MONTHLY WATER INVENTORY REPORT FOR OHIO

August 2001

http://www.dnr.state.oh.us/odnr/water/pubs/newsltrs/mwirmain.html
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PRECIPITATION during August was above normal across much of the state. However, the scattered nature of the month's rainfall resulted in large areas of below normal precipitation, especially in the eastern half of the state. The state average was 3.53 inches, 0.05 inch above normal. Regional averages ranged from 4.80 inches, 1.50 inches above normal, for the West Central Region to 2.46 inches for both the Northeast Hills and South Central regions, 1.06 and 1.43 inches below normal, respectively. Springfield Waste Water Treatment Plant (Clark County) reported the greatest amount of August rain, 9.41 inches, of which 5 inches was reported on August 31. Dover Dam (Tuscarawas County) reported the least amount, 1.08 inches.

Precipitation during August fell in typical summer patterns as scattered showers and thunderstorms with locally heavy rains occurring. Although rain fell during every week of the month, the second half of August was wetter than the first half across most of the state. The first half of August was mostly dry with the majority of the rain occurring during August 2-3 and 9-12 at scattered locations within the state. Precipitation totals during August 2-3 ranged from little or no rain in areas of east-central and southeastern Ohio to 0.25-0.50 inch across much of the remainder of the state. However, a few scattered locations in central and northeastern Ohio received in excess of 1 inch of precipitation. Rains between August 9-12 were hit and miss. Scattered thunderstorms occurred across most of the state on August 9 with the strongest storms in east-central Ohio where up to 3 inches of rain fell, causing some urban and small stream flooding. Minor flooding also occurred on August 10 in southeastern Ohio following heavy rains that fell across the region. Several days with precipitation occurred during the second half of the month. Showers and thunderstorms were scattered with generally light rain amounts. However, some of these thunderstorms produced abundant amounts of rain. The most notable storms during this period occurred on August 31 when a series of thunderstorms producing locally heavy rainfall moved across most of the state. The greatest amounts of rain fell in the southeastern two-thirds of the state. Precipitation amounts from 0.50-1.50 inches fell across much of this region with reports of 2-4 inches of rain in isolated areas of central, south-central and southwestern Ohio. Locally, rain in some storms was falling at notably high rates. As an example, an automated raingauge in the State of Ohio Rain / Snow Monitoring System (STORMS) network located in central Ohio received 1.8 inches of rain in 50 minutes, of which 0.7 inch fell in a 10-minute span. Scattered reports of urban and small stream flooding were received from the southeastern two-thirds of the state. (Note: Much of the rain from this storm fell after 8:00AM EDT on August 31 and will be reported on September 1 at most recording stations and thus is not reflected in this month's report.)

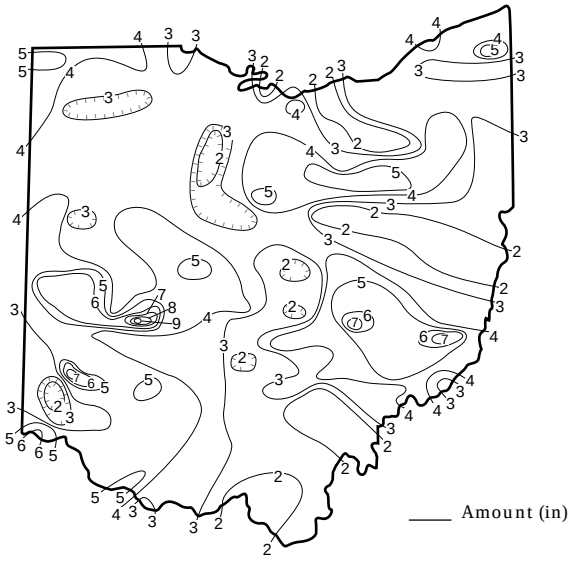
(continued on back)

