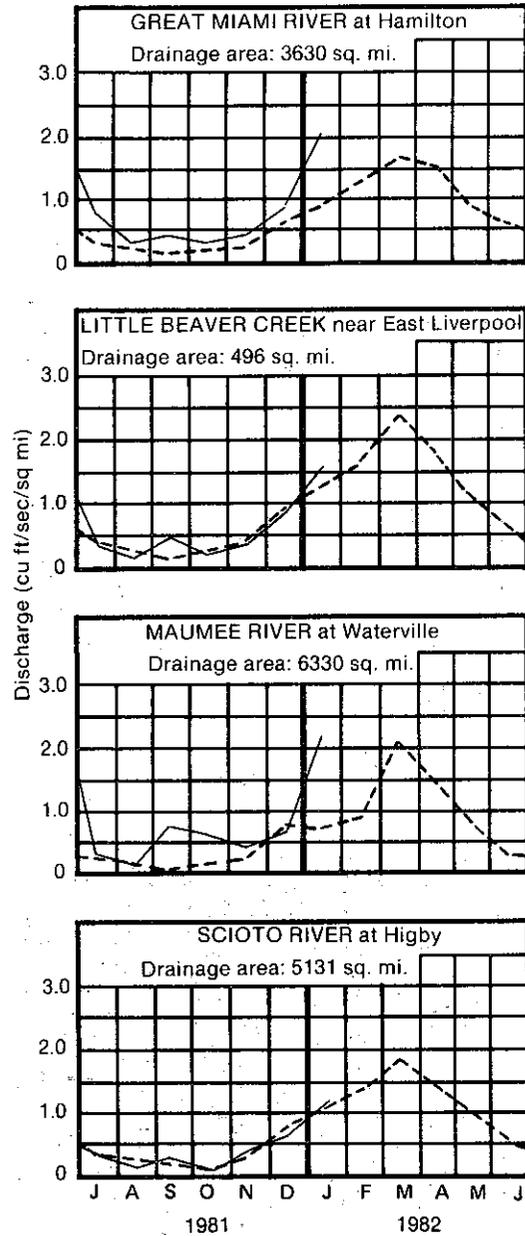
Lake Erie level data:

U.S. Corps of Engineers, Detroit District.



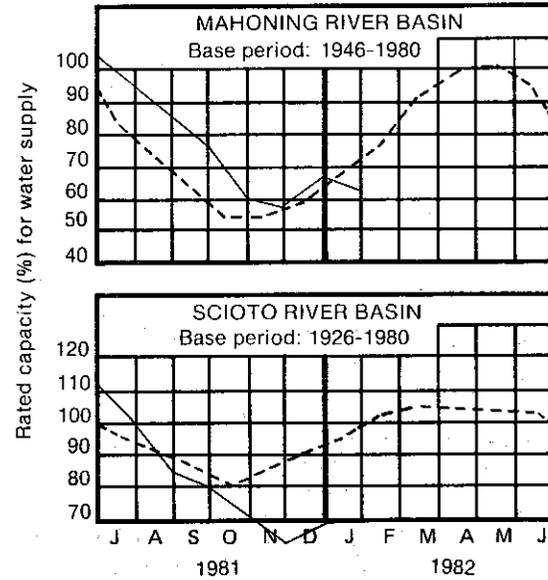
OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

MEAN STREAM DISCHARGE



Base period for all streams: 1951-1980

RESERVOIR STORAGE FOR WATER SUPPLY

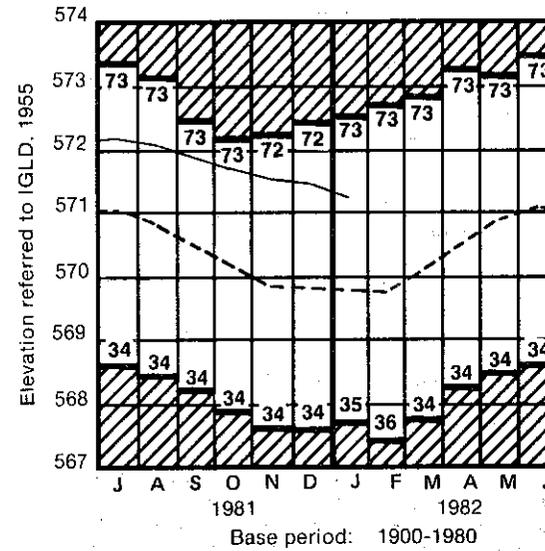


RESERVOIR STORAGE for water supply declined from last month in the Mahoning River basin and remained slightly above normal. Storage in the Scioto River basin increased slightly but remained noticeably below normal. Reservoir storage at the month end for the Mahoning basin index reservoirs was 65 percent of rated capacity for water supply compared to 67 percent for last month and 66 percent for January 1981. Reservoir storage at the month end for the Scioto basin index reservoirs was 70 percent of rated capacity for water supply compared to 62 percent for last month and 65 percent for January 1981.

LAKE ERIE mean level for January was 571.20 feet above IGLD (1955), 0.15 foot below last month's mean level and 1.38 feet above normal. The lake level is 0.43 foot above the level observed for January 1981 and 2.60 feet above Low Water Datum.

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LAKE ERIE LEVELS

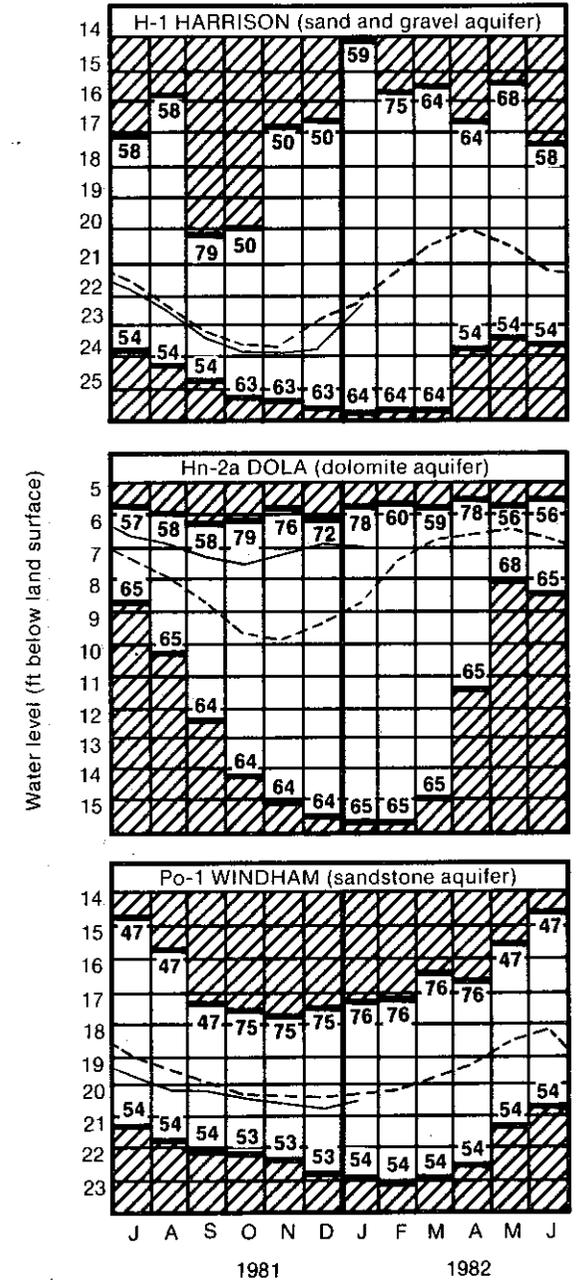


GROUND-WATER LEVELS in general showed normal rises for January throughout most of the state. Water levels are above those levels observed for January 1981 in most areas of the state; the only exceptions are in the southeast and central portions where they remain noticeably below those levels observed a year ago. Water levels are generally above normal in the northern half of the state and below normal in the southern half. Thus, the ground-water supply situation has improved for most areas and continues to be favorable throughout the state.

STREAMFLOW for January was above normal to excessive in the northern portion of the state and above normal in the southern portion. Flows on the last day of the month were excessive throughout the state in response to the heavy rains on that day. Streams were bank full and considerable flooding was observed in the low lying areas. Serious flooding was reported in the lower portion of the Great Miami River basin in the vicinity of Miamitown, Hamilton County.

Mean discharge and percent of normal for January for the index gaging stations were as follows: Great Miami River, 7,518 cfs, 232 percent; Little Beaver Creek, 791 cfs, 127 percent; Maumee River, 14,694 cfs, 380 percent; Scioto River, 5,555 cfs, 98 percent.

GROUND-WATER LEVELS



Base periods: H 1, 1951-1979. Hn-2a, 1955-1979. Po-1, 1947-1979



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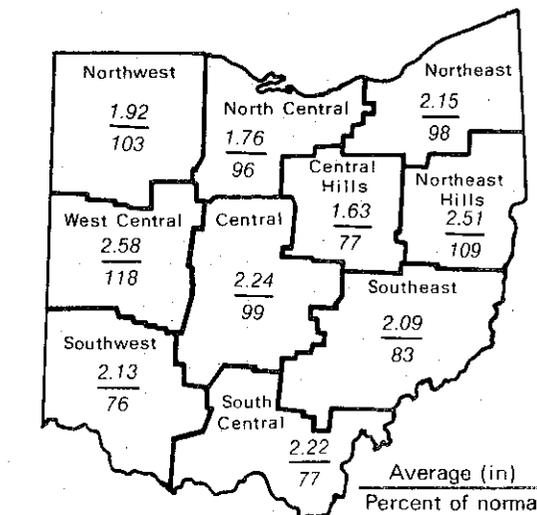
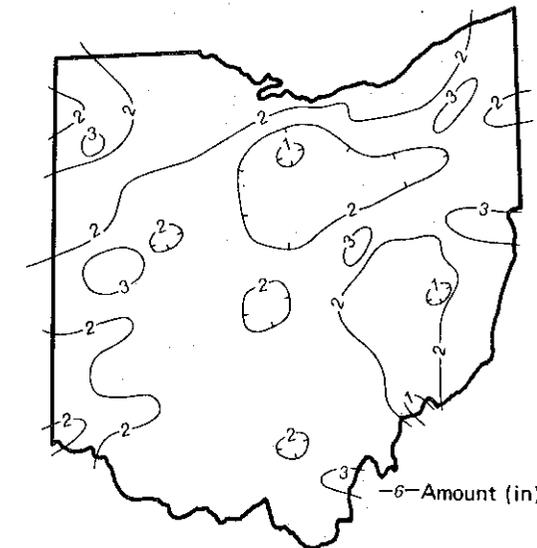
PRECIPITATION

PRECIPITATION for February was below normal throughout most of the state; the only exceptions were in the Northwest, Northeast Hills, and West Central regions where precipitation was above normal. The average for the state as a whole was 2.12 inches, 0.17 inch below normal. Regional averages ranged from 2.58 inches, 0.40 inch above normal, for the West Central region to 1.63 inches, 0.49 inch below normal, for the Central Hills region. Versailles, Darke County, reported the greatest amount of precipitation for the month, 3.90 inches, and Plymouth, Richland County, reported the least amount, .70 inch. Middlebourne, Guernsey County, reported .71 inch.

Generally, most stations reported between 1.50 and 2.50 inches of precipitation for the month, while stations in some western and eastern areas of the state reported in excess of 3.00 inches. Scattered stations, especially in the north central area of the state, reported less than 1.50 inches for the month. The bulk of the month's precipitation occurred during the first 3 weeks of the month. The most notable period being the 16th and 17th when up to 2.08 inches was reported by Versailles, Darke County.

Precipitation for the 1982 calendar year is noticeably above normal, except in the South Central region where it is slightly below normal. The average for the state as a whole is 6.12 inches, 1.07 inches above normal. Regional averages range from 7.79 inches, 1.76 inches above normal, for the Southwest region to 5.23 inches, 1.07 inches above normal, for the North Central region. The South Central region is 0.07 inch below normal.

Cumulative precipitation for the 1982 water year (Oct. 1, 1981 to Sept. 30, 1982) is generally above normal except in the Northeast Hills, Southeast, and South Central regions where it is below normal. The average for the state as a whole is 13.14 inches, 0.59 inch above normal. Regional averages range from 15.53 inches, 1.53 inches above normal, for the Southwest region to 11.21 inches, 2.84 inches below normal, for the South Central region.



STREAMFLOW - continued

Mean discharge and percent of normal for February at the index gaging stations were as follows: Great Miami River 12,620 cfs, 261 percent; Little Beaver Creek 1,395 cfs, 170 percent; Maumee River, 17,370 cfs, 284 percent; Scioto River, 15,444 cfs, 215 percent. Cumulative runoff at the index gaging stations for the 1982 water year is now above normal at all four stations.

SUMMARY

The water supply situation continues to improve and remains favorable throughout the state. Precipitation for February was generally below normal, but streamflow was excessive. Ground-water levels and reservoir storage showed improvements. Lake Erie continues to be noticeably above normal.

NOTES AND COMMENTS

Bucyrus Reservoir

Construction of the new billion gallon upground reservoir at Bucyrus is well underway. A 30 inch transmission main between the reservoir and river water pump station is installed; site clearing and embankment foundation work for the reservoir are started; and, concrete slabs and walls for the pump station are poured. Activity is expected to pickup rapidly as construction crews converge on the site this spring. At present rates, workers should have little difficulty finishing the project within the 600 day completion time required by contract.

The 150 acre multipurpose reservoir is being built under cooperative agreement between the City of Bucyrus and State of Ohio. When completed, the reservoir will provide a plentiful supply of raw water for municipal, area, and industrial purposes and eliminate recurrent water shortages. Basic recreation facilities and fishery features are included in the \$6 million project.

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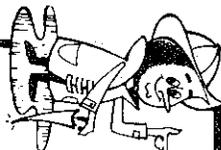
ACKNOWLEDGMENTS

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. Corps of Engineers, Detroit District.



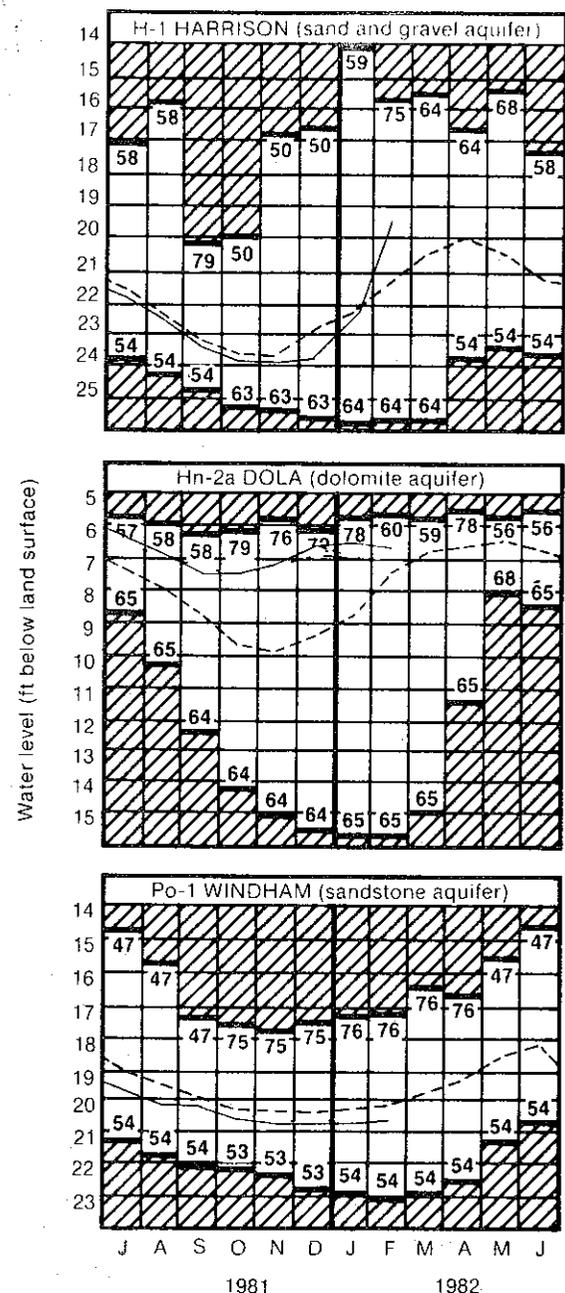
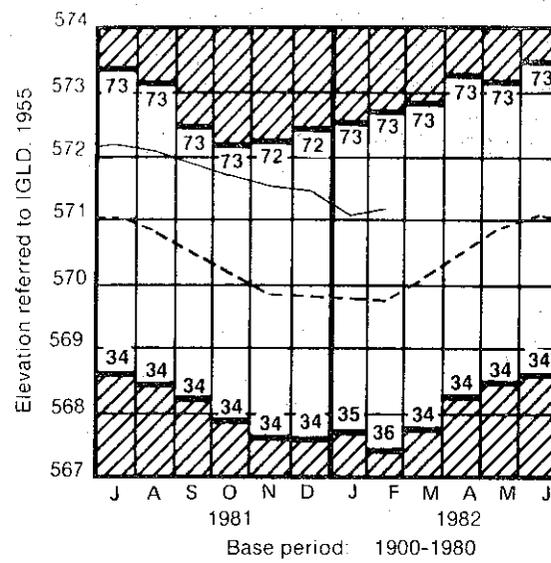
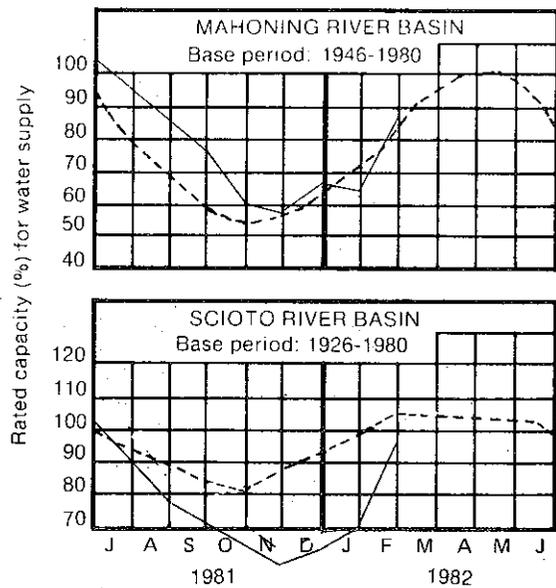
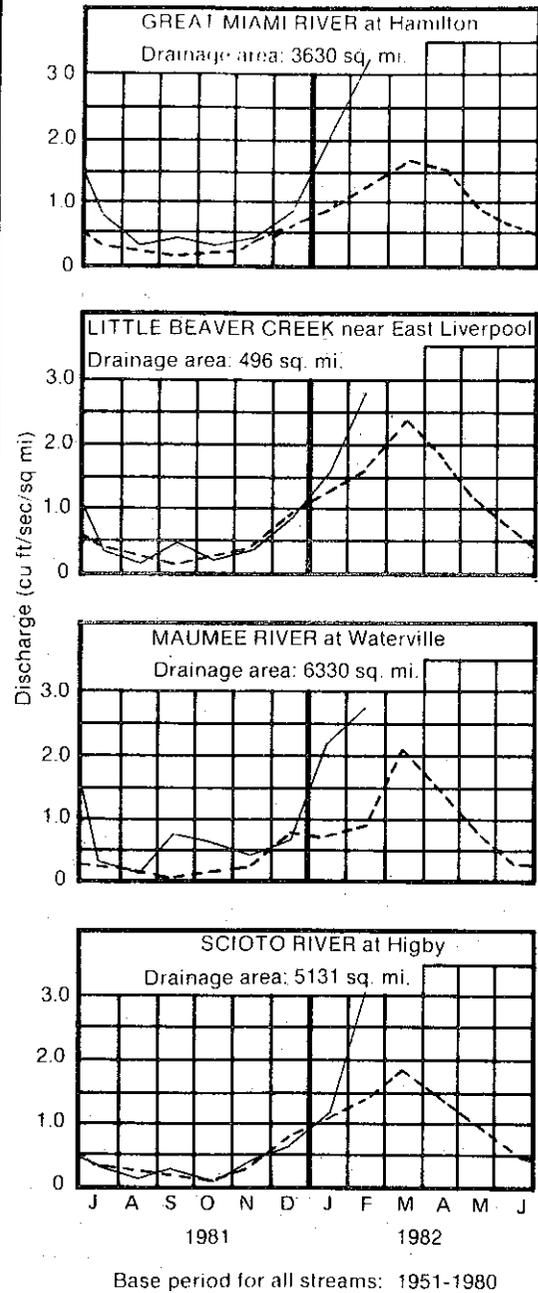
OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

MEAN STREAM DISCHARGE

RESERVOIR STORAGE FOR WATER SUPPLY

LAKE ERIE LEVELS

GROUND-WATER LEVELS



RESERVOIR STORAGE for water supply for February increased significantly during the month in both the Mahoning River and the Scioto River basins. Storage in the Mahoning River basin was slightly above normal at the month end while storage in the Scioto River basin was slightly below normal. These increases in reservoir storage were primarily a result of the heavy rains on the last two days of January and the rains and accompanying snowmelt on the 16th. Reservoir storage at the month end for the Mahoning basin index reservoirs was 86 percent of rated capacity for water supply compared to 65 percent for last month and 99 percent for February 1981. Reservoir storage at the month end for the Scioto basin index reservoirs was 99 percent of rated capacity for water supply compared to 70 percent for last month and 93 percent for February 1981.

