



MONTHLY WATER INVENTORY REPORT FOR OHIO

August 2004

<http://www.dnr.state.oh.us/water/pubs/newsltrs/mwirmain.html>

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Hydrologists
Water Inventory Unit

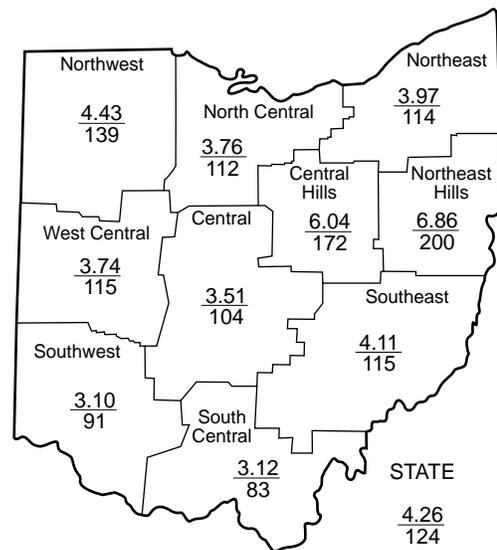
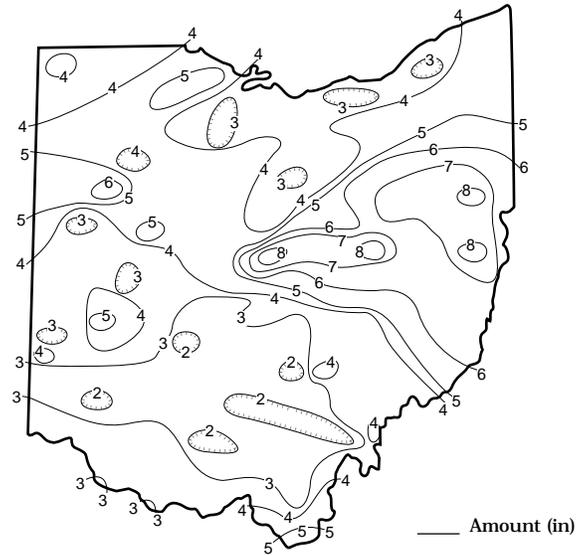
PRECIPITATION during August was above normal throughout much of the state, but generally below normal in the Southwest and South Central regions and in a few other scattered locations. The average for the state as a whole was 4.26 inches, 0.82 inch above normal. Regional averages ranged from 6.86 inches, 3.43 inches above normal, for the Northeast Hills Region to 3.10 inches, 0.31 inch below normal, for the Southwest Region. Regionally, this was the 3rd wettest August during the past 110 years for the Northeast Hills Region and the 5th wettest for the Central Hills Region. Coshocton Agricultural Research Station (Coshocton County) reported the greatest amount of August precipitation, 8.50 inches. Chillicothe Mound City (Ross County) reported the least amount of August precipitation, 1.34 inches.

Precipitation during August fell as showers and thunderstorms and varied greatly in amount across much of the state. Most of the month's rain fell during the second half of August. The only significant rain during the first half of the month occurred on August 3-4. Although a few widely scattered areas reported as much as 1.0 inch of precipitation during this period, most of the state received around 0.50 inch or less. There were two significant storm periods during the second half of the month. Showers and thunderstorms during August 18-20 were most numerous across northern, east-central and extreme southern Ohio. Some of the storms in northern and east-central Ohio were severe, with damaging winds and heavy rain. Precipitation totals were generally 1-3 inches in the northern and extreme southern Ohio, with isolated areas in east-central Ohio reporting in excess of 5 inches. Rain amounts across the remainder of southern Ohio were generally less than 1 inch with some areas missing the storms completely. Showers and thunderstorms during August 26-29 were again most numerous in northern Ohio, with some storms producing locally heavy rain. Amounts generally were 0.75-2.5 inches across much of the state but a large area of southern Ohio received less than 0.50 inch. The heaviest rain during this period occurred on August 27 across portions of the Northeast Hills Region, resulting in flash flooding with the worst conditions occurring in Columbiana County (see Notes and Comments section on the last page of this report).

Precipitation for the 2004 calendar year is above normal statewide. The average for the state as a whole is 32.45 inches, 5.59 inches above normal. Regional averages range from 38.87 inches, 11.64 inches above normal, for the Northeast Hills Region to 25.84 inches, 1.91 inches above normal, for the Northwest Region.