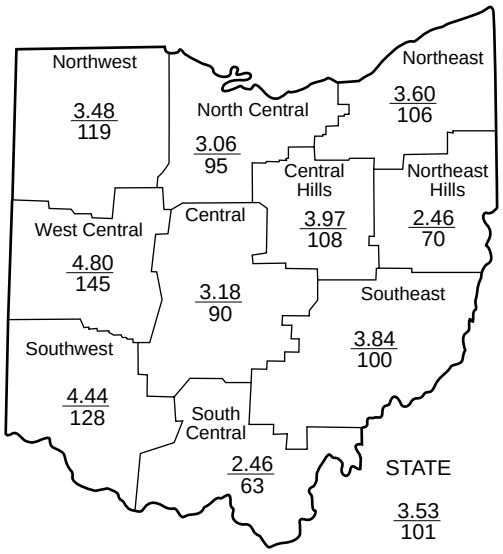
PRECIPITATION

Region	DEPARTURE FROM NORMAL (IN.) This Month	Past 3 Mos.	Past 6 Mos.	Past 12 Mos.	Past 24 Mos.	Palmer Drought Severity Index*
Northwest	+0.55	-1.22	-0.99	-0.75	-0.44	-1.0
North Central	-0.17	-2.58	-4.13	-5.66	+0.16	-2.6
Northeast	+0.20	-2.89	-4.72	-6.07	-0.81	-2.7
West Central	+1.50	+1.71	+1.78	+0.42	-1.22	+1.4
Central	-0.37	-1.75	+0.22	-0.70	+0.56	-0.5
Central Hills	+0.31	-3.46	-4.30	-5.62	-2.89	-1.7
Northeast Hills	-1.06	-3.28	-3.46	-5.67	-3.81	-2.9
Southwest	+0.97	+2.97	+1.48	-0.95	-2.12	+1.7
South Central	-1.43	-2.05	-0.45	-4.08	-2.11	-0.3
Southeast	0.0	-0.65	+1.88	+0.01	-0.50	-0.8
State	+0.05	-1.32	-1.27	-2.91	-1.33	

*Above +4 = Extreme Moist Spell
3.0 To 3.9 = Very Moist Spell
2.0 To 2.9 = Unusual Moist Spell
1.0 To 1.9 = Moist Spell
0.5 To 0.9 = Incipient Moist Spell
0.4 To-0.4 = Near Normal
-0.5 To -0.9 = Incipient Drought
-1.0 To -1.9 = Mild Drought
-2.0 To -2.9 = Moderate Drought
-3.0 To -3.9 = Severe Drought
Below -4.0 = Extreme Drought

PRECIPITATION AUGUST





MEAN STREAM DISCHARGE

This Month

River and Location	Drainage Area (Sq. Mi.)	Mean Discharge (CFS)	% of Normal	% of Normal Past		
				3 Mos.	6 Mos.	12 Mos.
Grand River near Painesville	685	56	50	28	45	67
Great Miami River at Hamilton	3,630	1,589	171	140	76	84
Huron River at Milan	371	23	48	35	47	89
Killbuck Creek at Killbuck	464	78	61	67	58	70
Little Beaver Creek near East Liverpool	496	49	47	46	51	60
Maumee River at Waterville	6,330	721	108	126	80	88
Muskingum River at McConnelsville	7,422	1,834	70	77	69	78
Scioto River near Prospect	567	31	76	59	71	77
Scioto River at Higby	5,131	1,187	101	124	90	91
Stillwater River at Pleasant Hill	503	198	338	102	59	63