STREAMFLOW for February was excessive throughout the state. These excessive flows were sustained primarily by the heavy rains on the last two days of January and the rains and accompanying snowmelt around the middle of the month. Local flooding due to ice jams occurred in many areas of the state, particularly the east central and northeast portions of the state. Notable ice jams which caused serious problems were observed in the Mill Creek near Marysville, Union County and on the Great Miami River at Port Jefferson just above Sidney, Shelby County. The below normal precipitation during the last week of the month reduced the threat of continued serious flooding.

LAKE ERIE mean level for February was 571.20 feet above IGLD (1955), 0.10 foot above last month's mean level and 1.40 feet above normal. The lake level is 0.48 foot above the level observed for February 1981 and 2.60 feet above Low Water Datum.

Note: January mean level has been revised as follows: 571.10 feet above IGLD (1955), 0.25 foot below December, 1981, 1.28 feet above normal, 0.33 foot above January 1981, and 2.50 feet above Low Water Datum.

GROUND-WATER LEVELS in general rose in response to the heavy precipitation of the last two days of January and the precipitation and accompanying snowmelt during the first 3 weeks of February. Ground-water levels at the month-end were stabilized or declining slightly. Generally, ground-water levels are near or above those levels observed in February 1981. Ground-water levels in the eastern portion of the state are generally below normal and above normal elsewhere. Index well F-1 at West Rushville, Fairfield County, continues to be noticeably below normal while index well Fr-10, OSU Farms, Columbus, Franklin County, continues to be significantly above normal. The ground-water supply situation continues to be favorable throughout the state.

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normal - - - - - current



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PRECIPITATION

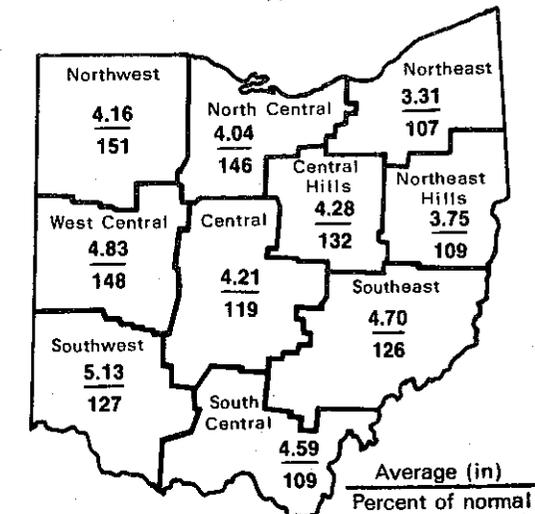
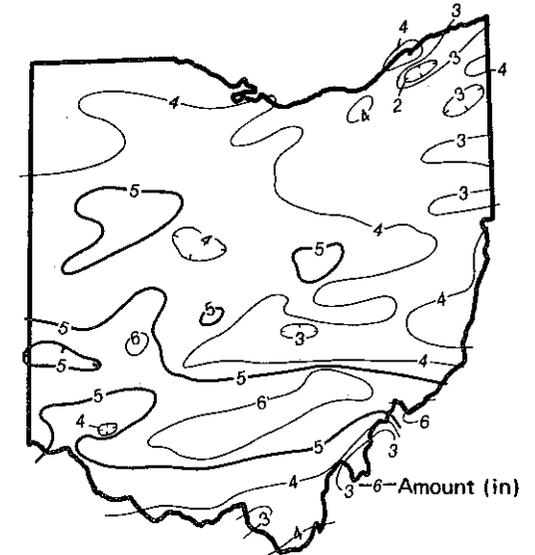
PRECIPITATION for March was above normal throughout the state. The average for the state as a whole was 4.30 inches, 0.89 inch above normal. Regional averages ranged from 5.13 inches, 1.10 inches above normal, for the Southwest region to 3.31 inches, 0.23 inch above normal, for the Northeast region. New Straitsville, Perry County, reported the greatest amount of precipitation for the month, 6.74 inches and Chardon, Geauga County, reported the least amount, 1.93 inches. Generally the northern portion of the state received between 3.5 and 5 inches of precipitation for the month, while the southern half received between 5 and 6.74 inches.

There were substantial amounts of precipitation during every week of the month throughout the state. However, the bulk of the month's precipitation came in the form of rain between the 10th and 20th of the month. It is significant that only about 1 inch of precipitation combined with an accumulation of 6 to 16 inches of snow on the ground in northwestern Ohio resulted in one of the worst floods in that area since 1913. Rain and snowmelt in southern Michigan, northeastern Indiana and northwestern Ohio combined to cause this most serious flooding throughout the Maumee Basin. Further discussion of the Flood of 1982 in northwestern Ohio is presented on the last page of this report. Although the northeastern portion of the state, the snowbelt of Ohio, received only about normal snowfall for the season this year, snow and snow accumulation on the ground in the north central and northwestern portions of the state were much above normal.

Cumulative precipitation for the first three months of the 1982 calendar year was above normal throughout the state. The average for the state as a whole was 10.42 inches, 1.96 inches above normal. Regional averages range from 11.88 inches, 3.74 inches above normal, for the West Central region to 9.13 inches, 1.19 inches above normal for the Northeast region.

Cumulative precipitation for the first six months of the 1982 water year was above normal for most of the state; the only exceptions are in the Northeast Hills, South Central and Southeast regions where precipitation continues to be below normal for the water year. The average for the state as a whole was 17.44 inches, 1.48 inches above normal. Regional averages range from 20.66 inches, 2.63 inches above normal, for the Southwest region to 15.80 inches, 2.48 inches below normal, for the South Central region. Cumulative precipita-

continued on back page



DIVISION OF WATER

John H. Cousins, Chief

PRECIPITATION - continued

tion for the Northwest and West Central regions was 3.77 inches and 4.35 inches above normal, respectively. Thus, the water supply situation in so far as precipitation is concerned is much improved over the below normal conditions which persisted during the first three months of the new water year.

SUMMARY

The water supply situation is much improved throughout most of the state for this water year, however it remains below normal in the eastern portion of the state. Precipitation for March was above normal throughout the state. Streamflow, reservoir storage and ground-water storage continue to be about normal. Lake Erie level rose sharply during March and was 1.63 feet above normal.

NOTES AND COMMENTS

MAUMEE RIVER FLOOD, MARCH 1982

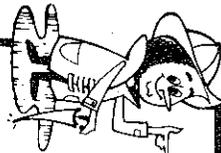
The March 1982 flood along the Maumee River in Northwest Ohio proved to be the most outstanding flood since the Great 1913 Flood. Flood stages all along the Maumee River from the Indiana line to Toledo reached to within a few feet of the March 1913 flood. In Fort Wayne, Indiana, where the St. Joseph and the St. Marys Rivers join to form the Maumee River, flood levels nearly equalled the 1913 flood. Flood levels were even more outstanding along some northern tributaries. On the Tiffin River at Stryker, for example, the flood peaked 2.33 feet higher than the 1913 flood.

Although the March 1982 flood is compared to the March 1913 flood, the flood producing characteristics of the two events were vastly different. The 1913 flood resulted from rainfall which averaged between 6 and 7 inches over the basin with considerably higher amounts in the southern portion. The March 1982 flood resulted from snowmelt from about 6 to 16 inches of snow on the ground combined with only about 1 inch of precipitation on March 11-13 in northwest Ohio and adjoining states. Nevertheless, this combination produced the second most outstanding flood on the Maumee River, generally exceeding the 1950 flood by approximately three feet. Since the "period of record" for most of the stream gaging stations operated by the U.S. Geological Survey do not include the 1913 flood period, the 1982 flood stages and discharges will be entered as "Maximums" where appropriate.

ACKNOWLEDGMENTS

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- 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. Corps of Engineers, Detroit District.



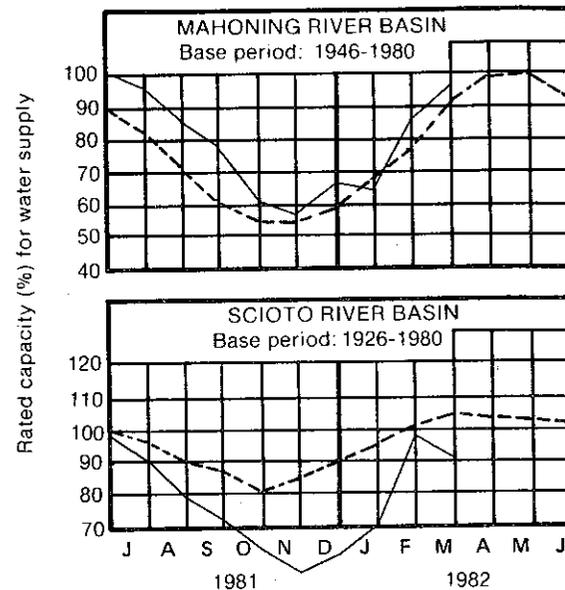
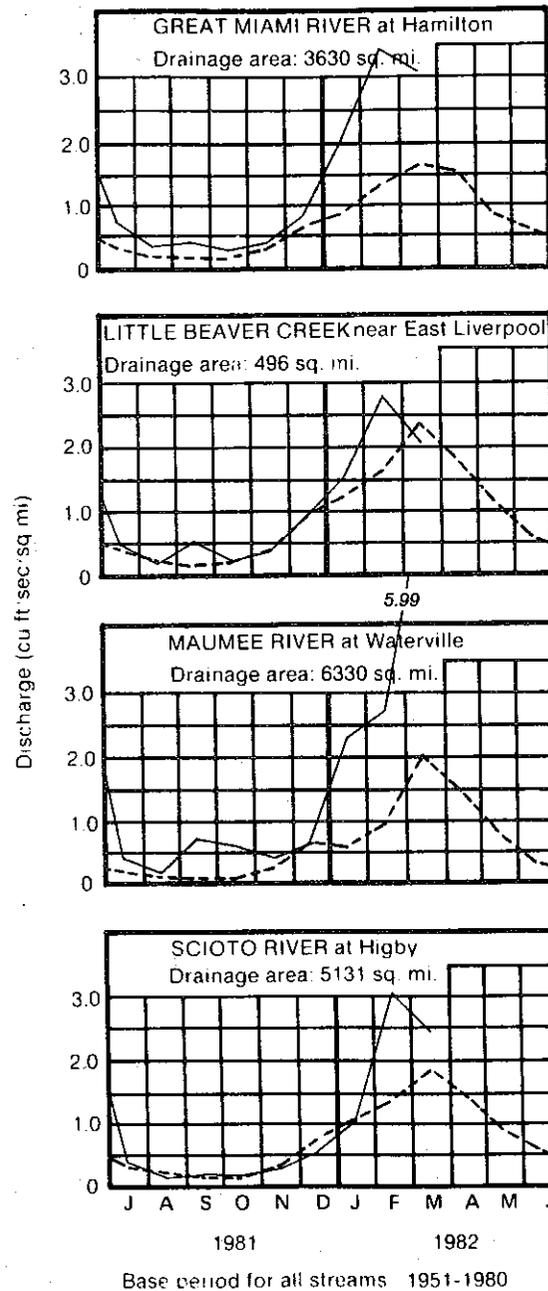
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MEAN STREAM DISCHARGE

RESERVOIR STORAGE FOR WATER SUPPLY

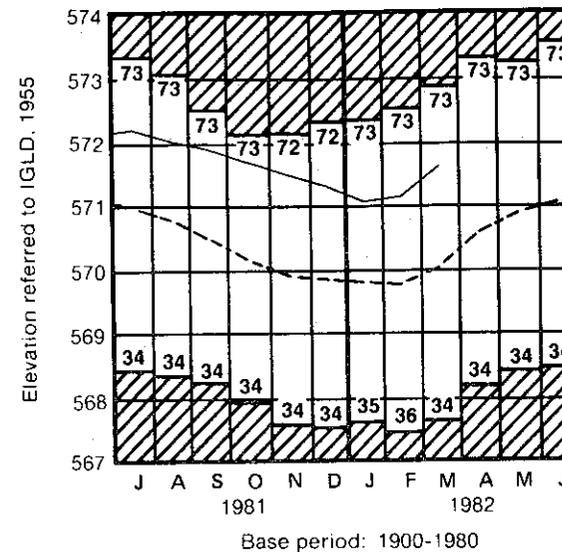
LAKE ERIE LEVELS

GROUND-WATER LEVELS



RESERVOIR STORAGE for March showed normal increases in the Mahoning River basin and declined slightly in the Scioto River basin. Storage remained slightly above normal at the month end for the Mahoning River basin while it was slightly below normal for the Scioto River basin. Reservoir storage at the month end for the Mahoning basin index reservoirs was 97 percent of rated capacity for water supply compared to 86 percent for last month and 95 percent for March 1981. Reservoir storage at the month end for the Scioto basin index reservoirs was 92 percent of rated capacity for water supply compared to 99 percent for last month and 88 percent for March 1981.

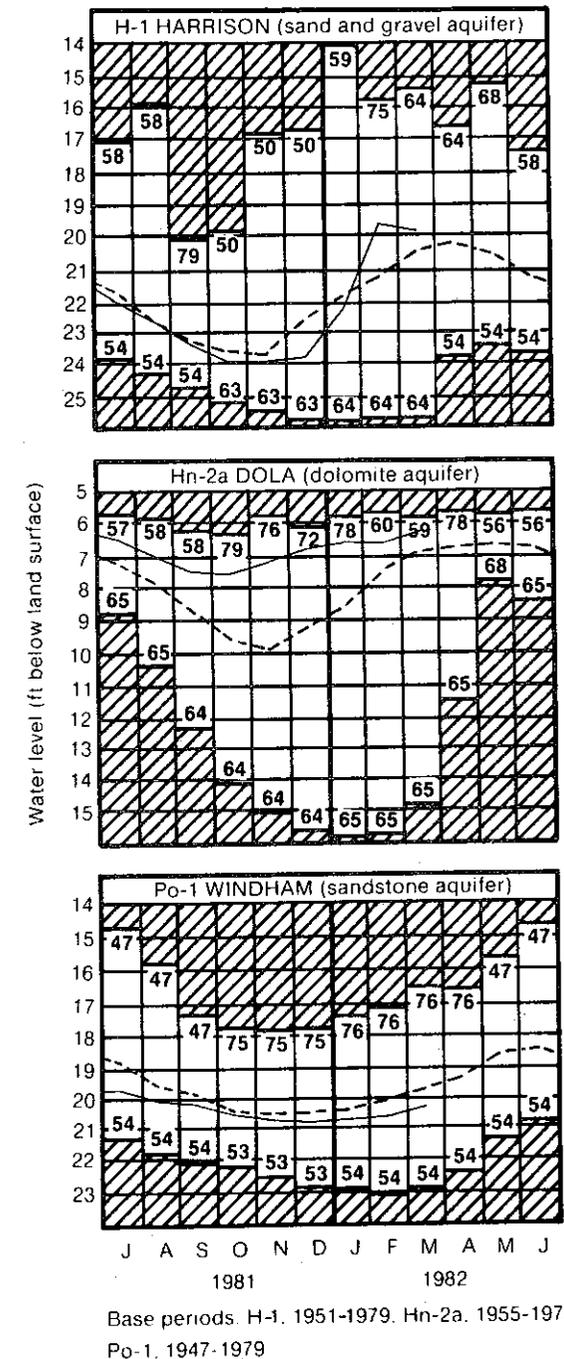
STREAMFLOW for March was excessive in the western and northwestern portions of the state and normal elsewhere. Rain and snowmelt in southern Michigan, northeast Indiana and northwest Ohio on March 11-13 combined to cause major flooding along the Maumee River and its tributaries in northwestern Ohio. The U.S. Geological Survey, Water Resources Division, reports that the Maumee River at Waterville set the following new records for the period of record: monthly mean discharge, 37,930 cfs; daily mean discharge, 113,000 cfs; peak stage, 16.32 feet; peak discharge, 120,000 cfs. Minor flooding was observed in other regions of the state in low lying areas due to a combination of snowmelt and above normal rainfall.



Mean discharge and percent of normal for March at the index gaging stations were as follows: Great Miami River, 11,285 cfs, 185 percent; Little Beaver Creek, 1,036 cfs, 86 percent; Maumee River, 37,930 cfs, 297 percent; Scioto River, 12,540 cfs, 129 percent.

LAKE ERIE mean level rose significantly during the month and was 571.68 feet above IGLD (1955), 0.48 foot above last month's mean level and 1.63 feet above normal. The lake level was 0.42 foot above the level observed for March 1981 and 3.08 feet above Low Water Datum.

GROUND-WATER LEVELS showed about normal rises for March throughout most areas of the state. One exception was in observation well F-1 at West Rushville, Fairfield County, where water levels rose nearly twice that normally observed. Water levels in this well have been near record low levels during the first 5 months of this water year. Another exception was in observation well H-1 near Harrison, Hamilton County, where water levels showed a net decline for the month due to the fact that the water level for February was unusually high. Ground-water levels are generally above those levels observed for March 1981 throughout the state and above normal in the central and western thirds of the state and below normal in the eastern portion. The ground-water supply situation has improved significantly during the last two months and is generally most favorable throughout most areas of the state.



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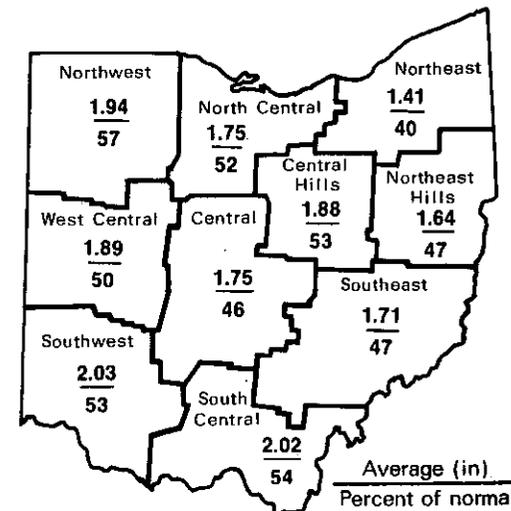
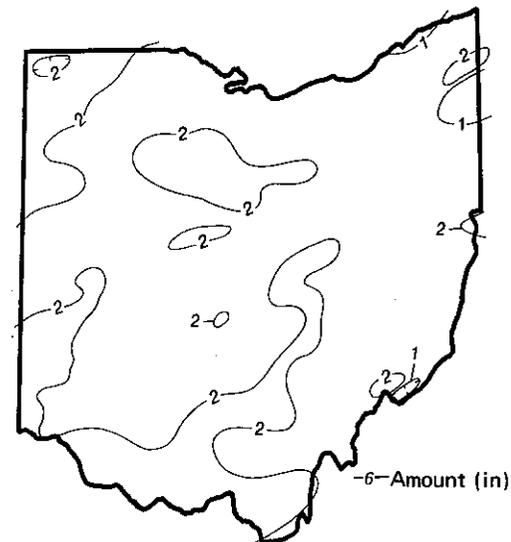
PRECIPITATION

PRECIPITATION for April was below normal throughout the state. The average for the state as a whole was 1.80 inches, 1.82 inches below normal. Regional averages ranged from 2.03 inches, 1.81 inches below normal, for the Southwest region to 1.41 inches, 2.15 inches below normal, for the Northeast region. Waterloo, Lawrence County, reported the greatest amount of precipitation for the month, 2.85 inches, and Marietta Nursery, Washington County, reported the least amount, 0.20 inch. Generally, the greater portion of the state received between 1 and 2 inches of precipitation. Scattered areas received slightly more than 2 inches and two other stations, Painesville and Mosquito Creek, reported less than 1 inch.

April proved to be very dry throughout most of the state; Youngstown reported that the 1.00 inch was the driest April of record for that station. The bulk of the month's precipitation fell during the first 10 days of the month; no appreciable amounts were received after that. The lack of precipitation may have an effect on the water supplies in the ensuing months.

Cumulative precipitation for the first four months of the 1982 calendar year continues to be above normal in the western portion of the state and below normal in the eastern portion. The average for the state as a whole was 12.22 inches, 0.14 inch above normal. Regional averages ranged from 14.95 inches, 1.05 inches above normal, for the Southwest region to 10.54 inches, 0.96 inch below normal, for the Northeast region. Departures from normal ranged from 1.86 inches above normal for the West Central region to 1.44 inches below normal for the South Central region.

Cumulative precipitation for the 1982 water year thus far averaged 19.24 inches, 0.34 inch below normal. Regional averages range from 22.69 inches, 0.82 inch above normal, for the Southwest region to 17.60 inches, 2.07 inches below normal, for the Northeast Hills region. Departures from normal ranged from 2.47 inches above normal for the West Central region to 4.21 inches below normal for the South Central region. It appears that this is the end of the nominal replenishment period for water supplies for this water year.



John H. Cousins, Chief

DIVISION OF WATER

SUMMARY

The water supply situation for April continues to be favorable throughout the state. However, the lack of precipitation during April causes one to remind those in charge of water supplies to be keenly aware of the situation and plan accordingly. Precipitation for April was only 50 percent of normal, therefore the nominal water-supply replenishment period has been shortened by 1 to 2 months. Reservoir storage, streamflow, and ground-water storage were generally normal throughout the state. Lake Erie level rose sharply during the month and is 1.79 feet above normal.