Precipitation for the 2004 water year is above normal statewide. The average for the state as a whole is 41.41 inches, 6.34 inches above normal. Regional averages range from 47.47 inches, 12.00 inches above normal, for the Northeast Hills Region to 33.20 inches, 1.68 inches above normal, for the Northwest Region.

PRECIPITATION AUGUST



PRECIPITATION

Region	DEPARTURE FROM NORMAL (IN.) Base period 1951-2000					Palmer Drought Severity Index*
	This Month	Past				
		3 Mos.	6 Mos.	12 Mos.	24 Mos.	
Northwest	+1.24	+3.74	+3.47	+4.75	+7.82	+2.4
North Central	+0.41	+1.97	+6.52	+9.38	+12.85	+2.9
Northeast	+0.48	+1.39	+6.34	+9.39	+16.09	+3.6
West Central	+0.50	+2.03	+2.73	+7.53	+17.92	+3.3
Central	+0.14	+2.49	+6.00	+11.62	+17.60	+2.9
Central Hills	+2.52	+5.46	+9.30	+13.75	+16.27	+3.5
Northeast Hills	+3.43	+6.46	+10.28	+15.99	+21.86	+4.3
Southwest	-0.31	-0.19	+1.27	+4.66	+12.14	+1.1
South Central	-0.66	-1.76	+1.64	+6.05	+15.28	+0.2
Southeast	+0.53	+1.63	+5.58	+12.02	+18.80	+2.5
State	+0.82	+2.26	+5.26	+9.45	+15.53	

*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

Average (in)
Percent of normal

MEAN STREAM DISCHARGE

River and Location	Drainage Area (Sq. Mi.)	Mean Discharge (CFS)	% of Normal	This Month		
				% of Normal Past		
				3 Mos.	6 Mos.	12 Mos.
Grand River near Painesville	685	629	716	112	137	138
Great Miami River at Hamilton	3,630	1,749	151	144	104	147
Huron River at Milan	371	253	277	183	159	177
Killbuck Creek at Killbuck	464	302	214	185	151	158
Little Beaver Creek near East Liverpool	496	1,122	825	239	159	173
Maumee River at Waterville	6,330	3,136	322	195	107	117
Muskingum River at McConnelsville	7,422	7,855	270	323	215	148
Scioto River near Prospect	567	177	392	225	161	185
Scioto River at Higby	5,131	3,133	237	167	132	160
Stillwater River at Pleasant Hill	503	99	140	120	78	132

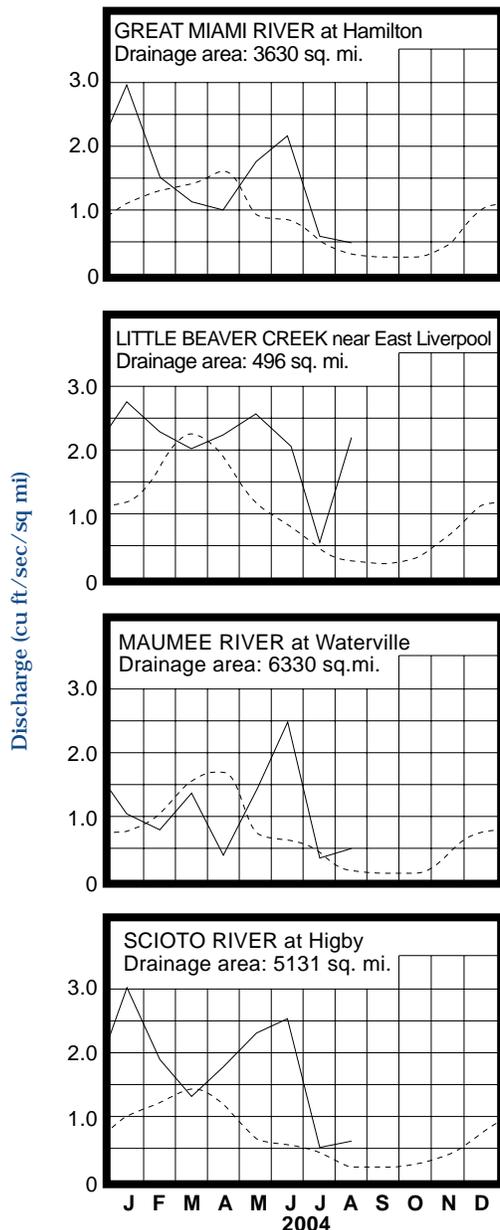
STREAMFLOW during August was above normal statewide. Flows were high enough to be considered excessive across most of the state.