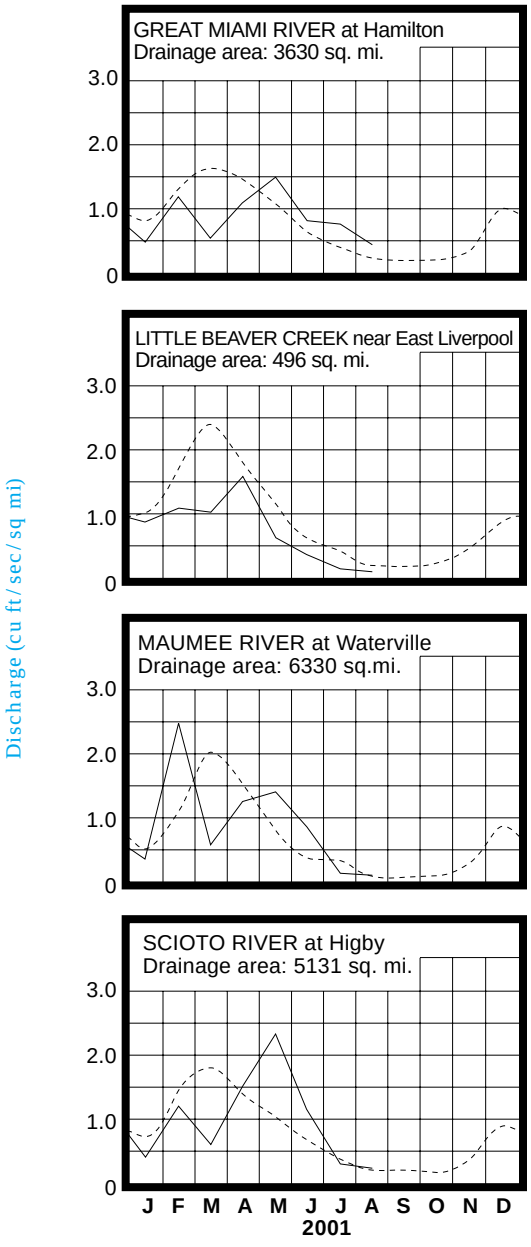
STREAMFLOW during August was generally below normal across the northeastern two-thirds of the state and above normal elsewhere. Flows were low enough to be considered deficient in much of northern and eastern Ohio. Conversely, flows were high enough to be considered excessive in some west-central Ohio basins.

Streamflow at the beginning of the month was below normal across most of Ohio, but above normal in many basins in the southwestern third of the state. Low flows for the month occurred during early August across much of the eastern third of Ohio and generally around mid-month across the remainder of the state. Although actual dates varied across the state depending on local precipitation, greatest flows for the month were generally around August 3-4 in central, north-central and south-central Ohio, between August 10-13 in eastern Ohio and August 24-25 in western Ohio. Streamflow tended to rise during the first half of August and fall during the second half in eastern Ohio. Conversely, flows declined during the first half of the month and then rose during the second half across the remainder of the state. However, on the last day of the month flows in the southeastern half of the state were rising, reflecting the precipitation that occurred on that day. Small stream and urban flooding was reported in many areas in this part of the state as a result of the excessive rainfall. At the end of August, streamflow was below normal across most of the state, except in central, southwestern and west-central Ohio basins where flows were above normal.

RESERVOIR STORAGE for water supply during August decreased in both the Mahoning and Scioto river basins. Month-end storage remains below normal in the Mahoning River basin and above normal in the Scioto River basin.

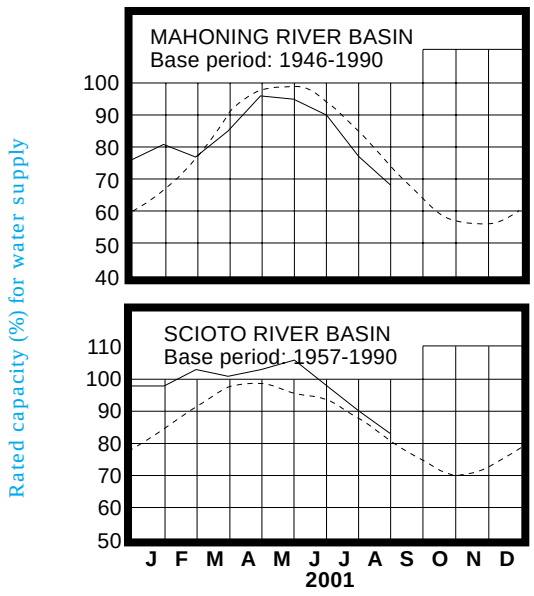
Reservoir storage at the end of August in the Mahoning basin index reservoirs was 68 percent of rated capacity for water supply compared with 77 percent for last month and 86 percent for August 2000. Month-end storage in the Scioto basin index reservoirs was 83 percent of rated capacity for water supply compared with 90 percent for last month and 79 percent for August 2000.