NOTES AND COMMENTS MAJOR WATER USE IN OHIO

Ohio's population of 10.75 million people use over 14 billion gallons of water per day, amounting to 1,302 gallons of water per person per day. There are five major uses of water in Ohio: Public and municipal; industrial; thermal electric power; rural; and other. Note that public or municipal uses include those industries which do not have their own water supply. Principal sources of natural, plentiful and reliable water are Lake Erie, the Ohio River, upground reservoirs, streams and ground-water. The table below presents a breakdown of these water uses and sources. Quantities are shown in millions of gallons per day (mgd) with percent of total in parenthesis.

TYPE	MAJOR WATER USE IN OHIO, 1981					TOTAL (mgd)	SOURCE (mgd) Percent of total (%)
	LAKE ERIE	OHIO RIVER	INLAND SURFACE	UNDER-GROUND	N*		
PUBLIC SUPPLIES	530 (37)	150 (10)	376 (26)	383 (27)		1,439	
MANUFACTURING	113 (6)	357 (19)	1,144 (61)	263 (14)		1,877	
POWER	3,200 (31)	5,639 (55)	1,441 (14)			10,280	
RURAL	17 (10)	8 (5)	34 (20)	110 (65)		169	
OTHER	16 (6)	11 (4)	83 (30)	165 (60)		275	
TOTAL	3,876 (28)	6,165 (44)	3,078 (22)	921 (6)		14,040	

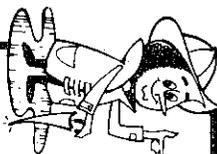
Toney R. Rudnick
Ohio Division of Water

*N-negligible

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. Corps of Engineers, Detroit District.



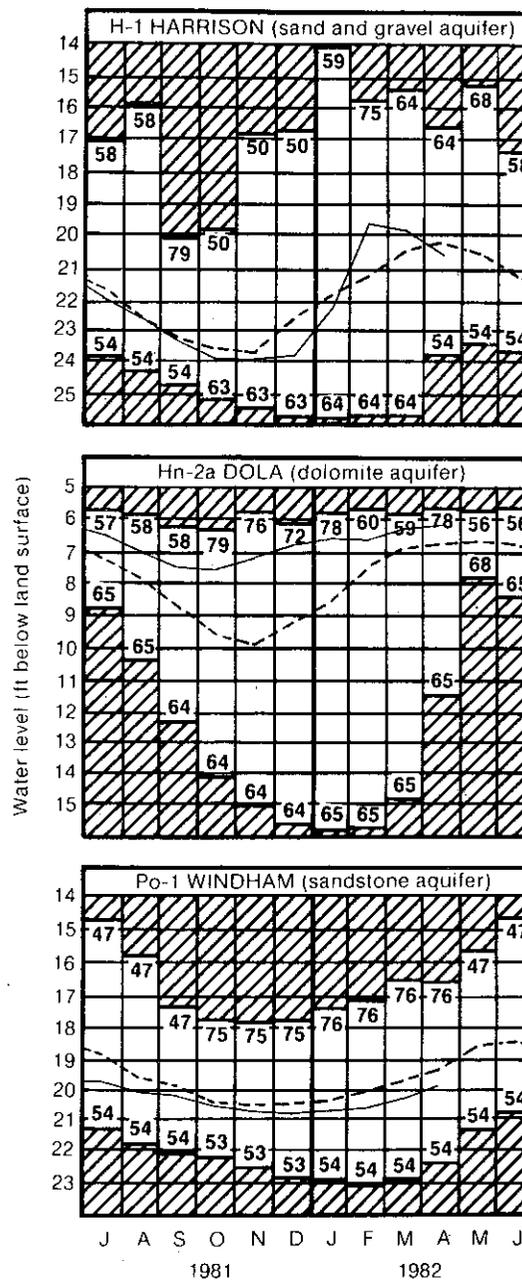
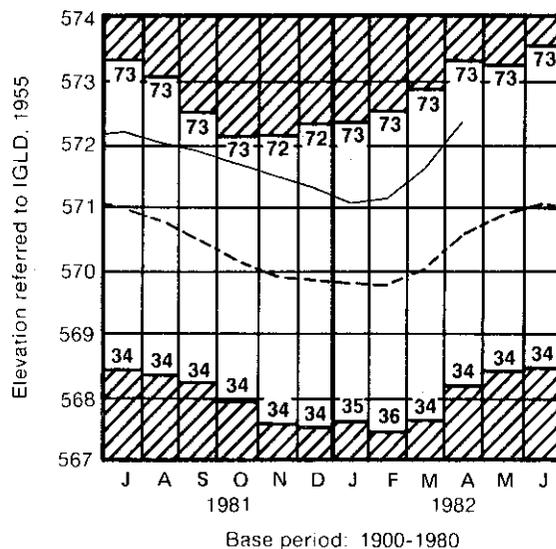
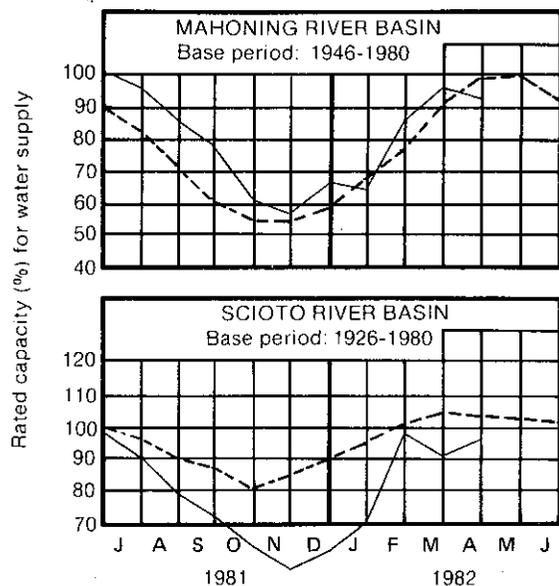
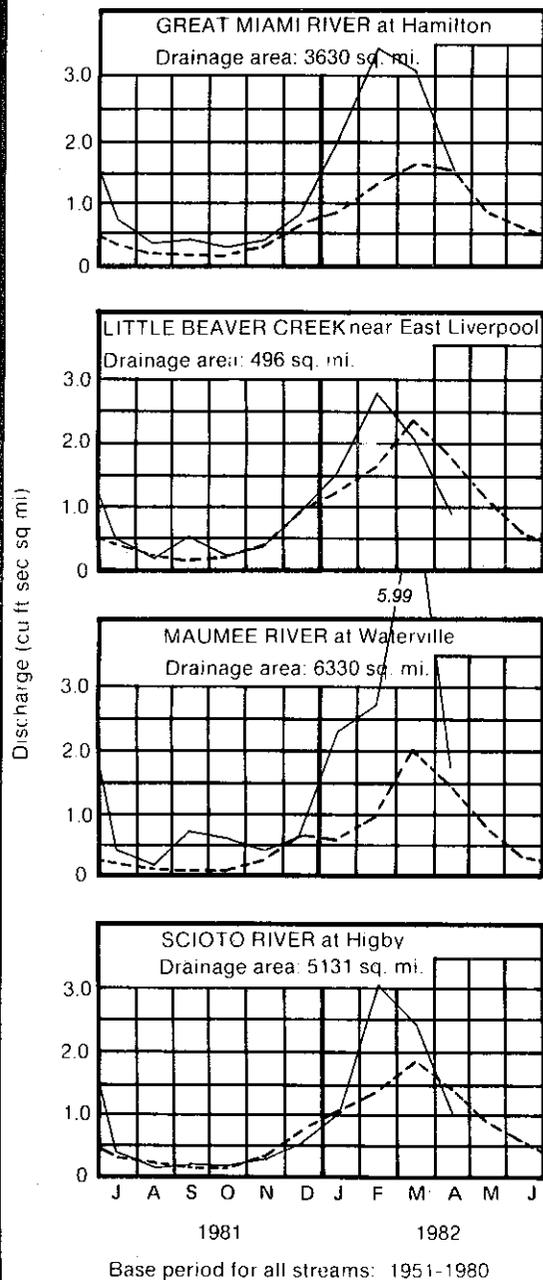
OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

MEAN STREAM DISCHARGE

RESERVOIR STORAGE FOR WATER SUPPLY

LAKE ERIE LEVELS

GROUND-WATER LEVELS



RESERVOIR STORAGE for water supply for April generally declined during the month throughout the state. Storage declined slightly in the Mahoning basin reservoirs and was below normal. Storage in the Scioto basin reservoirs showed a slight rise but remained below normal as it has been since July 1981. Reservoir storage at the month end for the Mahoning basin index reservoirs was 93 percent of rated capacity for water supply compared to 97 percent for last month and 105 percent for April 1981. Reservoir storage at the month end for the Scioto basin index reservoirs was 96 percent of rated capacity for water supply compared to 92 percent for last month and 101 percent for April 1981.

STREAMFLOW for April was normal throughout most of the state; the only exception was in the northeast where it was deficient. However these normal flows were sustained by the excessive flows which were observed during March. Flows at the month end were generally deficient throughout the state. Mean discharge and percent of normal for April at the index gaging stations were as follows: Great Miami River, 5,611 cfs, 100 percent; Little Beaver Creek, 454 cfs, 50 percent; Maumee River, 10,960 cfs, 116 percent; Scioto River, 5,345 cfs, 72 percent. Flow for the Little Beaver Creek near East Liverpool was the lowest April flow since 1969; precipitation in that watershed has been noticeably below normal for the water year thus far.

LAKE ERIE mean level for April rose sharply in response to the excessive precipitation over the drainage basin during the past two months. The mean level for April was 572.40 feet above IGLD (1955), 0.72 foot above last month's mean level and 1.79 feet above normal. The lake level was 0.93 foot above the level observed for April 1981 and 3.80 feet above Low Water Datum; however, it remains 0.9 foot below the record for April of 1973.

GROUND-WATER LEVELS for April showed steady declines in most areas of the state. Water levels in unconsolidated sand and gravel aquifers showed a net decline for the month in response to the below normal precipitation, while water levels in consolidated rock aquifers showed a net rise for the month as a result of delayed recharge from the above normal precipitation in March. Generally, water levels in consolidated rock aquifers are above normal while in unconsolidated sand and gravel aquifers they are below normal.

The lack of precipitation in April has caused water levels to begin their declining trends early this year. Thus the nominal ground-water recharge period has been shortened by one to two months. It is too early to determine what effect this may have on water supplies in the ensuing months; however, it might be well for water users to examine their respective situations and plan accordingly.

normal - - - - - current _____



monthly water inventory report for ohio

Compiled by Leonard J. Harstine

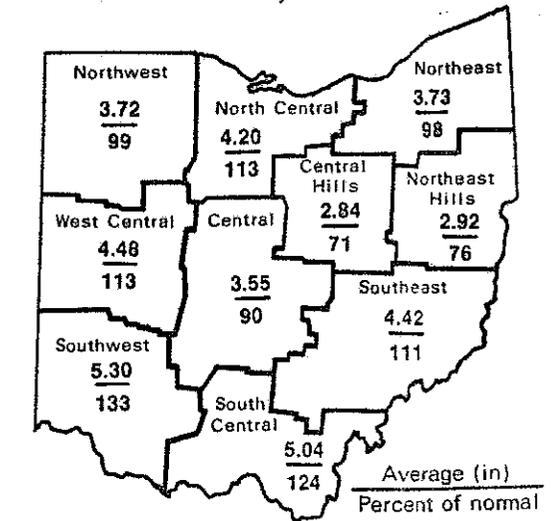
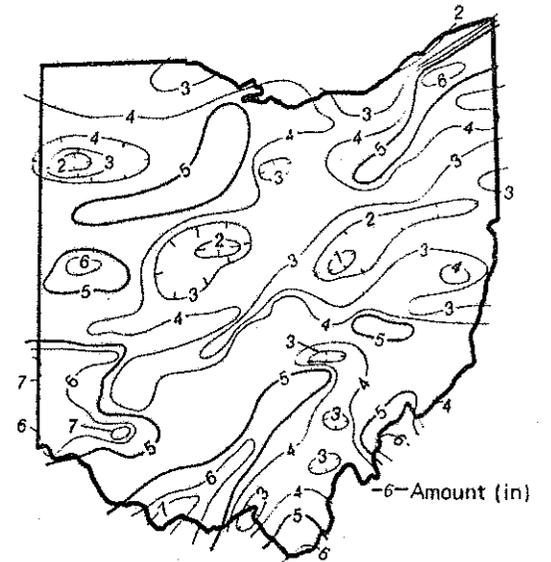
PRECIPITATION

PRECIPITATION for May was generally above normal in the west central and southern portion of the state and below normal in the central and northern portion. The average for the state as a whole was 4.02 inches, 0.11 inch above normal. Regional averages ranged from 5.30 inches, 1.30 inches above normal, for the Southwest region to 2.84 inches, 1.15 inches below normal, for the Central Hills region. Stonelick State Park, Clermont County, reported the greatest amount of precipitation for the month, 7.74 inches, and Mohawk Dam, Coshocton County, reported the least amount, 0.70 inch.

Generally, the first 17 days of the month were very dry; nominal amounts of precipitation were received on the 8th. The last 14 days of the month were essentially wet with scattered thundershowers somewhere in the state on most every day. Heavy, intense storms were observed in the western portion of the state on the 20th, 28th, 29th and 30th. Columbus Weather Bureau Airport station reported an all time record of 0.83 inch of rain in a five minute period between 11:25 and 11:30 am on the 29th. The rains in the latter part of the month were a welcome relief to both water supplies and agriculture.

Cumulative precipitation for the first five months of the 1982 calendar year was above normal in the western and north central portions of the state and below normal in the central, south central and eastern portions. The average for the state as a whole for the calendar year thus far was 16.24 inches, 0.25 inch above normal. Regional averages ranged from 20.25 inches, 2.35 inches above normal, for the Southwest region to 14.27 inches, 1.04 inches below normal, for the Northeast region. Departures from normal ranged from 2.37 inches above normal for the West Central region to 1.43 inches below normal, for the Northeast Hills region.

Cumulative precipitation for the 1982 water year thus far is generally above normal in the western portion of the state and below normal in the eastern portion. The average for the state as a whole was 23.26 inches, 0.23 inch below normal. Regional averages ranged from 27.99 inches, 2.12 inches above normal, for the Southwest region to 20.52 inches, 3.00 inches below normal, for the Northeast Hills region. Departures from normal ranged from 2.98 inches above normal for the West Central region to 3.24 inches below normal for the South Central region.



DIVISION OF WATER

John H. Cousins, Chief

SUMMARY

Although the water supply situation for May remains favorable, the current climatic conditions cause one to be cautious as the summer months approach. Those in charge of our water supplies should be aware of the situation and plan accordingly. Precipitation was above normal for the state as a whole but was generally above normal in the western portion of the state and below normal in the eastern portion. Streamflow, reservoir storage and ground-water storage are generally below normal throughout the state. Lake Erie level declined slightly during the month and remains only 0.95 foot below the all time high for May set in 1973.

NOTES AND COMMENTS

NEW PUBLICATIONS

The Division of Water announces the availability of the following publications.

THE GROUND-WATER RESOURCES of CLARK COUNTY by James J. Schmidt.

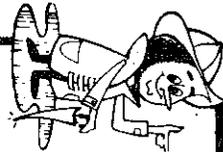
This map is one of a series of county ground-water resources maps being completed for each of Ohio's counties. The maps are designed as a guide to locating new ground-water supplies or as an aid for expanding supplies already established. They will be useful to homeowners, developers, and planners.

In addition, ground-water resources maps are available for the following 33 counties:

ALLEN	GEAUGA	PICKAWAY
ASHLAND	HANCOCK	PORTAGE
ASHTABULA	HARRISON	RICHLAND
CHAMPAIGN	HOLMES	ROSS
COLUMBIANA	KNOX	SANDUSKY
CRAWFORD	LAKE	STARK
CUYAHOGA	LORAIN	SUMMIT
DEFIANCE	MAHONING	TRUMBULL
DELAWARE	MARION	UNION
FAIRFIELD	MEDINA	VAN WERT
FRANKLIN	MORROW	WAYNE

The maps are available for \$2.50 each plus \$0.14 cents tax and \$0.25 cents mailing charge from the Publications Center, Ohio Department of Natural Resources, Fountain Square, Columbus, Ohio 43224. Checks or money orders should be made payable to the ODNR Publications Center.

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



ACKNOWLEDGMENTS

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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:

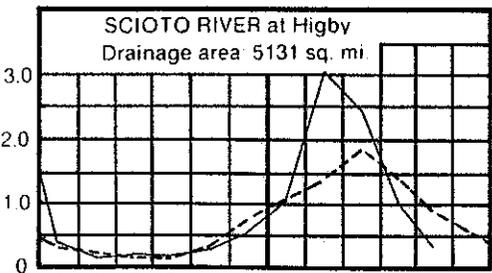
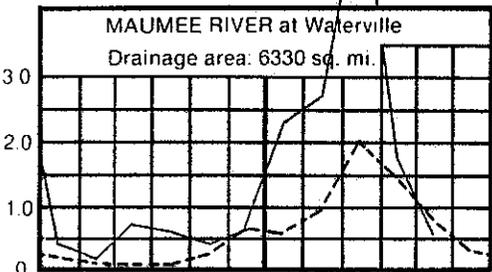
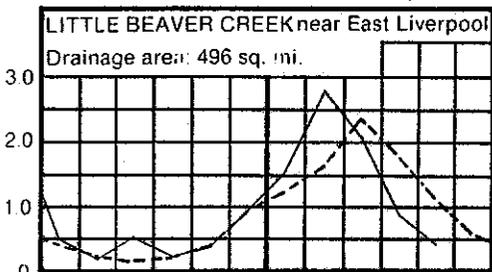
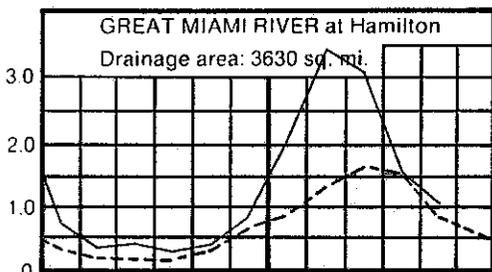
U.S. Geological Survey, Water Resources Division.

Lake Erie level data:

U.S. Corps of Engineers, Detroit District.

CARTOGRAPHY: Douglas E. Keen

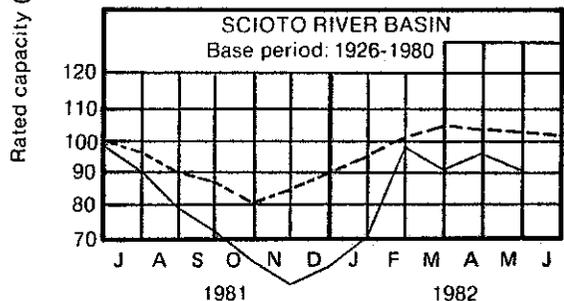
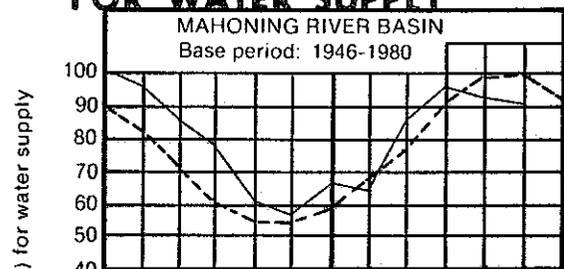
MEAN STREAM DISCHARGE



1981 1982

Base period for all streams: 1951-1980

RESERVOIR STORAGE FOR WATER SUPPLY

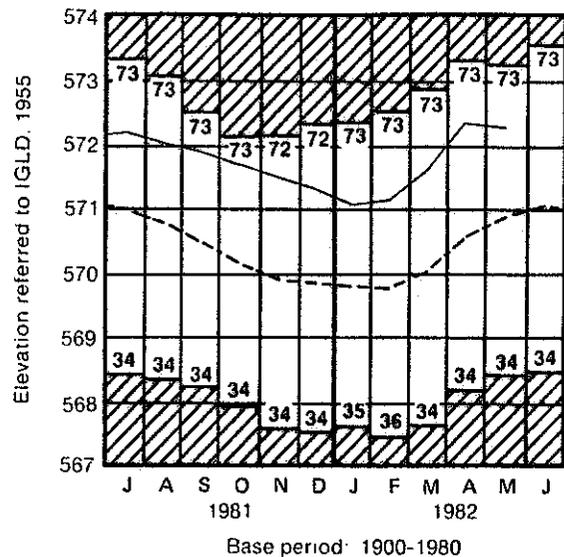


RESERVOIR STORAGE for water supply for May declined slightly and continued to be below normal in both the Mahoning River and the Scioto River basin reservoirs. Reservoir storage at the month end for the Mahoning basin index reservoirs was 91 percent of rated capacity for water supply compared to 93 percent for last month and 102 percent for May 1982. Reservoir storage at the month end for the Scioto basin index reservoirs was 91 percent of rated capacity for water supply compared to 96 percent for last month and 101 percent for May 1982.

STREAMFLOW for May was normal throughout most of the state; the only exceptions were in the northeastern and central areas of the state where it was deficient. However, flows were deficient throughout the state during the first three weeks of the month. The heavy rains during the latter part of the month produced sufficient runoff to offset these deficiencies in most areas. Flow for the Maumee River at Waterville was excessive at the month end.

Mean discharge and percent of normal for May at the index gaging stations were as follows: Great Miami River, 3,891 cfs, 126 percent; Little Beaver Creek, 225 cfs, 39 percent; Maumee River, 3,860 cfs, 72 percent; Scioto River, 2,024 cfs, 43 percent.

