



MONTHLY WATER INVENTORY REPORT FOR OHIO

October 1998

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

Compiled By David H. Cashell
Hydrologist
Water Inventory Unit

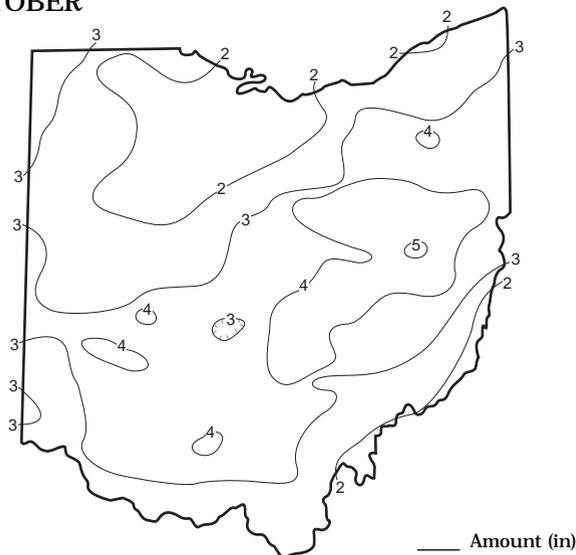
PRECIPITATION during October was above normal in most areas of the state, but below normal in portions of northwestern and north-central Ohio and also along the Ohio River in southeastern Ohio. The state average was 3.02 inches, 0.68 inch above normal. Regional averages ranged from 4.12 inches, 1.59 inches above normal, for the Northeast Hills Region to 1.87 inches, 0.27 inch below normal, for the North Central Region. Dennison (Tuscarawas County) reported the greatest amount of precipitation for the month, 5.53 inches, the only location reporting more than 5 inches of rain in October. Fostoria (gauge is in Hancock County) reported the least amount of October precipitation, 1.22 inches.

Precipitation in October fell as rain with most of the month's precipitation falling during the first 8 days. Showers fell throughout much of Ohio during October 3-4 with only the extreme northern and southern areas missing most of the rain. Amounts were generally 0.5 inch or so, but some areas received up to 1 inch. The most widespread precipitation fell on October 7-8 with nearly every area receiving at least 0.5 inch of rain. Much greater amounts fell in many areas of the state ranging from about 1.5 inches in southwestern and central Ohio to as much as 3 inches at a few locations in the eastern part of the state. This much needed rain slowed harvest activities, but not for long as the next 10 days of the month were dry throughout the state. Light showers returned to Ohio on October 18-19 with rain amounts of 0.25 to 0.5 inch reported at most locations. A few light, scattered showers continued to fall over October 20-22 with only small amounts of precipitation reported. Somewhat heavier showers moved through the state during October 28-30. Rain amounts were generally 0.1 to 0.25 inch, but some areas in southern and central Ohio received slightly more than 0.5 inch.

Precipitation for the 1998 calendar year is above normal throughout Ohio. The state average is 36.54 inches, 4.20 inches above normal. Regional averages range from 39.91 inches, 4.35 inches above normal, for the South Central Region to 32.28 inches, 0.83 inch above normal, for the Northeast Region.

The 1999 water year (October 1, 1998 to September 30, 1999) is off to a good start in most areas of the state as far as precipitation is concerned. Near-normal precipitation and other climatic conditions during the next several months should provide adequate recharge for water supplies.