MEAN STREAM DISCHARGE



Base period for all streams: 1961-1990

RESERVOIR STORAGE FOR WATER SUPPLY



Normal – – – – Current ———

GROUND-WATER LEVELS

Based on daily lowest level in feet below land-surface datum

Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	16.90	-1.11	-1.30	+0.60
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.92	-0.64	-0.75	-0.58
Fr-10	Columbus, Franklin Co.	Gravel	46.09	-2.07	-0.60	+0.24
H-1	Harrison, Hamilton Co.	Gravel	23.26	-0.45	-0.67	+0.79
Hn-2a	Dola, Hardin Co.	Dolomite	7.76	-0.10	-0.75	-1.09
Po-1	Windham, Portage Co.	Sandstone	20.73	-1.01	-0.38	+0.02
Tu-1	Strasburg, Tuscarawas Co.	Gravel	15.76	-2.67	-0.88	-0.90

GROUND WATER levels during August declined statewide. Most of the net declines from the July levels were greater than usually observed for this time of the year with some aquifers experiencing more than double the expected August decline. Ground water levels statewide declined steadily throughout the month with some slight, temporary rises noted in a few aquifers following local precipitation.

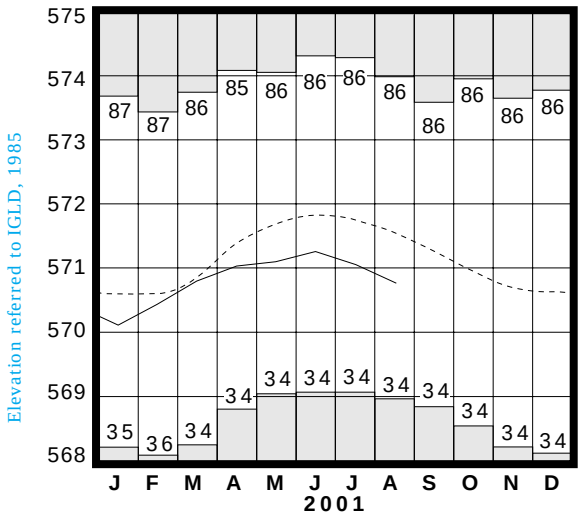
Ground water levels are below normal across most of the state, ranging from just below normal to more than 2.5 feet below the long-term August average. Several months of below normal precipitation during calendar year 2001, especially in the northern half of the state, have had a negative impact on ground water levels across much of this area. As an example, index observation well Tu-1, near Strasburg (Tuscarawas County), representing sand and gravel aquifers in eastern and northeastern Ohio, reached a record-low level for August. Current ground water levels are higher than last year's levels in much of the state. However, in some aquifers, especially in the northern half of the state, current levels are below the August 2000 levels. Little additional recharge to ground water storage is expected through mid-autumn. The Ohio Agricultural Statistics Service reports that at the end of August soil moisture was rated as being short or very short in 34 percent of the state, adequate in 61 percent of the state and surplus in 5 percent of the state. Although ground water storage appears to be adequate throughout most of the state, water supply managers should continue to monitor their respective situations closely.

LAKE ERIE levels declined during August. The mean level was 570.77 feet (IGLD-1985), 0.29 foot lower than last month's mean level and 0.79 foot below normal. This month's mean level is 0.92 foot lower than the August 2000 level and 1.57 feet above Low Water Datum.