LAKE ERIE LEVELS

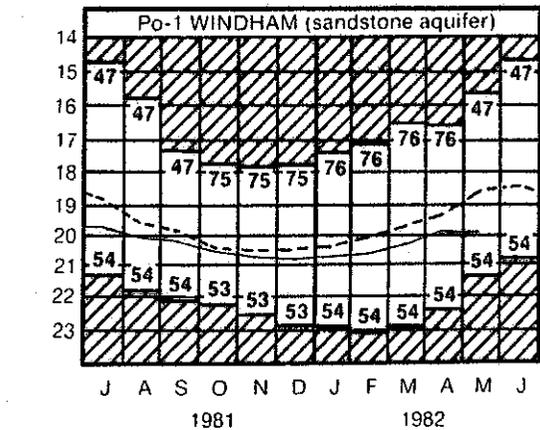
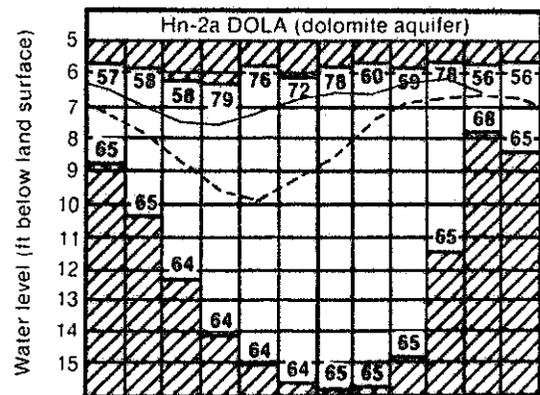
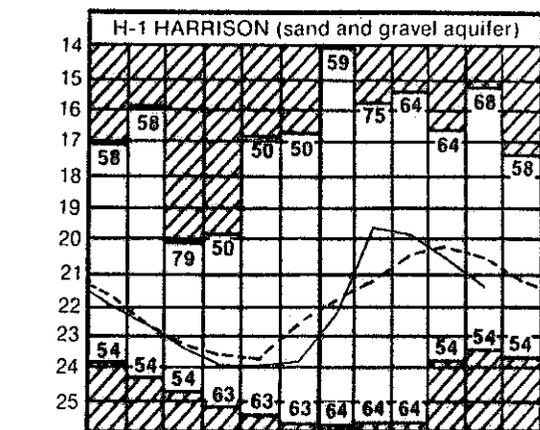


LAKE ERIE level showed a gradual decline throughout the month. The mean level for May was 572.30 feet above IGLD (1955), 0.10 foot below last month's mean level and 1.38 feet above normal. The lake level is 0.36 foot above the level observed for May 1981 and 3.70 feet above Low Water Datum. The lake level continues to be noticeably high but remains 0.95 feet below the record set for May in 1973.

GROUND-WATER LEVELS for May showed unusually greater than normal declines for the month. The net declines from April to May were 3 to 4 times greater than observed for past May's. This certainly reflects the lack of recharge as a result of the deficient precipitation for both April and the first 2 weeks of May. It is not likely that ground-water storage will benefit from the above normal precipitation during the last 2 weeks of May. Ground-water levels were generally 0 to 3 feet below those levels observed for May 1981. In fact, observation well Tu-1 at Strasburg, Tuscarawas County, recorded a record low for May. Ground-water levels for May are noticeably below normal throughout the state; the only exceptions are in consolidated rock aquifers in northwestern Ohio as represented by observation well Hn-2a near Doal, Hardin County, and in observation well Fr-10 at OSU Farms, Franklin County, where water levels have been noticeably above normal for several years.

As reported in April, the ground-water recharge period has been cut short by about two months due to the lack of precipitation in April. Due to the present conditions water users should be fully aware of the current situation and plan accordingly.

GROUND-WATER LEVELS



Base periods: H-1. 1951-1979. Hn-2a. 1955-1979
Po-1. 1947-1979

normal - - - - - current _____



monthly water inventory report for ohio

Compiled by Leonard J. Harstine

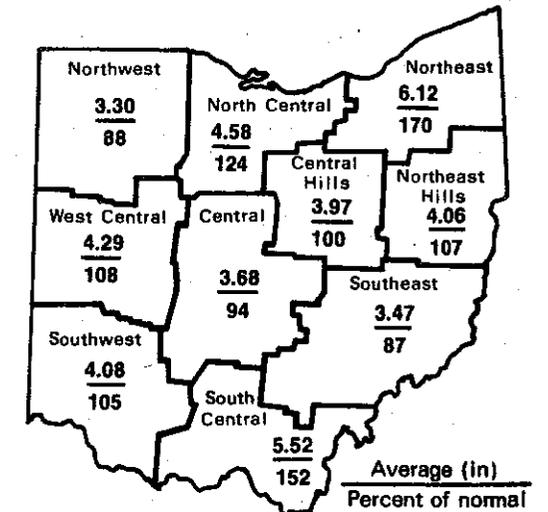
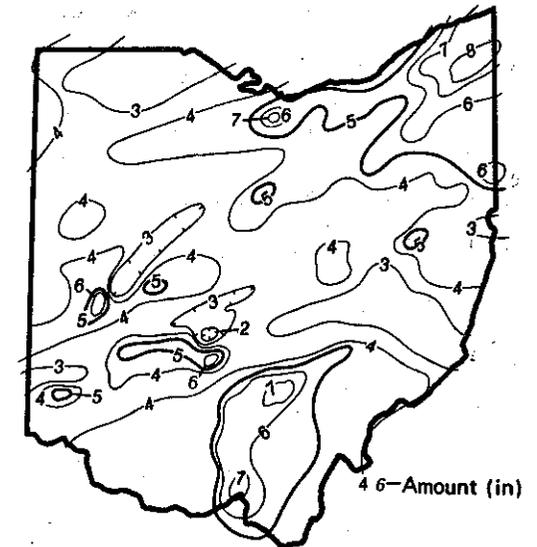
PRECIPITATION

PRECIPITATION for June was above normal for most of the state; exceptions were in the Northwest, Central, Central Hills, and Southeast regions where precipitation was below normal. The average for the state as a whole was 4.31 inches, 0.49 inch above normal. Regional averages ranged from 6.12 inches, 2.52 inches above normal, for the Northeast region to 3.30 inches, 0.43 inch below normal, for the Northwest region. Colebrook, Ashtabula County, reported the greatest amount of precipitation for the month, 8.63 inches, and St. Paris, Champaign County, reported the least amount, 1.58 inches.

There were substantial amounts of precipitation during every week of the month in most areas of the state. Amounts of 1.5 inches or more were received on the 6th and 29th in the northeastern portion of the state and on the 8th or 9th and the 16th in the southern portion. The rains during the month proved to be beneficial for both water supplies and agriculture.

Cumulative precipitation for the first six months of the 1982 calendar year was above normal throughout most of the state; the only exceptions were in the central, eastern, and southeastern portions of the state where it continues to be below normal. The average for the state as a whole was 20.55 inches, 0.74 inch above normal. Regional averages ranged from 24.33 inches, 2.56 inches above normal, for the Southwest region to 18.50 inches, 1.16 inches below normal, for the Northeast Hills region.

Cumulative precipitation for the 1982 water year thus far was above normal in the northern and western portions of the state and below normal for the central and eastern portions. The average for the state as a whole was 27.57 inches, 0.26 inch above normal. Regional averages ranged from 32.07 inches, 2.33 inches above normal, for the Southwest region to 24.58 inches, 2.73 inches below normal, for the Northeast Hills region.



DIVISION OF WATER

John H. Cousins, Chief

SUMMARY

The water supply situation for June is favorable throughout most of the state. Water supplies improved over that of the past two months as a result of the above normal precipitation in June. Reservoir storage, streamflow, and ground-water storage were generally within the normal range throughout the state. Lake Erie level rose slightly in June after showing a slight decline in May.

NOTES AND COMMENTS

NEW PUBLICATIONS

The Division of Water announces the availability of the following publication:

THE GROUND-WATER RESOURCES of MERCER COUNTY by Richard J. Kostelnick.

This map is one of a series of county ground-water maps being completed for each of Ohio's 88 counties. The maps are designed as a guide to locating new ground-water supplies or as an aid for expanding supplies already established. They will be useful to homeowners, developers, and planners. The above map is available for \$2.50 plus \$0.14 cents tax and \$0.25 cents mailing charge from the Publications Center, Ohio Department of Natural Resources, Fountain Square, Columbus, Ohio 43224. Checks or money orders should be made payable to the ODNR Publications Center.

Federal Flood Insurance Rate Increases

The National Flood Insurance Program which insures homes and businesses against floods has increased the price of such insurance by 30 to 50 percent effective June 1, 1982. This is the third increase since January 1981 and is meant to shift more of the insurance costs to the policyholders. The federal government entered the flood insurance business in 1968 and provides low-cost, subsidized flood insurance to property owners who normally cannot obtain such insurance through the private sector. However, because of high flood claims the federal government recently decided to make the Program more actuarially sound.

Flood insurance can be purchased from any licensed property insurance agent or broker in a qualifying community. Property owners are reminded that most forms of federal assistance such as loans or grants on property located in flood-prone areas require the purchase of flood insurance. This requirement also pertains to recipients of federal disaster aid following major flood declarations.

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

ACKNOWLEDGMENTS

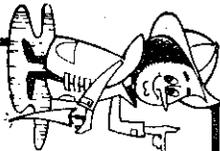
Precipitation data:

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. Corps of Engineers, Detroit District.

CARTOGRAPHY: Douglas E. Keen



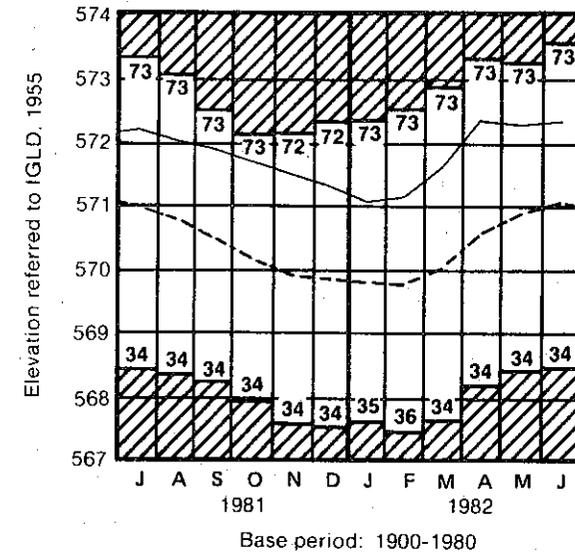
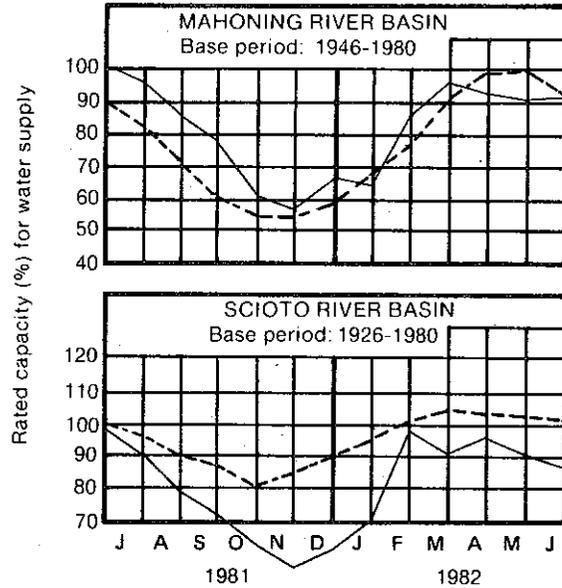
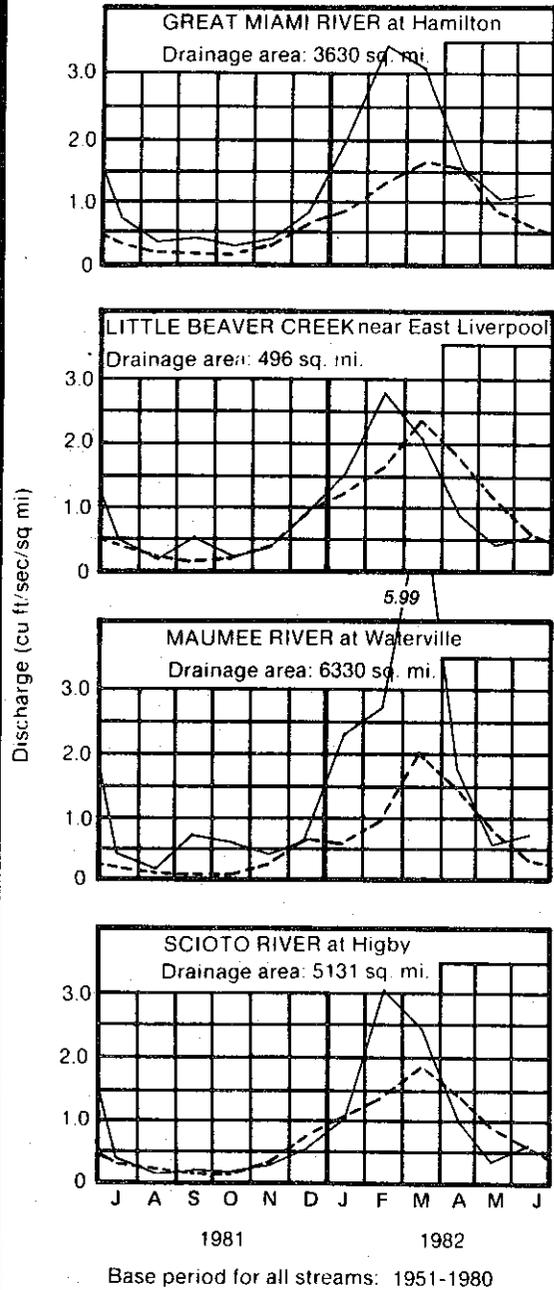
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MEAN STREAM DISCHARGE

RESERVOIR STORAGE FOR WATER SUPPLY

LAKE ERIE LEVELS

GROUND-WATER LEVELS

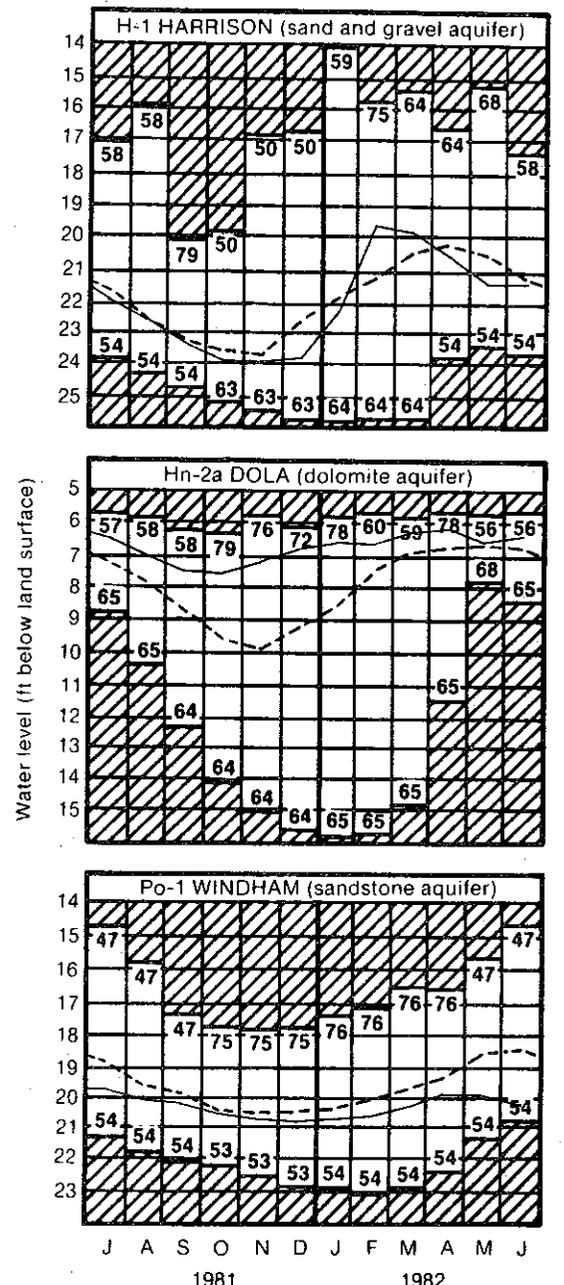


RESERVOIR STORAGE for water supply for June increased slightly in the Mahoning River basin in response to excessive precipitation in the last week of May and during most of June. Storage for June decreased slightly in the Scioto River basin reservoirs. Reservoir storage remained below normal in both the Mahoning River and the Scioto River basin index reservoirs. Reservoir storage at the month end for the Mahoning basin index reservoirs was 92 percent of rated capacity for water supply compared to 91 percent for last month and 96 percent for June 1981. Storage at the month end for the Scioto basin index reservoirs was 87 percent of rated capacity for water supply compared to 91 percent for last month and 90 percent for June 1981.

STREAMFLOW for June was normal throughout most of the state; the only exceptions were in the southwest and the northwest where streamflow was noticeably above normal. Flows were fairly uniform throughout the month in response to ample precipitation in the respective drainage basins during each week of the month. Mean discharge and percent of normal for June at the index gaging stations were as follows: Great Miami River, 4,312 cfs, 198 percent; Little Beaver Creek 265 cfs, 89 percent; Maumee River, 4,564 cfs, 207 percent; Scioto River, 3,401 cfs, 113 percent.

LAKE ERIE level rose slightly for June. The mean level for June was 572.35 feet above IGLD (1955), 0.05 foot above last month's mean level and 1.30 feet above normal. The lake level is 0.18 foot above the level observed for June 1981 and 3.75 feet above Low Water Datum.

GROUND-WATER LEVELS in general declined during the month. The declines were generally less than that usually observed for June. It is apparent that the above normal precipitation for June resulted in some recharge to ground-water storage. Ground-water levels are from 0 to 4 inches below those levels observed for June 1981 and below normal throughout most of the state. Ground-water levels in the northwestern portion of the state are generally above normal and observation well Fr-10 at O.S.U. Farms, Franklin County, continues to show water levels substantially above normal as has been the case for the past three years. Ground-water levels in northeastern Ohio continue to be noticeably below normal as a result of the deficient precipitation in that area for the water year thus far. Observation well Tu-1 at Strasburg, Tuscarawas County, recorded a record-low level for the second consecutive month; precipitation in this area has been substantially below normal during the past three months. The ground-water storage situation in general has improved slightly compared to that observed for the past two months.



normal - - - - - current _____



monthly water inventory report for ohio

Compiled by Leonard J. Harstine

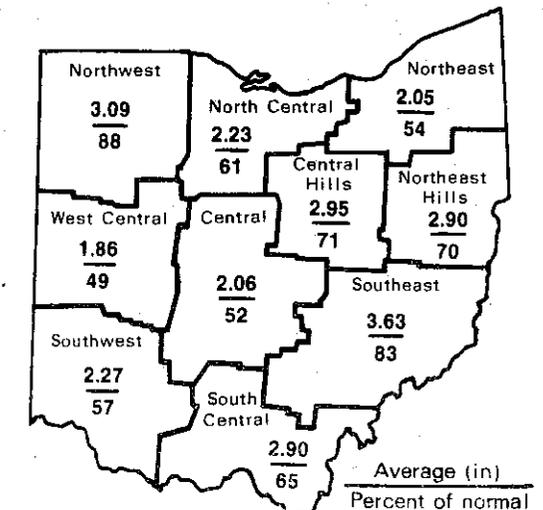
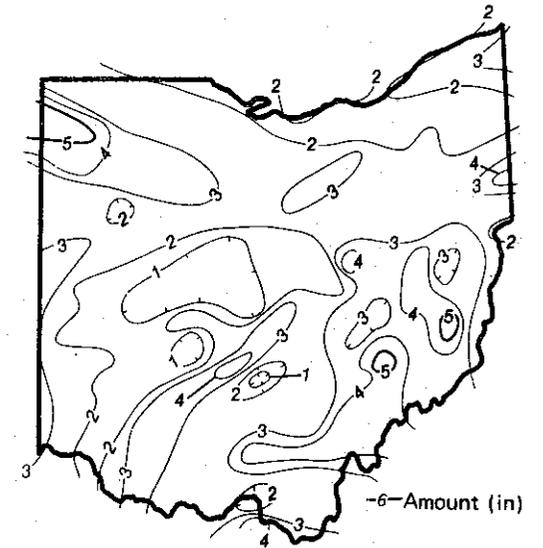
PRECIPITATION

PRECIPITATION for July was below normal throughout the state, exceptions are a few isolated areas in northwestern and eastern portions. The average for the state as a whole was 2.59 inches, 1.39 inches below normal. Regional averages ranged from 3.63 inches, 0.75 inch below normal, for Southeast region, to 1.86 inches, 1.95 inches below normal for the West Central region. Barnesville, Belmont County reported the greatest amount of precipitation for the month, 5.50 inches, and St. Paris, Champaign County reported the least amount, 0.38 inch.

The bulk of the month's precipitation came in the form of widely scattered and isolated showers and thunderstorms. Many areas received little or no rain during the second and third weeks of the month. Agricultural crops were especially stressed by the lack of precipitation and some areas predict a possible harvest reduction of up to 20 percent. The below normal precipitation has made the water-supply situation uncertain, although it still remains favorable at this time.