PRECIPITATION OCTOBER

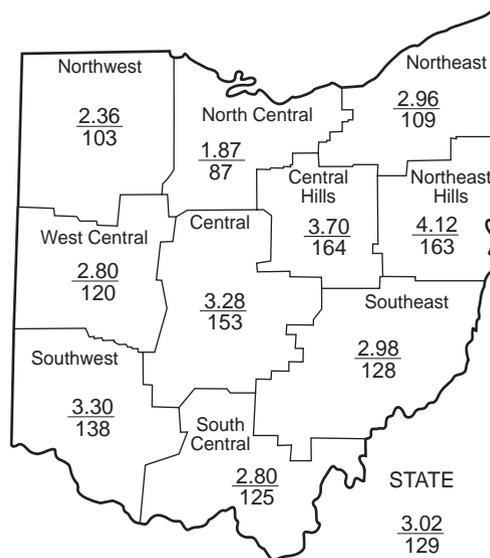


PRECIPITATION

Region	DEPARTURE FROM NORMAL (IN.)					Palmer Drought Severity Index*
	This Month	Past				
		3 Mos.	6 Mos.	12 Mos.	24 Mos.	
Northwest	+0.07	+2.60	+2.55	+5.72	+14.39	+2.0
North Central	-0.27	+0.28	+1.60	+5.46	+12.19	+0.2
Northeast	+0.24	-0.31	-2.54	+0.54	+2.91	-1.8
West Central	+0.46	-1.03	+3.33	+3.91	+5.60	-0.2
Central	+1.14	-1.53	+0.57	+1.46	+3.97	-0.6
Central Hills	+1.44	+0.56	+2.24	+2.89	+4.87	+0.9
Northeast Hills	+1.59	+1.40	+3.43	+5.50	+5.47	+0.5
Southwest	+0.91	-2.55	+2.15	+3.98	+5.16	-0.2
South Central	+0.56	-3.29	+1.12	+3.52	+6.15	-0.5
Southeast	+0.65	-1.26	+3.17	+5.20	+8.19	-0.2
State	+0.68	-0.52	+1.76	+3.82	+6.89	

*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

MEANSTREAMDISCHARGE

River and Location	Drainage Area (Sq. Mi.)	This Month		% of Normal Past		
		Mean Discharge (CFS)	% of Normal	3 Mos.	6 Mos.	12 Mos.
Grand River near Painesville	685	50	14	8	25	78
Great Miami River at Hamilton	3,630	722	95	114	176	118
Huron River at Milan	371	16	47	538	265	173
Killbuck Creek at Killbuck	464	156	156	161	147	94
Little Beaver Creek near East Liverpool	496	210	175	122	111	111
Maumee River at Waterville	6,330	724	119	433	162	141
Muskingum River at McConnelsville	7,422	2,884	153	121	157	118
Scioto River near Prospect	567	21	76	146	127	103
Scioto River at Higby	5,131	1,038	112	98	164	123
Stillwater River at Pleasant Hill	503	40	67	165	219	106

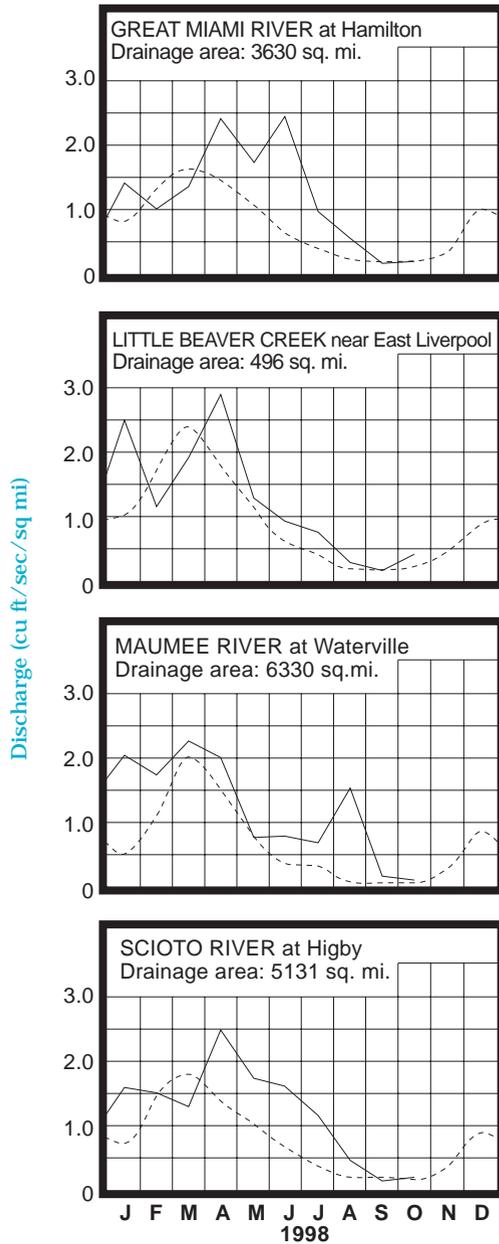
STREAMFLOW for October was generally above normal in eastern, southeastern and northwestern Ohio and below normal in western, north-central and northeastern Ohio. October flows in most drainage basins were greater than those occurring in September. Flows in some eastern and east-central Ohio basins were high enough to be considered excessive. In contrast, flows in western, north-central and northeastern Ohio were low enough to be considered deficient.

Flows at the beginning of the month were noticeably below normal throughout the state. The lowest flows for the month statewide occurred on October 2-3 before some rain showers began to move into the state. Greatest flows for the month occurred during October 8-9 following the month's heaviest and most widespread precipitation. After peaking, flows generally declined through the end of the month with some slight, temporary increases occurring around October 20-22. At the end of the month flows were below normal in most areas of the state, but above normal in some central and southwestern Ohio drainage basins.