The U. S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during August averaged 2.97 inches, 0.20 inch below normal. The entire Great Lakes basin averaged 3.48 inches of precipitation during August, which is 0.34 inch above normal. For calendar year 2001 through August, the Lake Erie basin has averaged 19.67 inches, 3.96 inches below normal, while the entire Great Lakes basin has averaged 20.18 inches, 0.86 inch below normal.

The USACE predicts that based on the current condition of the Great Lakes basin and anticipated weather conditions, the level of Lake Erie should range around 12 inches below the long-term seasonal average for the foreseeable future. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from near normal to nearly 2 feet below the normal seasonal levels.

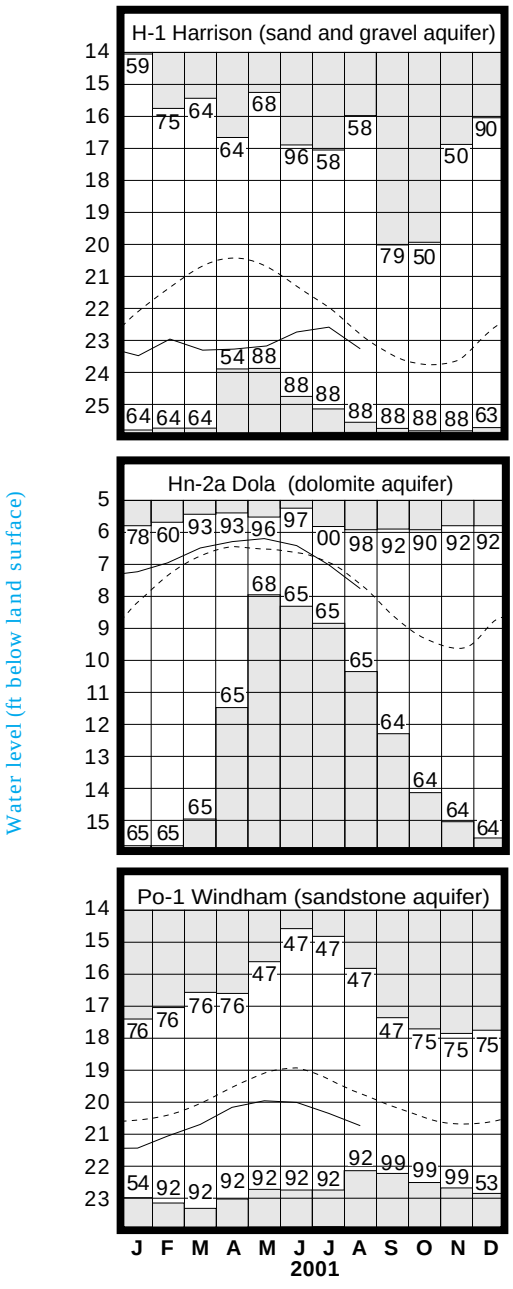
LAKE ERIE LEVELS at Fairport



Base period: 1900-1991

Record high and low, year of occurrence

GROUND-WATER LEVELS



Base periods: H-1, 1951-1990. Hn-2a, 1955-1990. Po-1, 1947-1990

Record high and low, year of occurrence

Normal– – – – Current———

(Precipitation continued from front)

Precipitation for the 2001 calendar year is below normal across most of the state. The average for the state as a whole is 23.61 inches, 3.39 inches below normal. Regional averages range from 28.85 inches, 0.06 inch below normal, for the Southeast Region to 18.27 inches, 6.03 inches below normal, for the North Central Region.

Precipitation for the 2001 water year is below normal statewide. The average for the state as a whole is 30.78 inches, 3.79 inches below normal. Regional averages range from 35.53 inches, 1.07 inches below normal, for the Southeast Region to 24.52 inches, 6.63 inches below normal, for the North Central Region. Areas in the northeastern quarter of the state continue to experience dry conditions. The Palmer Drought Severity Index at the end of August rates the North Central, Northeast and Northeast Hills regions as being in a moderate drought. Precipitation in several areas in northeastern Ohio is more than 6 inches below normal during the past 12 months. It is likely that the 2001 water year will rank as one of the drier on record in these climatic regions.