Cumulative precipitation for the 1982 calendar year thus far is below normal throughout most of the state except in the Northwest, North Central, West Central and Southwest regions where it is slightly above normal. The average for the state as a whole was 23.14 inches, 0.82 inch below normal. Regional averages ranged from 26.60 inches, 0.82 inch above normal, for the Southwest region to 21.40 inches, 2.41 inches below normal, for the Northeast Hills region.

Cumulative precipitation for the 1982 water year is slightly above normal in the northern and western portions of the state and noticeably below normal elsewhere. The average for the state is 30.16 inches, 1.13 inches below normal. Regional averages ranged from 34.34 inches, 0.59 inch above normal, for the Southwest region to 27.48 inches, 3.98 inches below normal, for the Northeast Hills region.



DIVISION OF WATER

John H. Cousins, Chief

SUMMARY

The water-supply situation is favorable but uncertain throughout most of the state. Precipitation was below normal. Lake Erie level, ground-water levels, and reservoir storage declined during the month. Streamflow was generally normal.

NOTES AND COMMENTS NEW PUBLICATION

The Division of Water announces the availability of the following publication:

Principal Streams and their Drainage Areas

The Division of Water has released a new map showing the 44,000 miles of streams and watersheds in Ohio. First compiled more than thirty years ago by Professor C.E. Sherman, the map has been fully updated to show present urbanized areas as well as new reservoirs, relocated streamcourses and watershed boundaries. Also noted are elevations of key locations and the areas of watersheds.

Fisherman and travelers who want local detail should use the stream map in conjunction with USGS topographic maps and ODNR lake maps, both available from the ODNR Publications Center.

The 30" x 30" stream map is available for a \$.25 handling fee and rolled copies suitable for framing are available for a \$1.50 handling fee from the Publications Center, Ohio Department of Natural Resources, Fountain Square, Columbus, Ohio 43224. Checks or money order should be made payable to the ODNR Publications Center.

ACKNOWLEDGMENTS

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Precipitation data:

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Streamflow and reservoir storage data:

U.S. Geological Survey, Water Resources Division,
Lake Erie level data:
U.S. Corps of Engineers, Detroit District.

CARTOGRAPHY: Douglas E. Keen



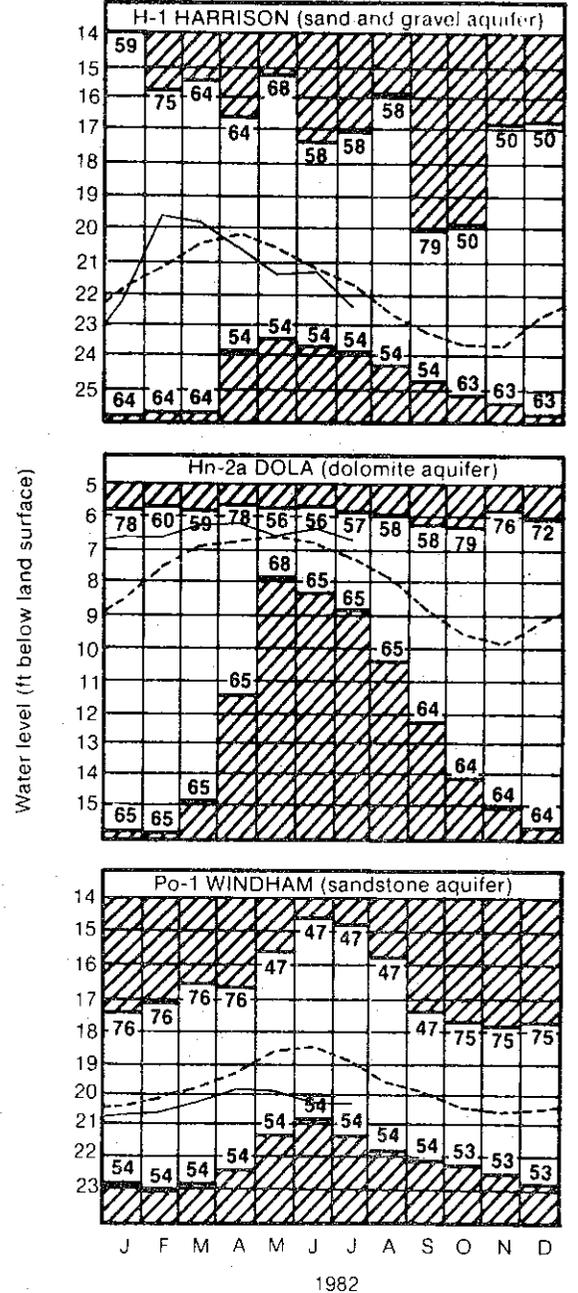
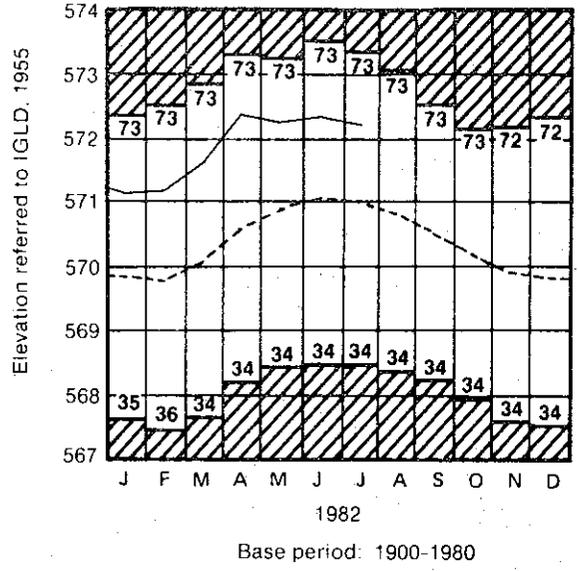
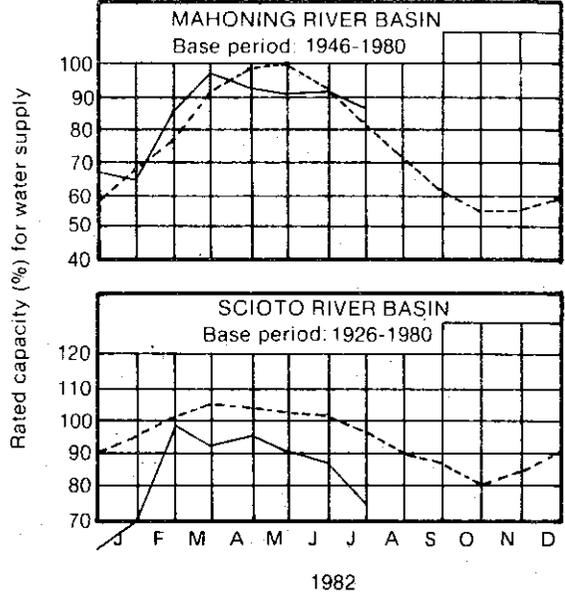
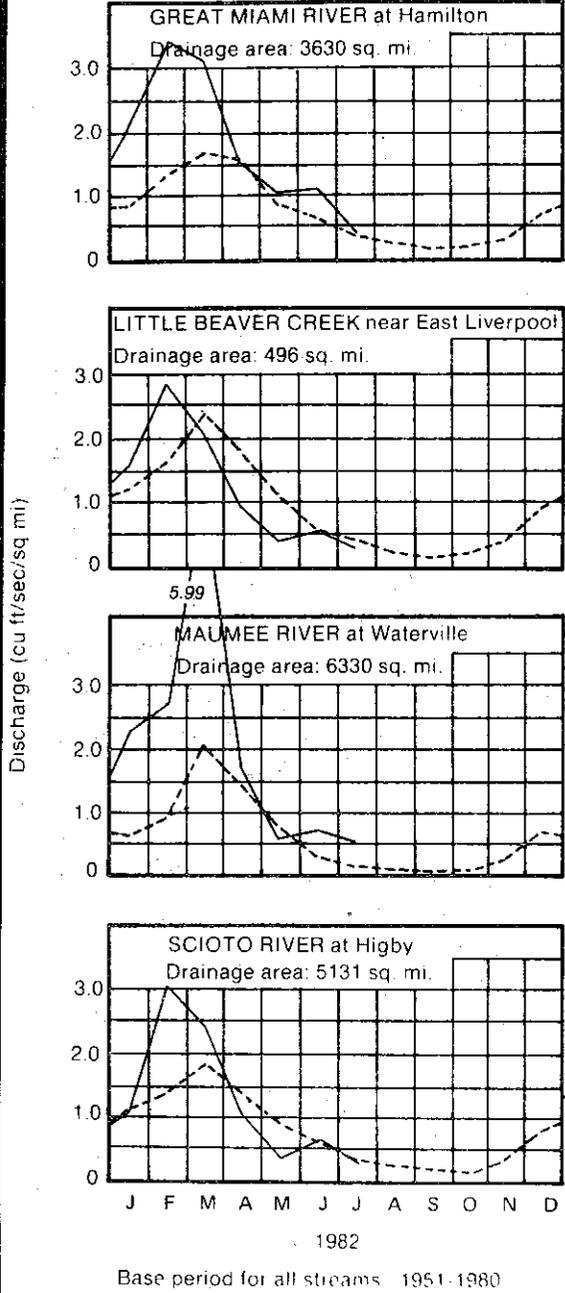
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MEAN STREAM DISCHARGE

RESERVOIR STORAGE FOR WATER SUPPLY

LAKE ERIE LEVELS

GROUND-WATER LEVELS



RESERVOIR STORAGE for water supply for July decreased in both the Mahoning River and Scioto River basin reservoirs. Reservoir storage was above normal in the Mahoning River Basin index reservoirs in response to the excessive June precipitation in the northeast corner of the state. Reservoir storage in the Scioto River basin index reservoirs was noticeably below normal. Reservoir storage at the month end for the Mahoning basin index reservoirs was 87 percent of rated capacity for water supply compared to 92 percent for last month and 96 percent for July 1981. Reservoir storage at the month end for the Scioto basin index reservoirs was 76 percent of rated capacity for water supply compared to 87 percent for last month and 90 percent for July 1981.

LAKE ERIE level declined moderately in July. The mean level for July was 572.21 feet above IGLD (1955), 0.14 foot below last month's mean level and 1.21 feet above normal. The lake level is 0.03 foot below the level observed for July 1981 and 3.61 feet above Low Water Datum.

GROUND-WATER LEVELS declined steadily after the first week of the month in response to the below normal precipitation. Declines were generally less than those usually observed for July except in the southwestern portion of the state where they were greater. Ground-water levels are from 0.22 to 3.00 feet below those levels observed for July 1981. Ground-water levels in the northwestern portion of the state are slightly above normal and observation well Fr-10 at O.S.U. Farms, Franklin County, continues to be noticeably above normal. Ground-water levels elsewhere in the state are below normal. In the eastern and northeastern portions of the state levels are noticeably below normal and observation well Tu-1 at Strasburg, Tuscarawas County, recorded a record-low level for the third consecutive month. Although the ground-water storage situation is not serious at this time, emphasis must be placed on the uncertainty of precipitation and recharge to come. Water users should be aware of their respective situations and plan accordingly.

STREAMFLOW for July was normal throughout most of the state except in the northwest where it was excessive. Generally, flows declined steadily after the first week of the month. Mean discharge and percent of normal for July at the index gaging stations were as follows: Great Miami River, 1,484 cfs, 110 percent, Little Beaver Creek, 147 cfs, 70 percent, Maumee River, 3,545 cfs, 264 percent, Scioto River, 1,644 cfs, 98 percent.

normal - - - - - current



monthly water inventory report for ohio

Compiled by Leonard J. Harstine

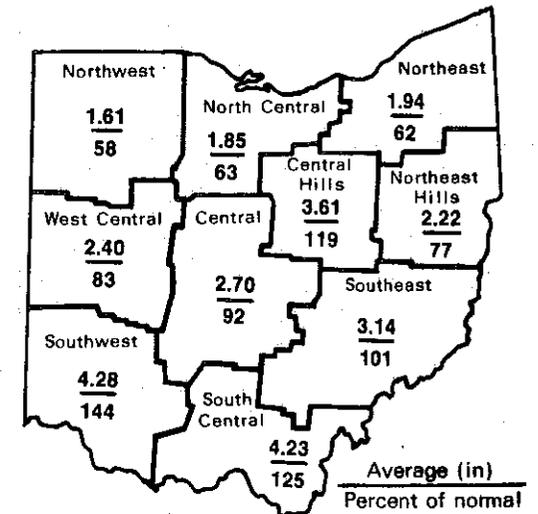
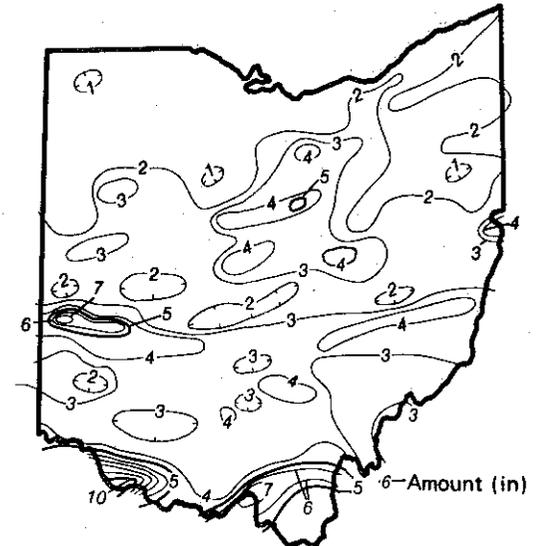
PRECIPITATION

PRECIPITATION for August was generally below normal in the northern portion of the state and above normal in the southern portion. The average for the state as a whole was 2.80 inches, 0.20 inch below normal. Regional averages ranged from 4.28 inches, 1.30 inches above normal, for the Southwest region to 1.61 inches, 1.15 inches below normal, for the Northwest region. Meldahl Dam, Clermont County, reported the greatest amount of precipitation for the month, 10.78 inches of which 5.22 inches fell in one storm on the 5th. Other stations reporting excessive amounts were: Cincinnati Airport, 7.71 inches; West Manchester, 7.35 inches; Portsmouth, 7.53 inches; Dayton Airport, 6.42 inches; and Gallipolis Dam, 6.15 inches. North Georgetown, Columbiana County, reported the least amount for the month, 0.60 inch. Other stations reporting less than 1 inch were Stryker, 0.71 inch and Upper Sandusky, 0.98 inch.

The bulk of the month's precipitation fell during the first ten days and the last ten days of the month in the form of widely scattered thundershowers. The amounts were minimal in most cases and did little to alleviate the droughty conditions which were prevalent in many areas of the state during July and August. The northeastern portion of the state experienced the earliest frost of the decade on the morning of the 31st. Youngstown Airport WSO reported 32 degrees F, a record low temperature for that day for the period of record at that station. Lower temperatures were reported by unofficial observers at other locations. The affect of the droughty conditions on the water supply situation has not reached serious dimensions thus far, however, record-low water levels for the month have been observed in some areas in the eastern portion of the state.

Cumulative precipitation for the first eight months of the 1982 calendar year is generally below normal for most of the state; the only exceptions are in the West Central, Southwest and South Central regions where cumulative precipitation is above normal. The average for the state as a whole is 25.94 inches, 0.85 inch below normal. Regional averages range from 30.88 inches, 2.12 inches above normal, for the Southwest region to 23.45 inches, 0.55 inch below normal, for the Northwest region. The Northeast Hills region shows the greatest deficiency for the calendar year thus far, 3.08 inches below normal.

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DIVISION OF WATER

John H. Cousins, Chief

PRECIPITATION - continued

Cumulative precipitation for the 1982 water year thus far is above normal in the western portion of the state and below normal in the central and eastern portions. The average for the state is 32.96 inches, 1.33 inches below normal. Regional averages range from 38.62 inches, 1.89 inches above normal, for the Southwest region to 29.70 inches, 4.65 inches below normal, for the Northeast Hills region.

SUMMARY

The water supply situation remains fairly stable throughout most of the state despite the below normal precipitation. However, the situation is becoming more serious in the eastern portion of the state where ground-water levels have reached record lows for the month in some areas. Precipitation was below normal for the month. Streamflow, reservoir storage and ground-water storage is generally below normal. Lake Erie level declined but remained about 1 foot above normal.

NOTES AND COMMENTS

MAP OF OHIO STREAMS

Last month the Division of Water announced the availability of a new map of Ohio Streams with a choice of flat or folded copies. We are sorry to report that we have already exhausted our supply of flat maps suitable for mounting. However, there is a plentiful supply of folded maps available. The 30" by 30" stream map is available for a \$.25 cent handling charge from the Publications Center, Ohio Department of Natural Resources, Fountain Square, Columbus, Ohio 43224. Checks or money order should be made payable to the ODNR Publications Center.

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

ACKNOWLEDGMENTS

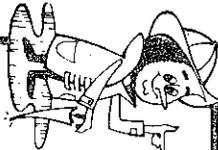
Precipitation data:

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. Corps of Engineers, Detroit District.

CARTOGRAPHY: Douglas E. Keen



OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
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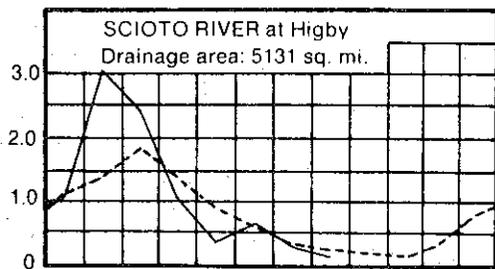
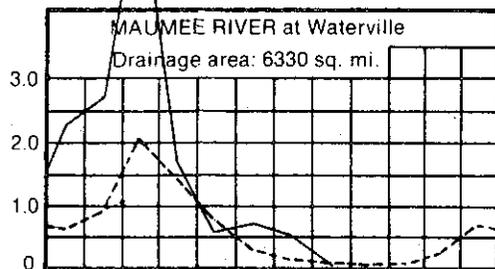
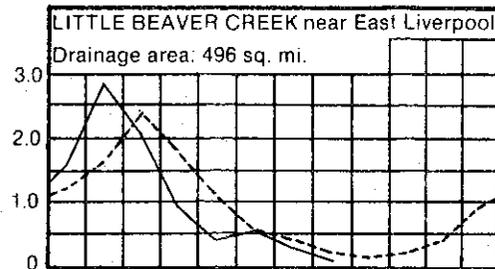
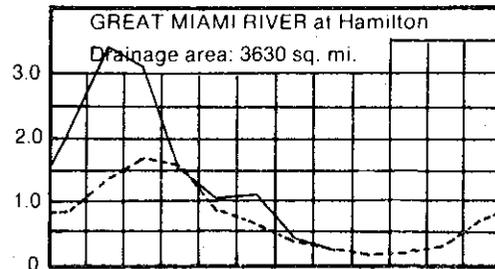
MEAN STREAM DISCHARGE

RESERVOIR STORAGE FOR WATER SUPPLY

LAKE ERIE LEVELS

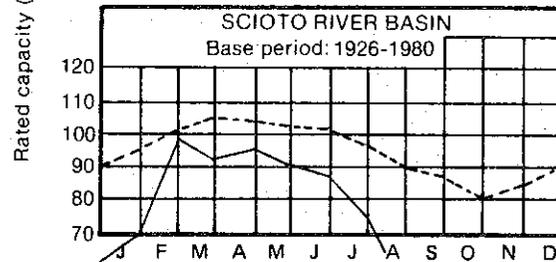
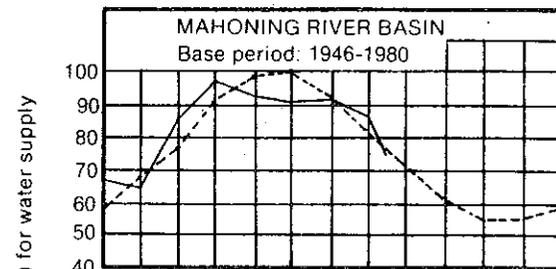
GROUND-WATER LEVELS

Discharge (cu ft/sec/sq mi)



1982

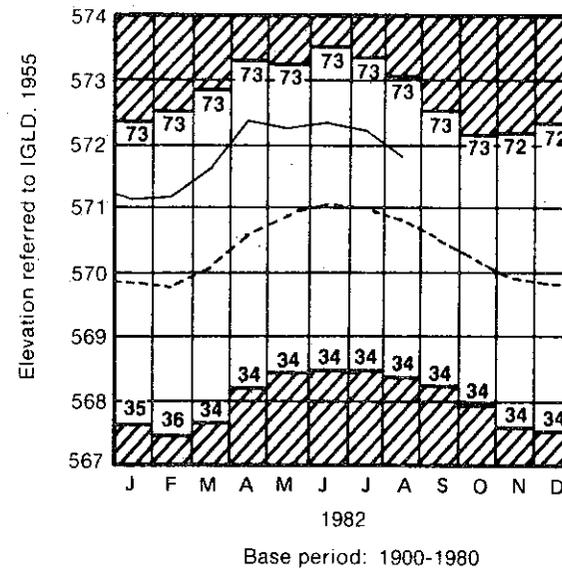
Base period for all streams: 1951-1980



RESERVOIR STORAGE for water supply for August declined in both the Mahoning River and the Scioto River basins in response to the below normal precipitation in both July and August. Declines in the Mahoning basin index reservoirs were about normal and storage remained slightly above normal. Storage in the Scioto basin declined rather sharply and was noticeably below normal. Reservoir storage at the month end for the Mahoning basin index reservoirs was 75 percent of rated capacity for water supply compared to 87 percent for last month and 86 percent for August 1981. Reservoir storage at the month end for the Scioto basin index reservoirs was 85 percent of rated capacity for water supply compared to 76 percent for last month and 79 percent for August 1981.