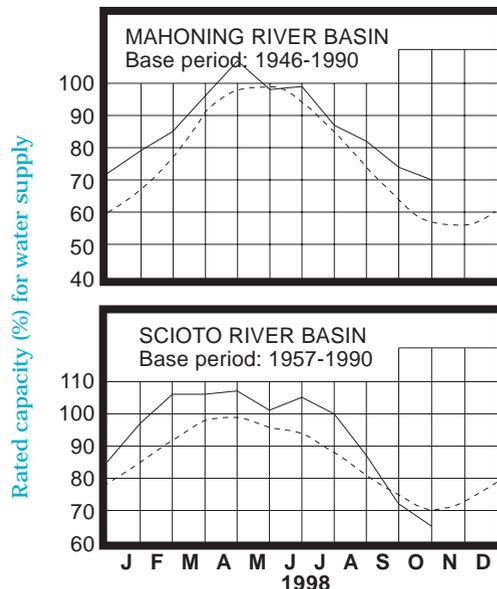
RESERVOIR STORAGE for water supply during October declined in both the Mahoning and Scioto river basins. Storage remained above normal in the Mahoning basin index reservoirs and remained below normal in the Scioto basin index reservoirs.

Reservoir storage at the end of October in the Mahoning basin index reservoirs was 70 percent of rated capacity for water supply compared with 74 percent for last month and 67 percent for October 1997. Month-end storage in the Scioto basin index reservoirs was 65 percent of rated capacity for water supply compared with 72 percent for last month and 76 percent for October 1997. Levels in most flood control and recreational reservoirs will soon be lowered to winter pool elevations. Surface water supplies are adequate at the start of the 1999 water year.

MEAN STREAM DISCHARGE



RESERVOIR STORAGE FOR WATER SUPPLY



GROUND-WATER LEVELS

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

GROUND WATER LEVELS declined during October in all aquifers across Ohio. Generally, net declines were greater than usually observed in October, a direct result of the below normal precipitation during September. Levels in most aquifers declined steadily throughout the month with only some slight, temporary rises noted in a few aquifers just before the middle of the month. Levels in many aquifers were beginning to stabilize during the last week of the month and some improvement prior to the end of the month was noted in limited areas.

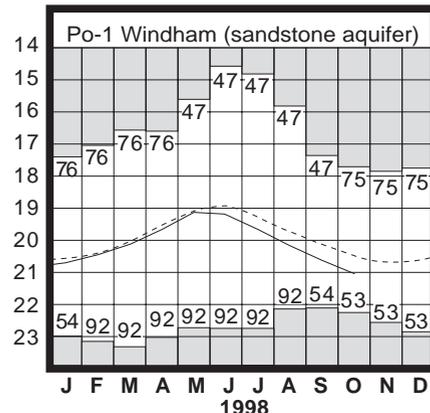
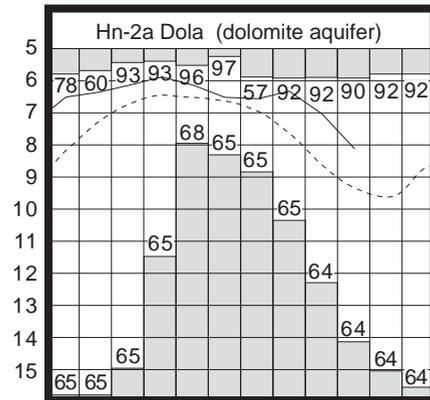
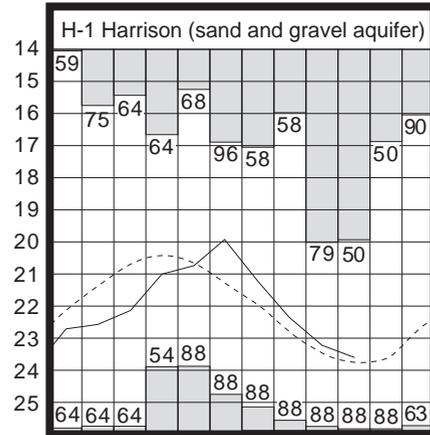
Ground water levels are lower than they were a year ago in nearly all aquifers across the state. Current levels are also below the seasonal normal in most areas of Ohio. The major exception is in the consolidated carbonate aquifers of western and northwestern Ohio where current levels are above normal. Although the late summer and early autumn months were rather dry, ground water supplies remain adequate throughout the state. In spite of the fact that there was little if any ground water recharge noted in October, the 1999 water year is still off to a fairly good start as far as ground water supplies are concerned. The above normal precipitation during October helped ease the unfavorable recharge situation by improving the soil moisture conditions in many areas of Ohio. At the end of October, the Ohio Agricultural Statistics Service reports that soil moisture was rated as being short or very short in 25 percent of the state, adequate in 73 percent of the state, and surplus in 2 percent of the state, a noticeable improvement in all ratings since the end of September. Near normal precipitation and other climatic conditions during the next several months will be needed to maintain favorable recharge conditions.