SUMMARY

Precipitation during August was above normal across much of the state, but several areas, especially in the eastern half of the state, received below normal rainfall. Streamflow was below normal in the northeastern two-thirds of the state and above normal elsewhere. Reservoir storage decreased in both the Mahoning and Scioto river basins. Ground water levels declined statewide and are below normal across most of Ohio. Lake Erie level declined 0.29 foot and was 0.79 foot below the long-term August average.

NOTES AND COMMENTS

NEW PUBLICATION

The Ohio Department of Natural Resources (ODNR), Division of Water and the U.S. Geological Survey, Water Resources Division, announce the availability of the following new publication:

Low Flow Characteristics of Streams in Ohio through Water Year 1997 (U. S. Geological Survey Water Resources Investigations Report 01-4140)

by David E. Straub

This report, prepared in cooperation with the ODNR Division of Water, presents selected low-flow and flow duration characteristics for 386 sites throughout Ohio. These sites include 195 long-term continuous-record stations with streamflow data through water year 1997 and 191 low-flow partial-record stations with measurements into water year 1999. This report is an update to U. S. Geological Survey Open-File Report 81-1195, "Low Flow Characteristics of Ohio Streams", by D. P. Johnson and K. D. Metzker.

Copies of the new low-flow report are available from the U. S. Geological Survey, Water Resources Section, 6480 Doubletree Avenue, Columbus, Ohio, 43229 or call Mike Eberle at (614) 430-7718. Copies will also be available from the ODNR Division of Water, 1939 Fountain Square, Building E-1, Columbus, Ohio, 43224, phone (614) 265-6739. The report is also available on-line at http://oh.water.usgs.gov/reports/abstract.html or as a Portable Document Format (PDF) file at http://oh.water.usgs.gov/reports/wrir/wrir01-4140.pdf.

2000 WATER WITHDRAWAL ANNUAL REPORT

Compiled by Al Luczyk

The ODNR Division of Water, announces the availability of the *Ohio Water Withdrawal Facility Registration Program: 2000* annual report. This four-page report depicts on a statewide basis the amount of water withdrawn by registered facilities in the 2000 calendar year. It details on a county basis the water withdrawals for each of 5 reporting categories. Those categories are: power, public water supply, industrial, agriculture/irrigation (includes golf courses), and miscellaneous.

Owners of all facilities (surface and/or ground water sources) with the capacity to withdrawal more than 100,000 gallons of water or more per day are required to register their facilities with the ODNR Division of Water and they are further required to submit annual reports of actual withdrawals pursuant to Section 1521.16 of the Ohio Revised Code. Copies of the 2000 annual withdrawal report are available from the ODNR Division of Water at the same address as above. This report is also available in a PDF file through the Division's web page at: http://www.dnr.state.oh.us/water/waterinv/wwfrprog/wwfrprog.html.

PETER G. FINKE AWARD ESTABLISHED

The Ohio Floodplain Management Association has established the Peter G. Finke Award. The award is being established as a tribute to Peter G. Finke for his distinguished service and leadership of the Ohio Floodplain Management Program for the past three decades. The award is to be given for the most valuable contribution to floodplain management and need not be given annually.

Mr. Finke is the first recipient of this award. He utilized collaboration and creativity throughout his career and drew strength from his personal dedication to create a statewide floodplain management program that improves the quality of life of Ohioans, present and future. Mr. Finke was also integral in the development of the national policy on floodplain management.

A nominee for this award may be an individual or organization from the public or private sector. The recipient will be selected based upon their outstanding contribution to the multifaceted aspects of floodplain management, and should have a direct impact on improving the quality of life through better water resource management.

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. Army Corps of Engineers, Detroit District.

Palmer Drought Severity Index:
U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service.

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