STREAMFLOW for August was near normal throughout the state despite the below normal precipitation in most areas. However, streamflows are generally at their lowest during July through October and there is a very narrow range between excessive and deficient flows. These low flows are generally sustained by influent flow from ground-water storage during this period. Mean discharge and percent of normal for August at the index gaging stations were as follows: Great Miami River, 1,067 cfs, 140 percent; Little Beaver Creek, 67.3 cfs, 61 percent; Maumee River, 489 cfs, 80 percent; Scioto River, 896 cfs, 73 percent. Cumulative runoff for the water year and departures from normal are as follows: Great Miami River, 16.52 inches, 4.51 inches above normal; Little Beaver Creek, 11.53 inches, 3.41 inches below normal; Maumee River, 18.42 inches, 7.73 inches above normal; Scioto River, 11.30 inches, 0.73 inch below normal.

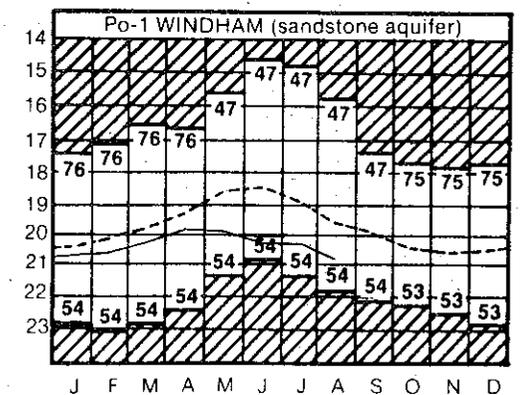
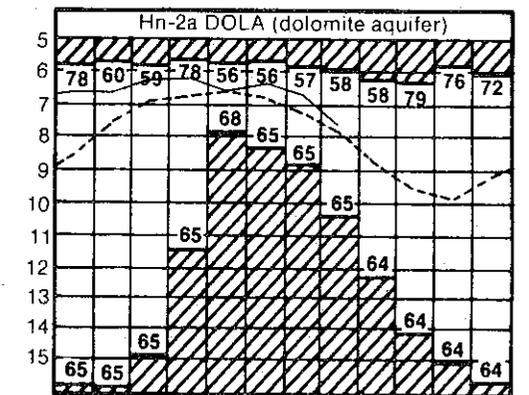
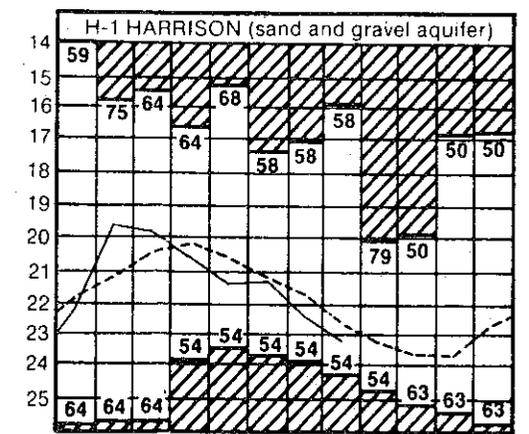
normal - - - - - current _____



LAKE ERIE mean level for August was 571.85 above IGLD (1955), 0.36 foot below last month's mean level and 1.04 feet above normal. The lake level is 0.20 foot below the mean level observed for August 1981 and 3.25 feet above Low Water Datum.

GROUND-WATER LEVELS throughout the state showed noticeable declines during the month in response to the below normal precipitation during the past two months. The declines in most areas were generally much greater than those usually observed for August. Ground-water levels are noticeably below those levels observed for August 1981. Water levels in general are slightly below normal in the western portion of the state and much below normal in the eastern portion. In fact, two of the index wells, F-1 at West Rushville, Fairfield County, and Tu-1 near Strasburg, Tuscarawas County, recorded record-low levels for August for their respective periods of record. Observation well Tu-1 has recorded monthly record-low levels for the fifth consecutive month reflecting the precipitation deficiencies as noted in that area during this period. On the other hand, observation wells Hn-2a near Dola, Hardin County and Fr-10 at OSU Farms, Franklin County, showed water levels above normal for the month.

Although the ground-water supply situation is favorable for most of the state, there are some areas, especially in the eastern portion, where water levels are precariously low. It would be wise for all water users to be aware of their respective situations and plan accordingly.



1982

Base periods: H-1, 1951-1979. Hn-2a, 1955-1979. Po-1, 1947-1979



monthly water inventory report for ohio

Compiled by Leonard J. Harstine

PRECIPITATION

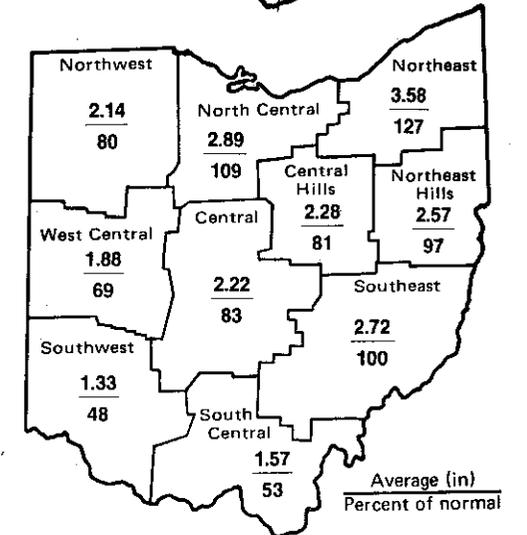
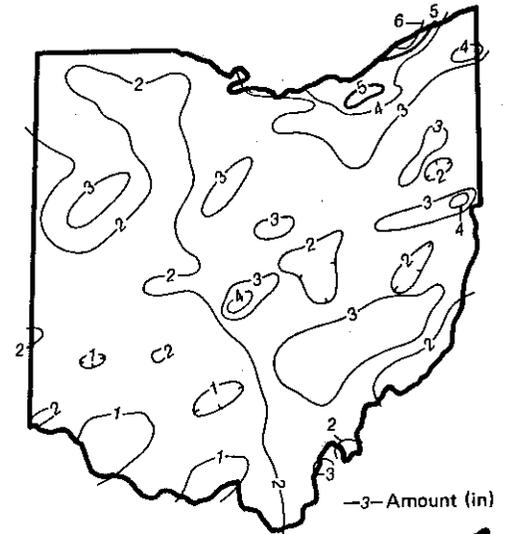
PRECIPITATION for September was below normal for most of the state; the only exceptions were in the North Central and Northeast regions where it was above normal. The average for the state as a whole was 2.32 inches, 0.43 inch below normal. Regional averages ranged from 3.58 inches, 0.76 inch above normal for the Northeast region to 1.33 inches, 1.43 inches below normal, for the Southwest region. Painesville, Lake County, reported the greatest amount of precipitation for the month, 6.01 inches, and Chillicothe, Ross County, reported the least amount, 0.74 inch.

Generally, there were nominal amounts of precipitation during the first two weeks of the month; the only exceptions were in the central and northeastern areas where amounts of 1 inch or more were received on the first day. For most stations, the bulk of the month's precipitation fell during the last two weeks. During the month, between 1 and 3 inches of precipitation fell over most of the state. A large area in the northeast and other isolated areas received from 3 to 6 inches, while a few isolated areas in the southern portion of the state received less than 1 inch.

Cumulative precipitation for the first nine months of the 1982 calendar year was below normal for most of the state; the only exception was in the Southwest region where it was above normal. The average for the state as a whole through September was 28.26 inches, 1.28 inches below normal. Regional averages range from 32.21 inches, 0.69 inch above normal, for the Southwest region to 25.59 inches, 1.07 inches below normal, for the Northwest region. The Central region shows the greatest departure, 3.30 inches below normal.

Precipitation for the 1982 water year which began October 1, 1981 and ended September 30, 1982, was below normal throughout most of the state; the only exceptions were in the Northeast, West Central, and the Southwest regions where precipitation was above normal for the year. The average for the state as a whole was 35.28 inches, 1.76 inches below normal. Regional averages ranged from 39.95 inches, 0.46 inch above normal, for the Southwest region to 32.27 inches, 4.74 inches below normal, for the Northeast Hills region. Andover, Ashtabula County, reported the greatest amount of precipitation for the water year, 56.27 inches, and Middlebourne, Guernsey County, reported the least amount, 28.16 inches. An isohyetal map and regional averages and departures from normal for the 1982 water year appear on the last page of this report.

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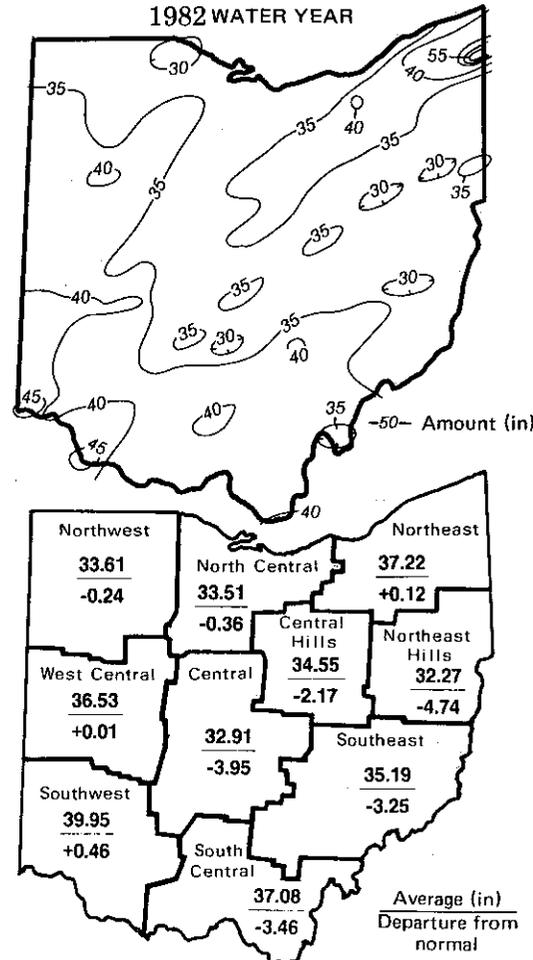
PRECIPITATION—continued

Precipitation was generally above normal during the nominal water supply recharge period and noticeably below normal during the nominal water supply depletion period. Although the precipitation deficiencies have not affected supplies too adversely, they have certainly affected agriculture in many areas of the state.

SUMMARY

The water supply situation was favorable throughout the 1982 water year. Water supplies experienced normal recharge during the nominal recharge period, but recorded marked declines during the nominal water supply depletion period due to noticeable deficiencies in precipitation in the last six months of the water year. However, no serious threat to water supplies was reported this year. Precipitation for September was below normal for the state. Streamflow was normal, reservoir storage was above normal in the northeast and below normal in the central portion of the state, and groundwater storage was generally below normal. Lake Erie level remained noticeably above normal.

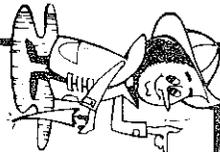
PRECIPITATION 1982 WATER YEAR



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

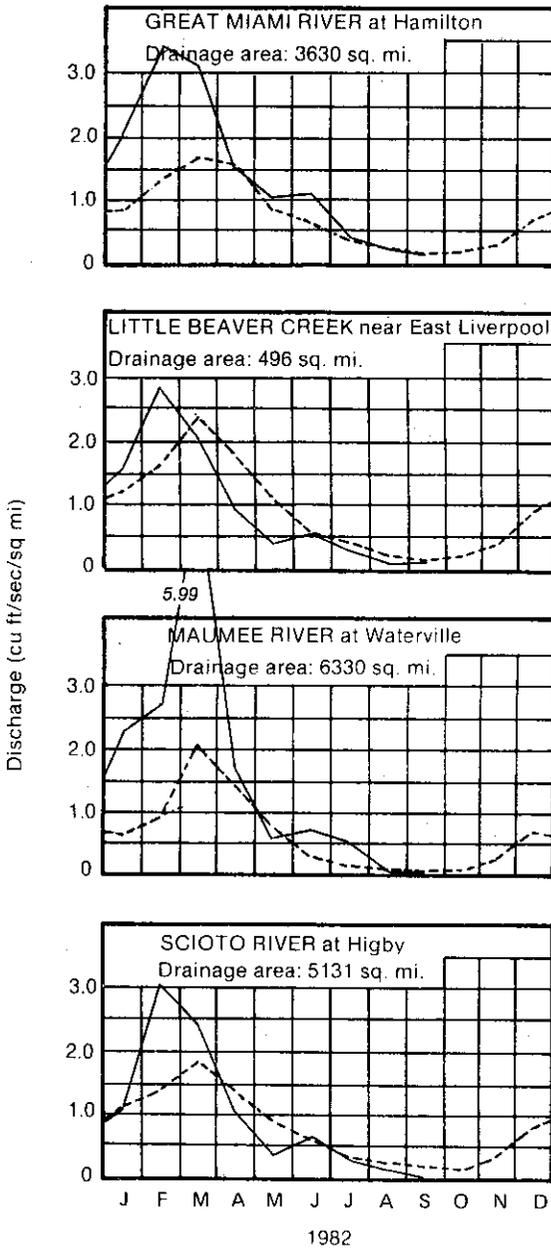
ACKNOWLEDGMENTS

- 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. Corps of Engineers, Detroit District.
 CARTOGRAPHY: Douglas E. Keen

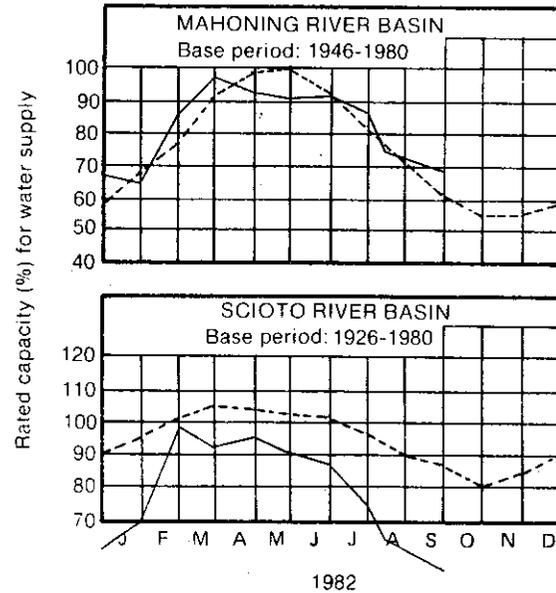


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MEAN STREAM DISCHARGE



RESERVOIR STORAGE FOR WATER SUPPLY



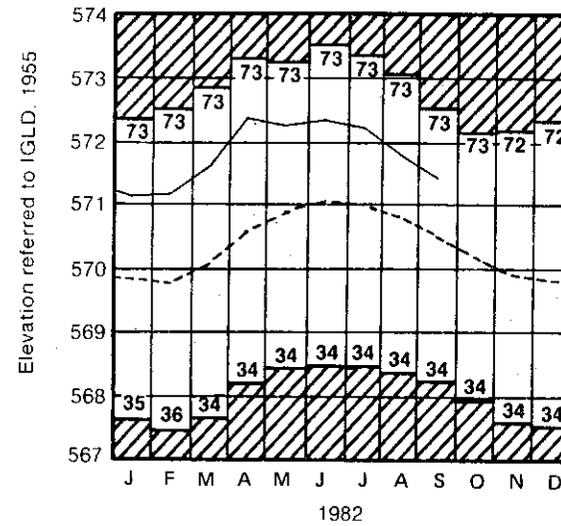
RESERVOIR STORAGE for water supply for September declined in both the Mahoning River and the Scioto River basins. Reservoir storage in the Mahoning River basin continued to be above normal while in the Scioto River basin storage was noticeably below normal. Reservoir storage at the month end for the Mahoning basin index reservoirs was 69 percent of rated capacity for water supply compared to 75 percent for last month and 79 percent for September 1981. Reservoir storage at the month end for the Scioto basin index reservoirs was 56 percent of rated capacity for water supply compared to 65 percent for last month and 73 percent for September 1981. Reservoir storage for water supply during the 1982 water year was generally normal in the Mahoning basin and below normal in the Scioto basin.

STREAMFLOW for September was normal throughout the state. Mean discharge and percent of normal for September for the index gaging stations were as follows: Great Miami River, 663 cfs, 99 percent; Little Beaver Creek, 72.5 cfs, 92 percent; Maumee River, 338 cfs, 87 percent; Scioto River, 801 cfs, 77 percent.

Streamflow for the 1982 water year was generally normal throughout the state; the only exception was in the Maumee basin where it was excessive in six of the 12 months. Generally, streamflow was near normal for the first three months of the year (October-December, 1981); excessive during January, February and March and about normal during the remaining six months (April-September). Rain and snowmelt in the Maumee basin on March 11-13 combined to produce one of the worst floods in that area since 1913. Mean discharge and percent of normal for the water year at the index gaging stations were as follows: Great Miami River,

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LAKE ERIE LEVELS

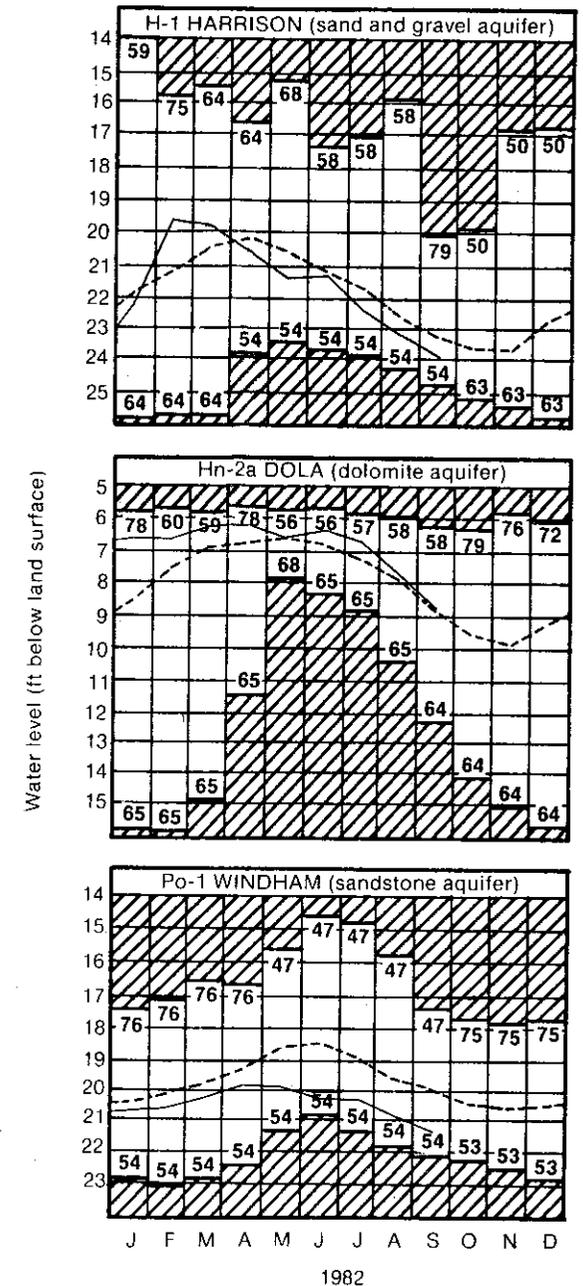


4,474 cfs, 137 percent; Little Beaver Creek, 427 cfs, 77 percent; Maumee River, 8,697 cfs, 170 percent; Scioto River, 4,336 cfs, 94 percent.

LAKE ERIE mean level for September was 571.46 feet above IGLD(1955), 0.39 foot below last month's mean level and 0.94 foot above normal. The lake level was 0.47 foot below the level observed for September 1981 and 2.86 feet above Low Water Datum. The lake level remained noticeably above normal for the 1982 water year as has been the case for the past 10 years.

GROUND-WATER LEVELS for September showed normal declines throughout the state. Water levels are noticeably below those levels observed for September 1981 and are generally below normal throughout the state. The only exceptions are in observation well Fr-10 at OSU Farm, Franklin County and Hn-2a near Dola, Hardin County, where they remain above normal. The water level in observation well Tu-1 near Strasburg, Tuscarawas County, recorded a monthly record-low level for the sixth consecutive month. This appears to be the driest area in the state during the past several months. Ground-water levels for the 1982 water year were generally near normal in the western portion of the state and below normal in the eastern portion. Ground-water levels showed normal recharge during the nominal recharge period but declined rapidly during the last six months of the water year in response to the below normal precipitation. Declines were greater in the eastern portion of the state where the greatest precipitation deficiencies were observed. In fact, record monthly low ground-water levels have been observed in this area during the past several months. Despite the low water levels, there have been no serious problems in so far as ground-water supplies are concerned thus far this year.

GROUND-WATER LEVELS



Base periods: H-1, 1951-1979. Hn-2a, 1955-1979. Po-1, 1947-1979



monthly water inventory report for ohio

Compiled by Leonard J. Harstine

PRECIPITATION

PRECIPITATION for October was noticeably below normal throughout the state. The average for the state as a whole was 0.90 inch, 1.41 inches below normal. Regional averages ranged from 1.24 inches, 0.98 inch below normal, for the West Central region to 0.54 inch, 2.06 inches below normal, for the Northeast Hills region. Fredericktown, Knox County, reported the greatest amount of precipitation for the month, 2.52 inches, and Hopedale, Harrison County reported the least amount, 0.13 inch.

