



MONTHLY WATER INVENTORY REPORT FOR OHIO

October 2000

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

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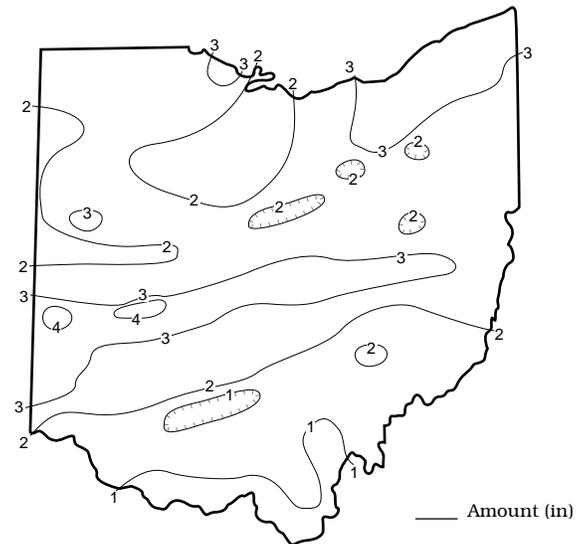
PRECIPITATION during October was above normal across much of western, central and northeastern Ohio, but below normal in southern, east-central and parts of north-central Ohio. The state average was 2.29 inches, 0.05 inch below normal. Regional averages ranged from 3.02 inches, 0.30 inch above normal, for the Northeast Region to 1.05 inches, 1.19 inches below normal, for the South Central Region. This was the 14th driest October in 106 years of record for the South Central Region. West Manchester (Preble County) reported the greatest amount of precipitation for October, 4.10 inches. Willowood (Lawrence County) reported the least amount for the month, only 0.56 inch.

Precipitation during October fell mainly as rain with just a few scattered snow showers reported in northeastern Ohio. Showers and occasional thunderstorms during October 4-6 produced widespread precipitation through most of the state. The greatest amounts of precipitation were reported across the central one-third of the state where storm totals of 2-3 inches occurred. Generally, 1-2 inches of precipitation were reported elsewhere, except in a large portion of south-central Ohio where little or no rain fell during this event. The next significant weather system occurred October 17, bringing light showers across Ohio with occasional heavier showers in the southern half of the state. Amounts of 0.5-1.0 inch were common in the southern half of Ohio, while amounts of 0.25 inch or less fell in the northern half. The remainder of the month was rather dry except for some light, scattered showers around October 24 that produced generally 0.25 inch of rain.

Precipitation for the 2000 calendar year remains above normal state-wide. The average for the state as a whole is 36.06 inches, 3.72 inches above normal. Regional averages range from 38.28 inches, 3.81 inches above normal, for the Southwest Region to 33.41 inches, 4.33 inches above normal, for the Northwest Region.

The 2001 water year is off to a good start across much of the state as far as precipitation is concerned. Long-range forecasts predict near-normal climatic conditions, which should bode well for continued improvement in ground water storage during the upcoming recharge season.