LAKE ERIE level declined during October. The mean level was 571.88 feet (IGLD-1985) which is 0.56 foot lower than last month's mean level and 0.92 foot above normal. This month's level is 1.09 feet lower than the October 1997 level and 2.68 feet above Low Water Datum.

The U. S. Army Corps of Engineers reports that precipitation in the Lake Erie basin for October averaged 2.0 inches, 0.8 inch below normal. The entire Great Lakes basin averaged 2.8 inches of precipitation in October, which is normal. For calendar year 1998 through October, the Lake Erie basin has averaged 30.1 inches of precipitation, 0.6 inch above normal, and the entire Great Lakes basin has averaged 26.6 inches, 0.6 inch below normal.

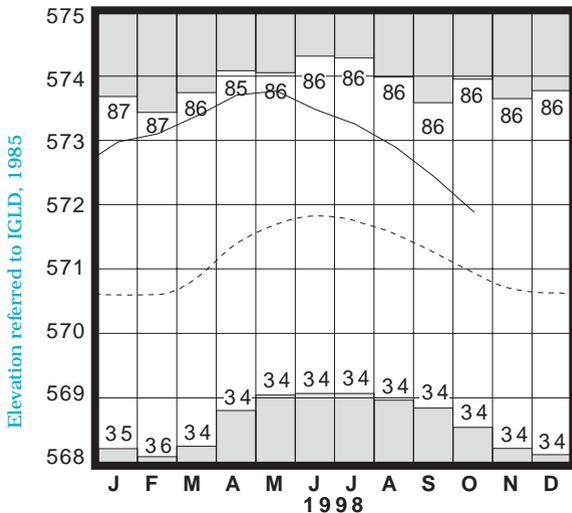
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	18.18	-1.29	-0.12	+0.02
Fa-1	Jasper Mill, Fayette Co.	Limestone	10.32	-1.31	-0.48	-1.34
Fr-10	Columbus, Franklin Co.	Gravel	45.22	-0.78	-0.48	-1.71
H-1	Harrison, Hamilton Co.	Gravel	23.60	+0.16	-0.39	-0.02
Hn-2a	Dola, Hardin Co.	Dolomite	8.12	+1.21	-1.08	-0.69
Po-1	Windham, Portage Co.	Sandstone	21.04	-0.57	-0.43	-0.77
Tu-1	Strasburg, Tuscarawas Co.	Gravel	14.63	-1.02	-0.91	-0.91

GROUND-WATER LEVELS



Water level (ft below land surface)

LAKE ERIE LEVELS at Fairport



Base period: 1900-1991

■ Record high and low, year of occurrence

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

Po-1, 1947-1990 ■ Record high and low, year of occurrence

SUMMARY

Precipitation was above normal in most areas of the state, but below normal in portions of northwestern and north-central Ohio and also along the Ohio River in southeastern Ohio. Streamflow was generally above normal in eastern Ohio, but below normal in northern and western Ohio. Reservoir storage declined and ranged from slightly above to slightly below normal. Ground water levels declined and are below normal in most areas of the state. Lake Erie level declined 0.56 foot and was 0.92 foot above the long-term October average. Water supplies are adequate at the start of the 1999 water year.

NOTES AND COMMENTS NEW PUBLICATIONS

The U. S. Geological Survey, Water Resources Division, announces the availability of the following new publication:

"National Water-Quality Assessment of the Lake Erie-Lake St. Clair Basin, Michigan, Indiana, Ohio, Pennsylvania, and New York-Environmental and Hydrological Setting (U. S. Geological Survey Water-Resources Investigations Report 97-4256)"

by George D. Casey, Donna N. Meyers, Dennis Finnegan, and Michael E. Wiczorek

This report describes the environmental and hydrological setting of the Lake Erie-Lake St. Clair Basin and the factors that affect water quality. It is the first in a series of National Water-Quality Assessment (NAWQA) reports being prepared for this basin. The report describes the climate, physiography, geologic setting and stratigraphy, structural geology, geologic history, soils, population, land use, water use, and water quality for selected chemical constituents, physical properties and characteristics, and aquatic biota and stream habitat in the basin. The environmental features described largely determine water-quality characteristics and the potential for future water-quality issues in the basin.

Limited copies of this new publication are available from the U. S. Geological Survey, Water Resources Division, 975 West Third Avenue, Columbus, Ohio 43212-3192, phone: (614) 469-5553.

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 Conseroancy 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.*



DIVISION OF WATER
1939 FOUNTAIN SQUARE
COLUMBUS, OHIO 43224

George V. Voinovich
Governor

Donald C. Anderson
Director

Michele Willis
Chief

An Equal Opportunity Employer-M/F/H