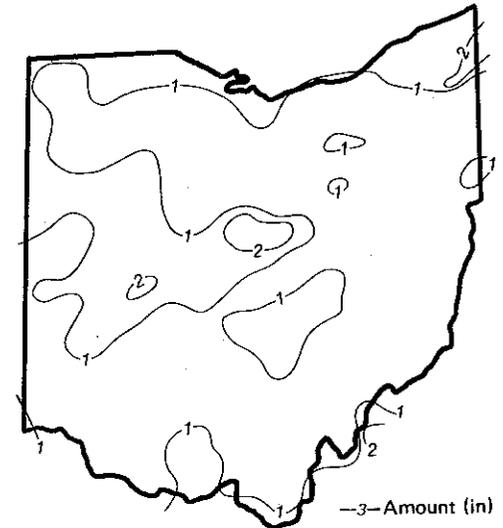
Precipitation was very sparse throughout most of the state during the month. While a few isolated stations received more than 2 inches, about two thirds of the stations reporting received less than 1 inch and about one third received less than 0.5 inch. Even the Southwest region, which has led the state this year with near normal precipitation, reported only 0.79 inch for October. In many areas of the state, precipitation has been below normal for the past seven months. Precipitation for many areas in the central and eastern portion has been less than 70 percent of normal since April. Having occurred during the growing season, the precipitation deficiencies have been noticed most by agricultural interests.

Cumulative precipitation for the 1982 calendar year thus far was below normal throughout the state. The average for the state as a whole was 29.16 inches, 2.69 inches below normal. Regional averages range from 33.00 inches, 0.73 inch below normal, for the Southwest region. Regions showing the greatest precipitation deficiencies for the calendar year thus far are the Northeast Hills region, 5.23 inches below normal and the Central region, 4.34 inches below normal.

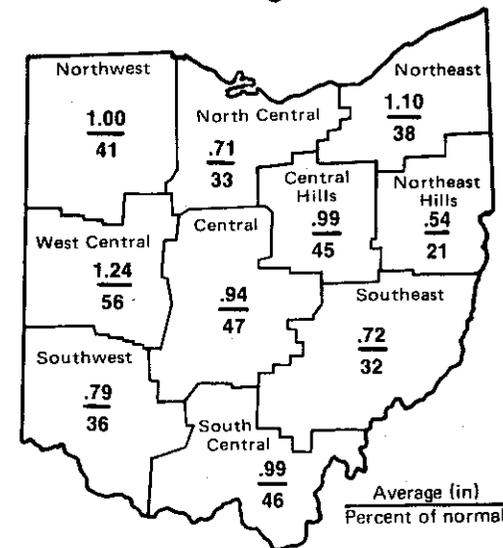
This is the first month of the 1983 water year which began on October 1, 1982 and ends on September 30, 1983. The water year is a common reference period for surface water reports. Precipitation for the first month of the new water year was below normal throughout the state as noted above. This continues the below normal precipitation record of the 1982 water year. The September "Monthly Water Inventory Report for Ohio" included a final report for the 1982 water year which found the average precipitation for the state as a whole at 35.28 inches, 1.76 inches below normal.

The extended precipitation deficiencies are beginning to have an effect on our water supplies which continue to be depleted. October is the beginning of the nominal recharge period for water supplies, but the very sparse precipitation of

continued on back page



-3-Amount (in)



Average (in) Percent of normal

PRECIPITATION—continued

this October does not augur well for much improvement in the near future. Those managing water supplies should be alert to the droughty conditions and plan accordingly.

SUMMARY

The water supply situation is beginning to show some degree of uncertainty throughout the state. Droughty conditions continue to persist in many areas. Precipitation for October was noticeably below normal throughout the state. Reservoir storage, streamflow, and ground-water storage were generally below normal. Lake Erie level declined and was 0.91 foot above normal.

NOTES AND COMMENTS

NEW PUBLICATIONS

The Division of Water announces the availability of the following new publications.

THE GROUND-WATER RESOURCES of LICKING COUNTY by Glen W. Hartzell.

THE GROUND-WATER RESOURCES of SENECA COUNTY by James J. Schmidt.

These maps are two of a series of county ground-water resources maps being completed for each of Ohio's counties. The maps are designed as a guide to locating new ground-water supplies or as an aid for expanding supplies already established. They will be useful to homeowners, developers, and planners.

In addition, ground-water resources maps are available for the following 35 counties.

ALLEN	GEAUGA	PICKAWAY
ASHLAND	HANCOCK	PORTAGE
ASHTABULA	HARRISON	RICHLAND
CHAMPAIGN	HOLMES	ROSS
CLARK	KNOX	SANDUSKY
COLUMBIANA	LAKE	STARK
CRAWFORD	LORAIN	SUMMIT
CUYAHOGA	MAHONING	TRUMBULL
DEFIANCE	MARION	UNION
DELAWARE	MEDINA	VAN WERT
FAIRFIELD	MERCER	WAYNE
FRANKLIN	MORROW	

The maps are available for \$2.50 each plus \$0.14 cents tax and \$0.25 cents mailing charge from the Publications Center, Ohio Department of Natural Resources, Fountain Square, Columbus, Ohio 43224. Checks or money orders should be made payable to the ODNR Publications Center.

ACKNOWLEDGMENTS

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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.

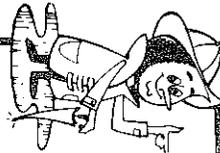
Streamflow and reservoir storage data:

U.S. Geological Survey, Water Resources Division.

Lake Erie level data:

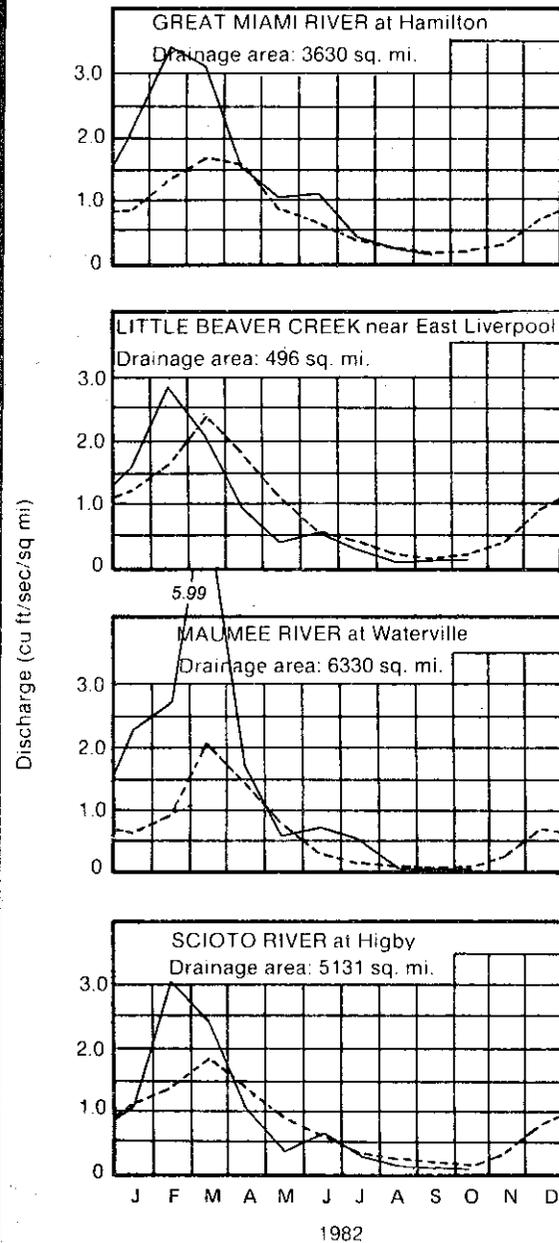
U.S. Corps of Engineers, Detroit District.

CARTOGRAPHY: Douglas E. Keen



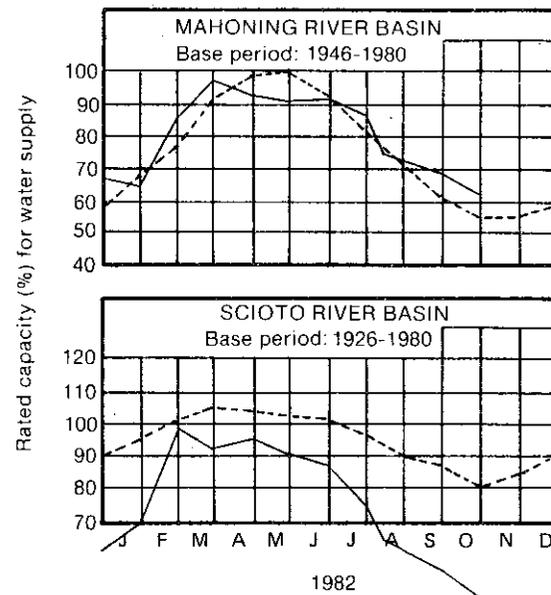
OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

MEAN STREAM DISCHARGE



Base period for all streams: 1951-1980

RESERVOIR STORAGE FOR WATER SUPPLY



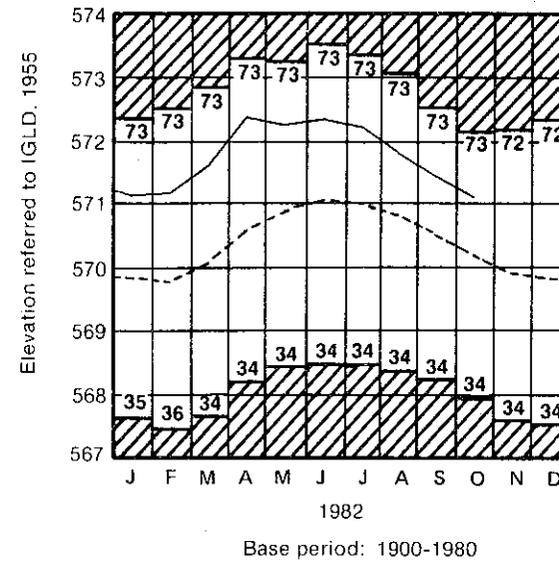
RESERVOIR STORAGE for water supply for October continued to decline in both the Mahoning River and the Scioto River basins. Storage in the Mahoning River basin remained above normal while storage in the Scioto River basin reservoirs was noticeably below normal. Precipitation in the drainage areas of the Scioto River basin index reservoirs has only been about 65 percent of normal since April. In fact, storage in one of the Scioto basin index reservoirs was the lowest observed for October since record began in 1956. Storage at the month end for the Scioto basin index reservoirs was 47 percent of rated capacity for water supply compared to 56 percent for last month and 63 percent for October 1981. Reservoir storage at the month end for the Mahoning basin index reservoirs was 63 percent of rated capacity for water supply compared to 69 percent for last month and 62 percent for October 1981.

STREAMFLOW for October was generally within the normal range throughout the state despite the lack of precipitation. Mean discharge and percent of normal for October at the index gaging stations were as follows: Great Miami River, not available; Little Beaver Creek, 79.3 cfs, 73 percent; Maumee River, 323 cfs, 58 percent; Scioto River, 795 cfs, 104 percent.

LAKE ERIE mean level declined for the month and was the lowest since January 1982. The mean level for October was 571.11 feet above IGLD (1955), 0.35 foot below last month's mean level and 0.91 foot above normal. The lake level is 0.61 foot below the level observed for October 1981 and 2.51 feet above Low Water Datum.

normal - - - - - current _____

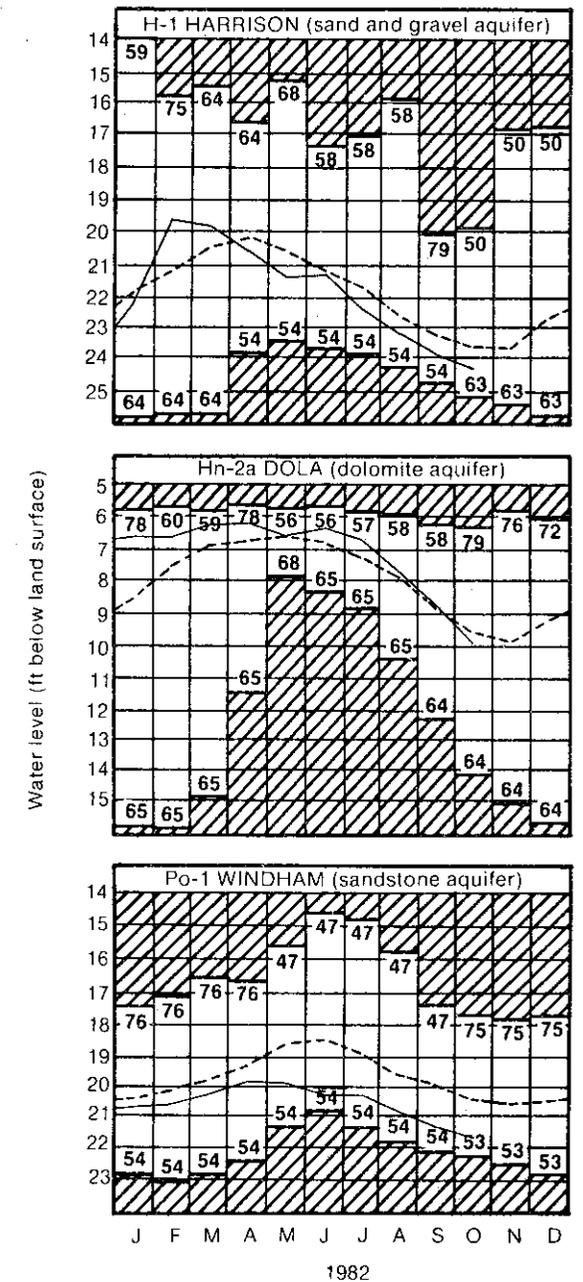
LAKE ERIE LEVELS



GROUND-WATER LEVELS for October showed marked declines throughout the state. Declines in many areas were twice that usually observed. Ground-water levels were lower than those levels observed for last month and noticeably below those levels observed for October 1981. The only exception was in observation well F-1 near West Rushville, Fairfield County, where the water level is slightly above that observed last year. Water levels are generally from 0.5 to 2 feet below normal with the exception of Fr-10 at OSU Farm, Franklin County, where the water level has been noticeably above normal for several years. The water level in observation well Tu-1 near Strasburg, Tuscarawas County, recorded a monthly record-low level for the seventh consecutive month. This well is in an area where precipitation has only been about 64 percent of normal since April. However, these record-low levels in this unconsolidated sand and gravel aquifer present no serious problems to water supplies in this area.

The ground-water supply situation in general remains fairly favorable for most of the state. However, there are areas in the central and eastern portions of the state where precipitation since April has ranged from 65 to 70 percent of normal that are experiencing some problems. This is particularly true in springs or perched water tables and in wells which represent marginal water supplies to begin with. The situation could become more serious in other areas of the state if the droughty conditions which we have been experiencing should continue.

GROUND-WATER LEVELS





monthly water inventory report for ohio

Compiled by Leonard J. Harstine

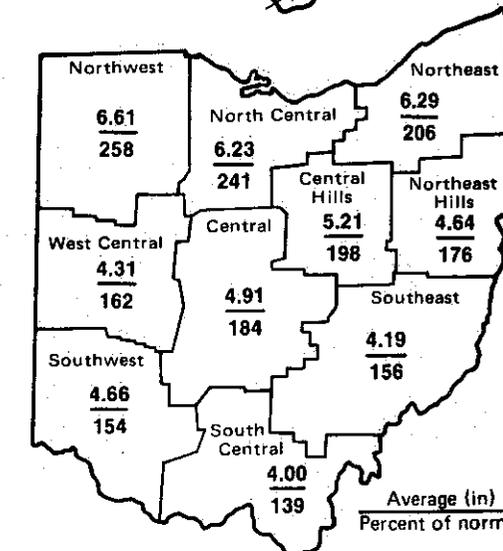
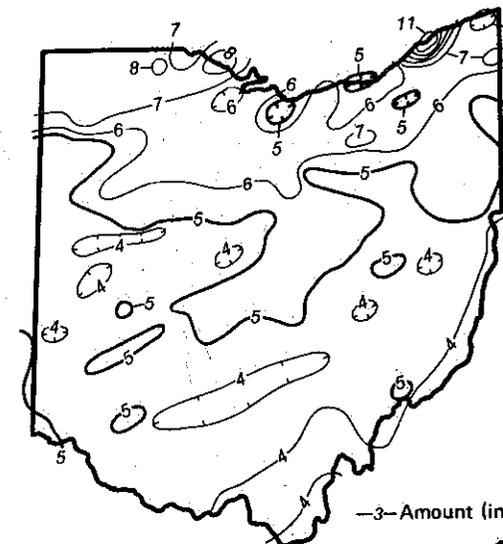
PRECIPITATION

PRECIPITATION for November was noticeably above normal throughout the state. The average for the state as a whole was 5.11 inches, 2.37 inches above normal. Regional averages ranged from 6.61 inches, 4.05 inches above normal, for the Northwest region to 4.00 inches, 1.13 inches above normal, for the South Central region. Painesville, Lake County, reported the greatest amount of precipitation for the month, 11.69 inches, and Laurelville, Hocking County, reported the least amount, 3.18 inches. Toledo Express Airport reports that the 6.86 inches for that station set a new record for November.

Generally, there were substantial amounts of rain during every week of the month. Isolated storms of more than 3.5 inches were observed in both the northwest and the northeast portions of the state during the first two weeks of the month. The northern portion of the state received in excess of 6 inches for the month while the central and southern portions received between 3.5 and 5 inches. It is very unusual for Ohio to receive this amount of rainfall in November. However, it was generally in the form of light rains of moderate duration which allowed for percolation into the soil moisture zone and to ground-water storage. This helped considerably to relieve the droughty conditions which had persisted throughout the state during the past six months.

Cumulative precipitation for the 1982 calendar year thus far was generally above normal in the northern portion of the state and below normal in the central and southern portions. The average for the state as a whole was 34.27 inches, 0.32 inch below normal. Regional averages ranged from 37.66 inches, 0.90 inch above normal, for the Southwest region to 31.37 inches, 3.22 inches below normal, for the Northeast Hills region. Cumulative precipitation in the Northwest and North Central regions is 1.53 and 2.00 inches above normal respectively.

Cumulative precipitation for the first two months of the 1983 water year was noticeably above normal throughout most of the state; the only exceptions were in the South Central and Southeast regions where it was just normal. The average for the state as a whole was 6.01 inches, 0.96 inch above normal. Regional averages range from 7.61 inches, 2.60 inches above normal, for the Northwest region to 4.91 inches, 0.01 inch below normal, for the Southeast region.



SUMMARY

The water supply situation improved slightly during November. Precipitation for the month was noticeably above normal throughout the state. Streamflow was generally above normal while reservoir storage increased slightly but remained noticeably below normal in the Scioto basin Index reservoirs. Ground-water storage declined slightly and remained below normal in most areas of the state. Lake Erie level declined slightly and was the lowest level observed since February 1981.

NOTES AND COMMENTS

A NOTE OF CAUTION

November's abundant rainfall was badly needed after so dry an October; however, one good month does not desolve a drought, nor the conditions which have developed because of it. Reservoirs are still low, wells are still going dry, and water remains in short supply in some areas. One should continue to monitor his water supplies closely so as to know the situation well. How much recharge did you receive this month, and how far does this go toward replenishing your original supply? If the coming month is a dry one, will your water supply situation be worse? Conservation of available water supplies should be the policy of water managers throughout Ohio.