Still responding to the precipitation that fell near the end of July, flows at the beginning of August were above normal throughout the state. Greatest flows for the month occurred on the first day of August in some basins in northeastern and south-central Ohio. Flows decreased statewide during the first half of the month. Low flows for the month occurred during August 13-15 in most drainage basins in northwestern Ohio and during August 18-19 throughout the remainder of the state. Flows increased statewide in response to the precipitation that fell during August 18-20. Greatest flows for the month occurred during August 21-22 in basins in west-central, north-central and southeastern Ohio. After peaking, flows decreased for a few days before increasing again in response to the precipitation that fell during August 26-29. Greatest flows for the month across the remainder of the state occurred near the end of August as a result of this precipitation. Some flooding was observed during this period, most notably in Columbiana County. Flows at the end of the month were above normal statewide.

RESERVOIR STORAGE during August decreased in the Mahoning River basin and increased in the Scioto River basin. Storage remained above normal in both basins.

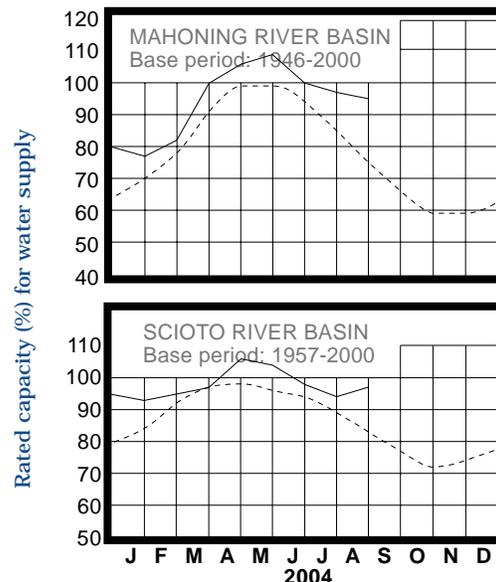
Reservoir storage at the end of August in the Mahoning basin index reservoirs was 95 percent of rated capacity for water supply compared with 97 percent for last month and 76 percent for August 2003. Month-end storage in the Scioto basin index reservoirs was 97 percent of rated capacity for water supply compared with 94 percent for last month and 81 percent for August 2003. Surface water supplies continue to remain at favorable levels throughout the state.

MEAN STREAM DISCHARGE



Base period for all streams: 1971-2000

RESERVOIR STORAGE FOR WATER SUPPLY



Normal - - - - Current ———

GROUND-WATER LEVELS

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

GROUND WATER levels during August declined seasonally statewide. Net declines during the month from the July levels were greater than usually observed in most aquifers. In most aquifers, water levels declined steadily throughout the month. However, levels in some aquifers showed slight temporary improvement following local precipitation, most notably in shallow unconsolidated aquifers.

Ground water levels remain above normal across much of the state, but continue at below normal levels in much of southwestern Ohio. Current levels are lower than they were a year ago across much of the state. Ground water supplies remain adequate across Ohio. With near-normal precipitation and other climatic conditions during the coming months, ground water supplies should remain adequate. The Ohio Agricultural Statistics Service reports that near the end of August, soil moisture was rated as being short or very short in 15 percent of the state, adequate in 75 percent of the state and surplus in 10 percent of the state.

LAKE ERIE level declined seasonally during August. The mean level was 571.82 feet (IGLD-1985), 0.16 foot lower than last month's mean level and 0.10 foot above normal. This month's mean level is 0.36 foot higher than the August 2003 level and 2.62 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during August averaged 3.18 inches, which is 0.01 inch below normal. For the entire Great Lakes basin, August precipitation averaged 3.15 inches, which is normal. For calendar year 2004 through August, the Lake Erie basin has averaged 25.04 inches of precipitation, 1.47 inches above normal, while the entire Great Lakes basin has averaged 23.65 inches of precipitation, 2.59 inches above normal.