ACKNOWLEDGMENTS

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

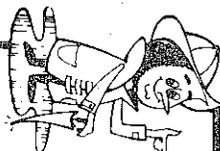
Precipitation data:

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:

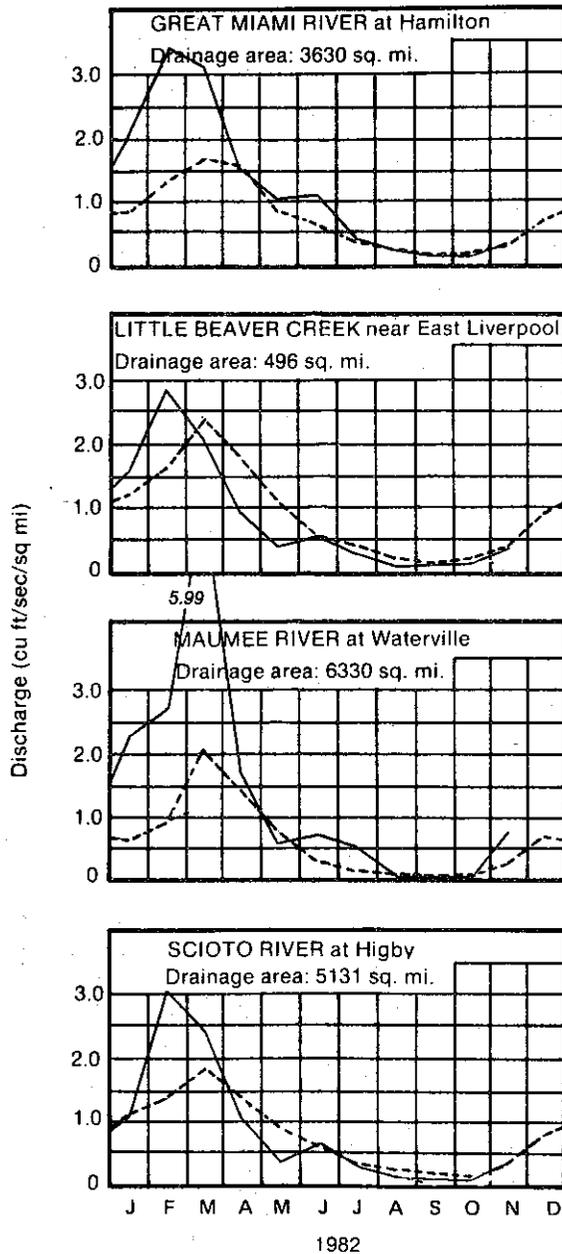
U.S. Geological Survey, Water Resources Division,
Lake Erie level data:
U.S. Corps of Engineers, Detroit District

CARTOGRAPHY: Douglas E. Keen

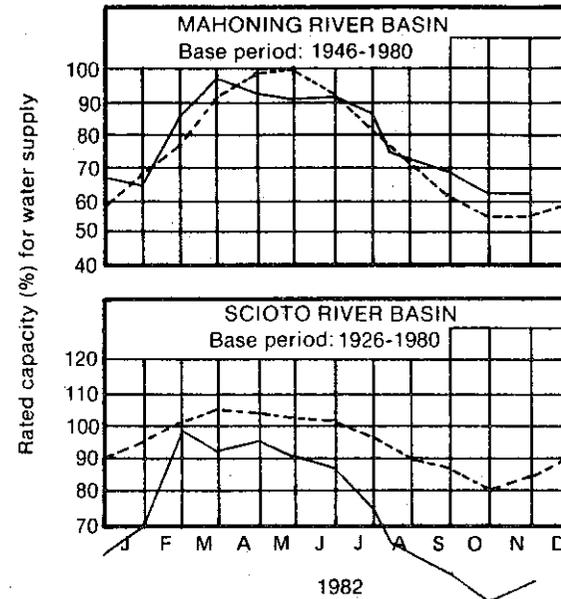


OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER
FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

MEAN STREAM DISCHARGE



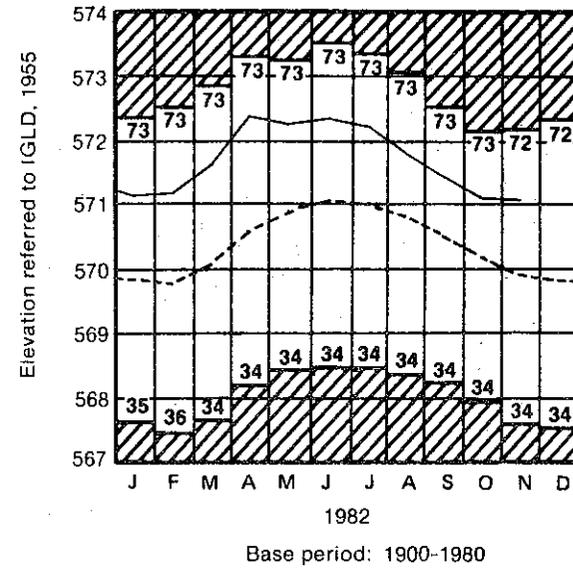
RESERVOIR STORAGE FOR WATER SUPPLY



RESERVOIR STORAGE for water supply for November showed a slight increase at the month end in both the Mahoning River and the Scioto River basins. Storage in the Mahoning River basin remained above normal while storage in the Scioto River basin remained noticeably below normal. The above normal precipitation in the reservoir storage situation throughout the state. Reservoir storage at the month end for the Mahoning basin index reservoirs was 63 percent of rated capacity for water supply compared to the same for last month and 58 percent for November 1981. Storage at the month end for the Scioto basin index reservoirs was 52 percent of rated capacity for water supply compared to 47 percent for last month and 56 percent for November 1981.

STREAMFLOW for November was normal throughout most of the state; the only exception was in the Maumee River basin where it was excessive. Mean discharge and percent of normal for November at the index gaging stations were as follows: Great Miami River, 1,339 cfs, 122 percent; Little Beaver Creek, 182 cfs, 90 percent; Maumee River, 4,744 cfs, 294 percent; Scioto River, 1,860 cfs, 115 percent. Missing data: Mean discharge for the Great Miami River for October was 658 cfs, 97 percent of normal.

LAKE ERIE LEVELS

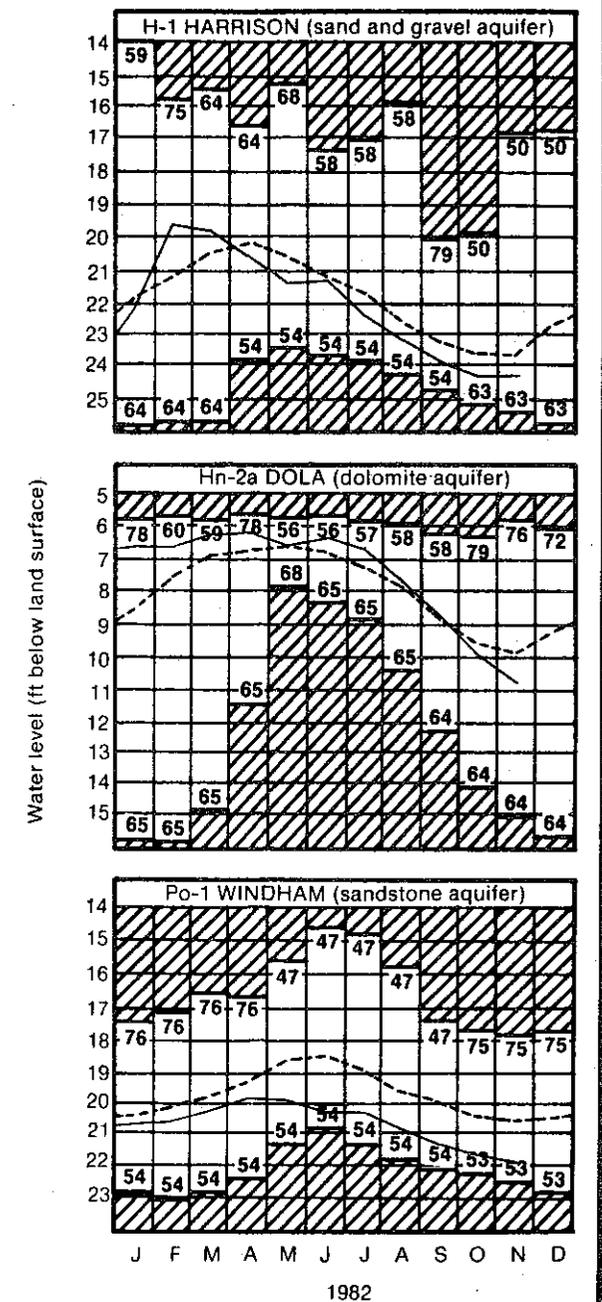


LAKE ERIE mean level declined slightly for the month and was the lowest since February 1981. The mean level for November was 571.08 feet above IGLD (1955), 0.03 foot below last month's mean level and 1.16 feet above normal. The lake level is 0.47 foot below the level observed for November 1981 and 2.48 feet above Low Water Datum.

GROUND-WATER LEVELS for November were generally stable during the first three weeks and rose slightly during the last week in response to recharge from the above normal precipitation. The only exception was in consolidated rock aquifers where water levels continued to decline slightly due to delayed recharge. Water levels were generally below those levels observed for last month and noticeably below those levels observed for November 1981. Water levels continue to be noticeably below normal throughout the state; the only exception is in observation well Fr-10 at OSU Farms, Franklin County, where it continues to be noticeably above normal.

The ground-water storage situation remains satisfactory throughout the state. Recharge from the above normal precipitation helped to relieve the stress on our water supplies in some areas where drought conditions have persisted during the past six months.

GROUND-WATER LEVELS





monthly water inventory report for ohio

Compiled by Leonard J. Harstine

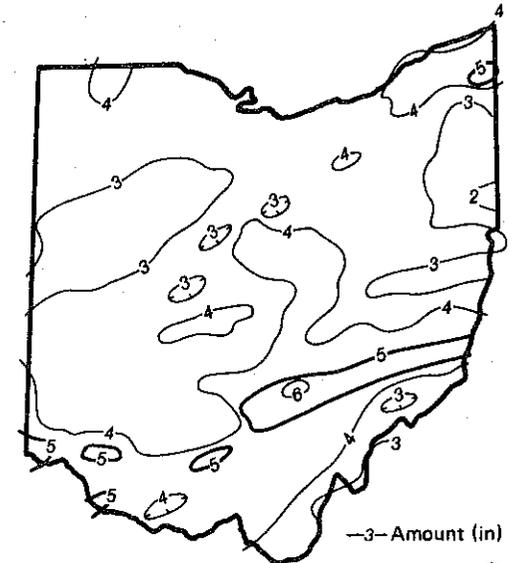
PRECIPITATION

PRECIPITATION for December was noticeably above normal throughout the state. The average for the state as a whole was 3.64 inches, 1.19 inches above normal. Regional averages ranged from 4.21 inches, 1.64 inches above normal, for the Southeast region to 2.89 inches, 0.47 inch above normal, for the Northeast Hills region. Enterprise, Hocking County, reported the greatest amount of precipitation for the month, 6.52 inches, and Rogers, Columbiana County, reported the least amount, 1.72 inches.

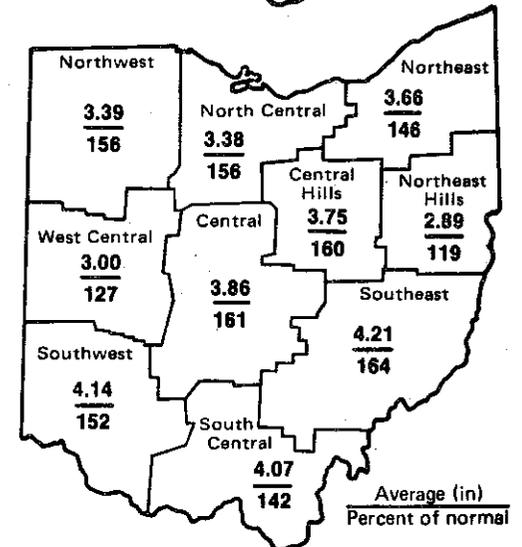
Generally, about two-thirds of the state received between 2 and 3 inches of precipitation for the month; the remaining one-third, including a band across the southern portion of the state and an area in the northeast, received between 4 and 6.52 inches. There were moderate amounts of precipitation during every week of the month. Most of the month's precipitation came in the form of light rain. December 1982 was the mildest December observed in this century and the second mildest on record; many stations throughout the state equaled or exceeded past record high temperatures on several days during the month including Christmas Day. However, Chardon, Geauga County, which is considered the center of the snowbelt in Ohio, reported 17.5 inches of snow for the month which is near normal. The water supply situation at the month end was much improved as a result of the above normal precipitation during the past two months.

Precipitation for the 1982 calendar year was above normal throughout most of the state; the only exceptions were in the Central, Northeast Hills, and the Southeast regions where it was below normal. The average for the state as a whole was 37.91 inches, 0.87 inch above normal. Regional averages ranged from 41.80 inches, 2.31 inches above normal, for the Southwest region to 34.26 inches, 2.75 inches below normal, for the Northeast Hills region. Andover, Ashtabula County reported the greatest amount of precipitation for the year, 52.77 inches, and North Georgetown, Columbiana County, reported the least amount, 30.97 inches. An isohyetal map and regional averages and departures from normal for the 1982 calendar year appears on the last page of this report.

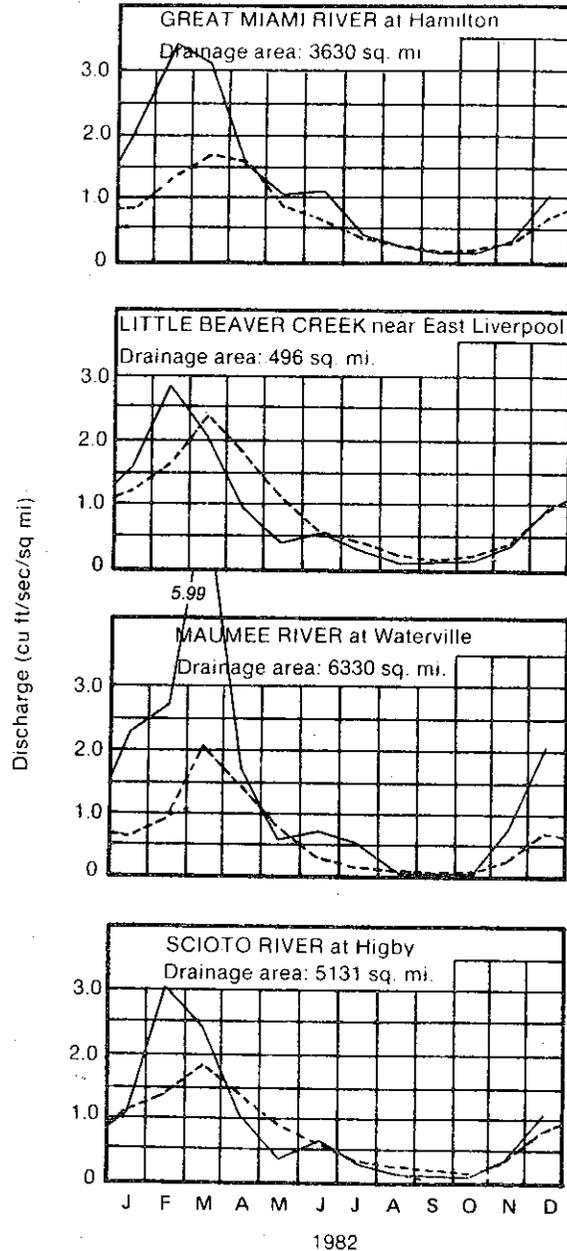
Precipitation for the first six months of the calendar year was 0.74 inch above normal. Beginning in July, precipitation was below normal for four consecutive months and most of the state was experiencing signs of serious drought conditions which were affecting water supplies throughout the state. Reservoir storage for water supply was near record lows in the Scioto River basin and many ground-water wells were reported to be dry. Precipitation for both November and December was noticeably above normal which produced excellent recharge to water supplies. Thus, the water supply situation was much improved at the year end.



—3— Amount (in)

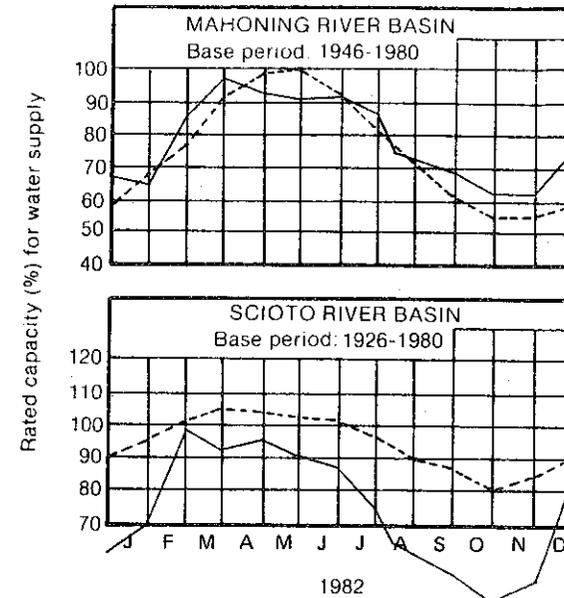


MEAN STREAM DISCHARGE



Base period for all streams: 1951-1980

RESERVOIR STORAGE FOR WATER SUPPLY

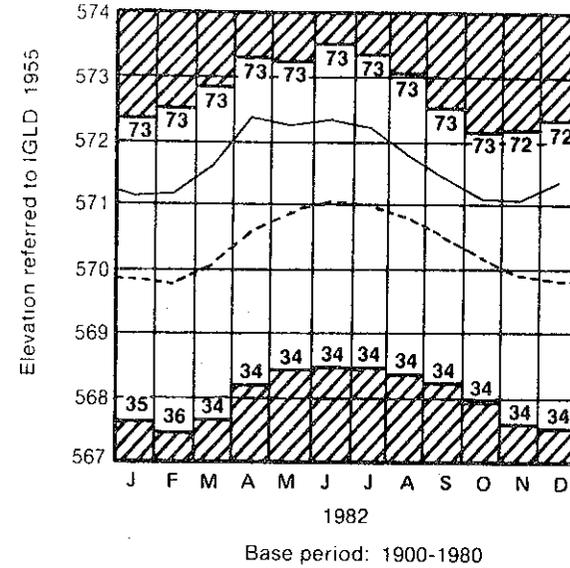


Cumulative precipitation for the first three months of the 1983 water year is above normal throughout the state. The average for the state as a whole is 9.65 inches, 2.15 inches above normal. Regional averages range from 11.05 inches, 2.58 inches above normal, for the Northeast region to 8.07 inches, 0.42 inch above normal, for the Northeast Hills region.

RESERVOIR STORAGE for water supply for December increased markedly in both the Mahoning River and the Scioto River basins. Reservoir storage is above normal in the Mahoning River basin and slightly below normal in the Scioto River basin reservoirs. Reservoir storage at the month end for Mahoning basin index reservoirs was 76 percent of rated capacity for water supply compared to 63 percent for last month and 67 percent for December 1981. Storage at the month end for the Scioto basin index reservoirs was 83 percent of rated capacity for water supply compared to 52 percent for last month and 62 percent for December 1981.

STREAMFLOW for December was normal throughout most of the state; the only exception was in the northwest where it was excessive for the second consecutive month. Flows were generally at or above normal during most of the month. Mean discharge and percent of normal for December at the index gaging stations were as follows: Great Miami River, 3,680 cfs, 155 percent; Little Beaver Creek, 484 cfs, 104 percent; Maumee River, 13,240 cfs, 297 percent; Scioto River, 6,014 cfs, 148 percent.

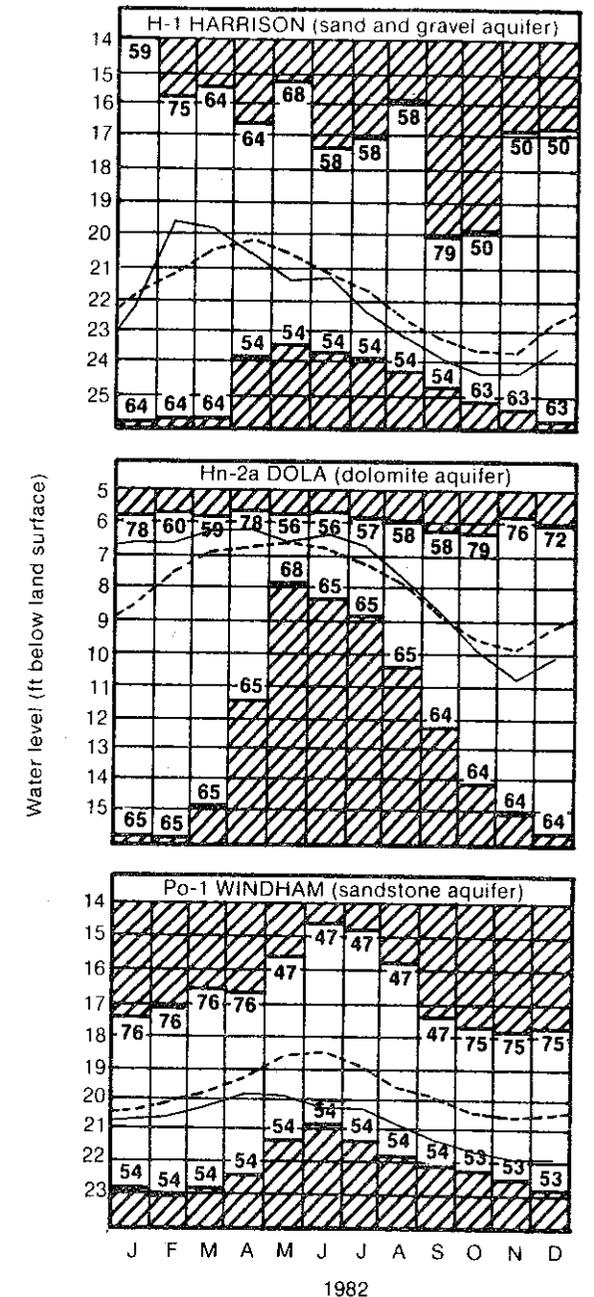
LAKE ERIE LEVELS



LAKE ERIE mean level showed a marked rise during December, whereas it usually continues to decline. The mean level for December was 571.38 feet above IGLD (1955), 0.30 foot above last month's mean level and 1.53 feet above normal. The lake level is 0.03 foot above the level observed for December 1981 and 2.78 feet above Low Water Datum.

GROUND-WATER LEVELS for December showed substantial rises during the month throughout the state in response to recharge from the above normal precipitation during the past two months. However, water levels in the key index observation wells were generally below those levels observed for December 1981; the only exceptions were observation wells F-1 near West Rushville, Fairfield County, and H-1 near Harrison, Hamilton County, where water levels were above last year's levels. Ground-water levels throughout the state continue to be below normal with the exception of observation well Fr-10 at OSU Farms, Franklin County, where the water level has been noticeably above normal for the past several years. It is evident that ground-water recharge is off to a good start and the ground-water storage situation has shown much improvement for the second consecutive month.

GROUND-WATER LEVELS



Base periods: H-1, 1951-1979. Hn-2a, 1955-1979. Po-1, 1947-1979

normal - - - - - current _____