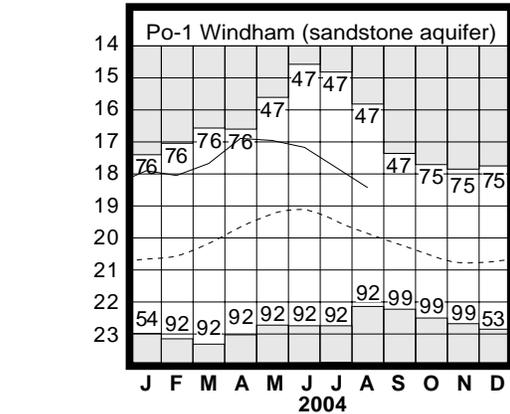
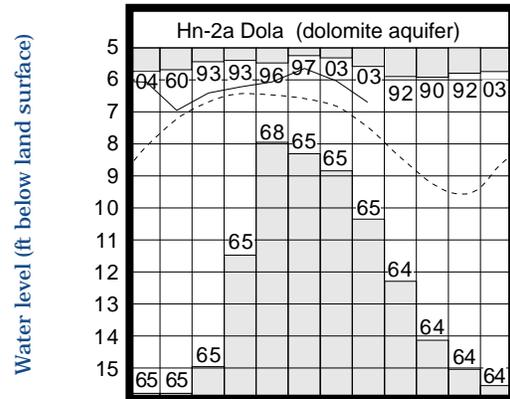
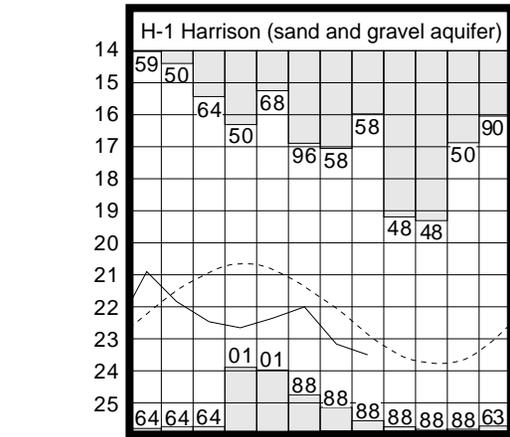
In addition, the USACE predicts that based on the current condition of the Great Lakes basin and anticipated weather conditions, the level of Lake Erie should continue to range near normal for the foreseeable future. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from as high as 10 inches above normal to as much as 13 inches below the normal seasonal average.

SUMMARY

Precipitation during August was above normal across much of the state, but generally below normal in the Southwest and South Central regions. Streamflow was above normal statewide and was high enough to be considered excessive across most of Ohio. Reservoir storage decreased in the Mahoning River basin and increased in the Scioto River basin. Storage remained above normal in both basins. Ground water levels declined seasonally throughout the state. Lake Erie level declined 0.16 foot and was 0.10 foot above the long-term August level.

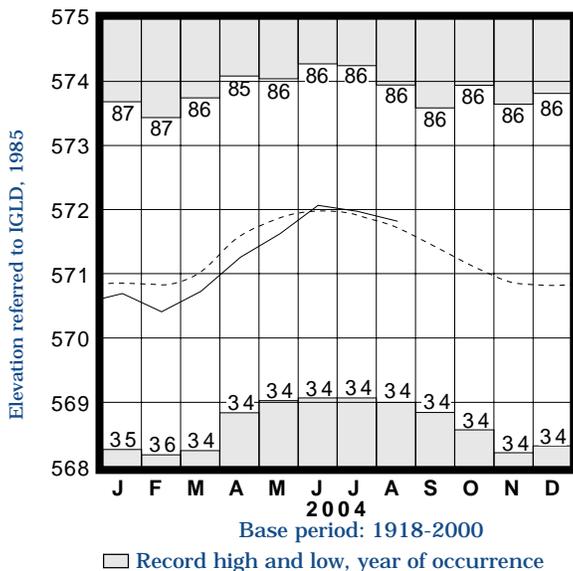
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	13.66	+2.38	-1.34	+0.19
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.78	-0.46	-0.10	-0.39
Fr-10	Columbus, Franklin Co.	Gravel	44.84	-1.04	-0.71	+0.85
H-1	Harrison, Hamilton Co.	Gravel	23.50	-0.63	-0.37	-0.33
Hn-2a	Dola, Hardin Co.	Dolomite	6.70	+0.79	-0.67	-0.69
Po-1	Windham, Portage Co.	Sandstone	18.42	+1.45	-0.62	-0.28
Tu-1	Strasburg, Tuscarawas Co.	Gravel	12.16	+1.25	-0.97	+1.25

GROUND-WATER LEVELS



Base periods: H-1, 1951-2000. Hn-2a, 1955-2000.
Po-1, 1947-2000 □ Record high and low, year of occurrence

LAKE ERIE LEVELS



Normal - - - - Current ———

NOTES AND COMMENTS

Flash Floods Strike Columbiana County

Governor Bob Taft declared a state of emergency in Columbiana County following the heavy rain and resulting flash flooding that occurred during the evening hours of August 27 into the early morning hours of August 28. Radar estimates indicate nearly 7 inches of rain fell in about a 6-hour period in some areas of Columbiana County. The resulting flash flooding washed out several roads and bridges and dislodged about 60 homes from their foundations. Several people were rescued from the swift waters by a rescue hovercraft. Fortunately, no major injuries were reported. Bottled water and non-potable water was brought into the village of Lisbon after the flooding washed out the main water line that supplies the village. Damage assessments are on going, but early estimates put the damage from this flooding at more than 10 million dollars. Once state and local officials, working closely with people from the Federal Emergency Management Agency and the Small Business Administration, complete damage assessments, the Bush Administration could then declare Columbiana County a federal disaster area.

New Mailing Address for ODNR Headquarters in Columbus

The headquarter offices of the Ohio Department of Natural Resources (ODNR) in Columbus has a new street address and zip code. The new mailing address is:

Ohio Department of Natural Resources
2045 Morse Road
Columbus, OH 43229-6693

The new address became effective on August 23 in conjunction with the opening of a new entrance road to the ODNR offices at Fountain Square located off of Morse Road. Each building on the ODNR complex, which previously had its own mailing address, is now assigned the new address.

New Publications

The ODNR, Division of Water announces the availability of recently completed Ground Water Pollution Potential maps for the following counties: Belmont, Carroll, Crawford, Fulton, Harrison, Henry, Hocking, Holmes, Mahoning, Marion, Muskingum, Richland, Summit, Tuscarawas, Union, Washington and Williams. These maps cost \$10.00 each plus postage and handling (see chart below) and can be ordered from: ODNR Division of Water, Water Resources Section, 2045 Morse Road, Building E-1, Columbus, Ohio 43229-6693, phone (614) 265-6740. Payment may be made by check or credit card. Please make checks payable to ODNR Division of Water.

Also, pollution potential maps for the following counties are available for viewing and/or printing from the Division of Water website: Carroll, Fulton, Hamilton, Hocking, Marion, Pike, Ross, Union, Washington and Williams. The website address is: <http://www.dnr.state.oh.us/water/gwppmaps/>. Additional counties will be added to the website in the future.

Ground water pollution potential maps are designed to determine an area's relative vulnerability to ground water pollution. The maps can be used as a planning and management tool for administrators, commissioners, zoning boards and others to aid in making educated decisions about local development and siting of land use operations or activities that can affect ground water quality. The system optimizes the use of existing data to rank areas with respect to pollution potential to help direct investigations and resources expenditures and to prioritize protection, monitoring and clean-up efforts. For further information, please contact Jim Raab at: jim.raab@dnr.state.oh.us or phone (614) 265-6747.

Postage and Handling Charges

Cost of Publications	Add
under \$10.01	\$2.50
\$10.01 - \$20.00	\$3.75
\$20.01 - \$50.00	\$6.00
\$50.01 - \$100.00	\$8.50
\$100.01 and over	\$10.00

50-Year Anniversary Highlights

Notable August Events From The Past 50 Years

August 8-9, 1969: Severe storms in southwestern Ohio with damaging winds and heavy rain. Precipitation amounts of 1-3 inches fell throughout the area with some scattered areas receiving in excess of 5 inches. A tornado passed through portions of Hamilton and Clermont counties, destroying several buildings and killing 4.

August 1979: The average of 6.66 inches of precipitation ranked August 1979 as the wettest August of record at that time. Several days of widely scattered thunderstorms, many producing heavy rain, lead to significant flooding across many areas of the state, most notably in southern Ohio.

August 1980: The average of 6.79 inches of precipitation ranks as the wettest August of record for the state as a whole. Several days of widespread thunderstorms with copious amounts of rain, resulted in major flooding. The most notable storms occurred on August 10 and 11 in east-central Ohio. The hardest hit areas were in Belmont, Guernsey, Licking and Muskingum counties where 6-7 inches of rain fell across much of the area.

ACKNOWLEDGMENTS



Division of Water
2045 Morse Rd., Bldg E-1
Columbus, Ohio 43229-6693



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.



Bob Taft
Governor

Samuel W. Speck
Director

Dick Bartz
Chief

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