PRECIPITATION OCTOBER

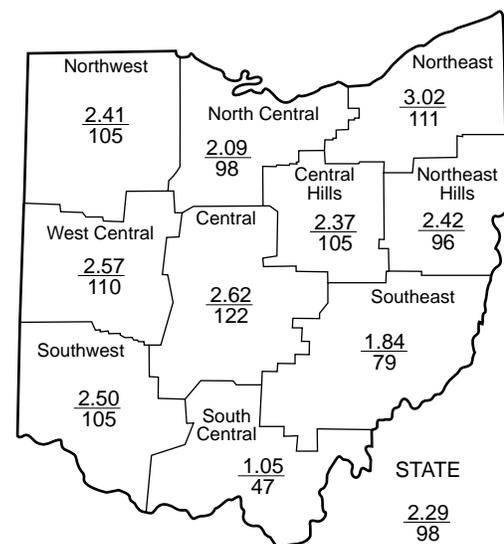


PRECIPITATION

Region	DEPARTURE FROM NORMAL (IN.)					Palmer Drought Severity Index*
	This Month	Past				
		3 Mos.	6 Mos.	12 Mos.	24 Mos.	
Northwest	+0.12	+2.49	+6.46	+3.05	-0.22	+1.6
North Central	-0.05	+1.88	+7.71	+7.24	+3.36	+2.0
Northeast	+0.30	+0.67	+4.50	+4.88	+3.01	+1.7
West Central	+0.23	+2.14	+3.11	+2.04	-3.60	+1.1
Central	+0.48	+1.06	+2.25	+3.72	-3.81	+0.5
Central Hills	+0.11	+1.98	+2.80	+4.56	-0.19	+0.7
Northeast Hills	-0.11	+0.85	+3.10	+3.92	-0.22	+0.5
Southwest	+0.11	+1.05	+1.74	+2.54	-7.42	+0.6
South Central	-1.19	+0.33	+0.61	+3.06	-4.77	0.0
Southeast	-0.49	-0.07	-0.97	+1.52	-4.69	+0.5
State	-0.05	+1.23	+3.12	+3.65	-1.88	

*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

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	285	81	42	97	83
Great Miami River at Hamilton	3,630	1,984	261	147	96	70
Huron River at Milan	371	209	620	491	324	135
Killbuck Creek at Killbuck	464	158	158	121	92	83
Little Beaver Creek near East Liverpool	496	125	104	123	95	81
Maumee River at Waterville	6,330	2,011	330	218	181	77
Muskingum River at McConnelsville	7,422	2,742	145	112	84	85
Scioto River near Prospect	567	72	260	96	110	77
Scioto River at Higby	5,131	2,186	237	124	97	81
Stillwater River at Pleasant Hill	503	193	325	169	148	65

STREAMFLOW during October was above normal across most of the state, except in northeastern Ohio where flows were below normal. Flows were high enough to be considered excessive in the western half of the state. October flows increased from the September flows throughout much of the state.

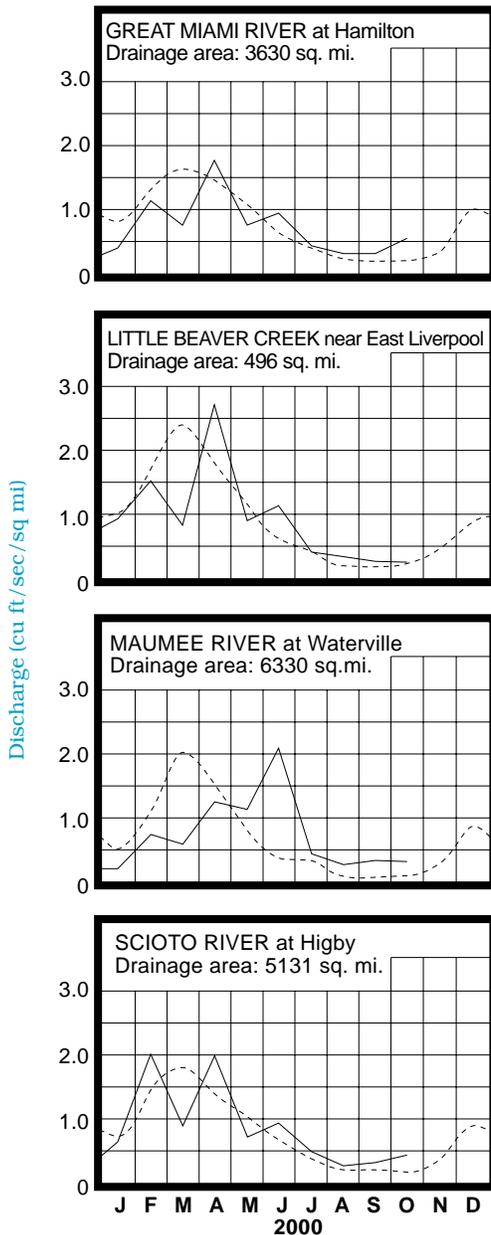
Streamflow at the beginning of the month was above normal across most of the state, except in areas of northeastern Ohio where flows were below normal. Lowest flows for the month in most basins occurred during the first few days of October, just prior to the widespread precipitation that affected Ohio during October 4-5. Greatest flows for October occurred

soon after the passage of this weather system. After peaking, flows generally declined throughout the remainder of the month, except for some slight, temporary increases most notably between October 17-20 following precipitation. Flows at the end of October were above normal across most of the state, but were below normal in some northeastern Ohio basins.

RESERVOIR STORAGE for water supply during October decreased in the Mahoning River basin and increased slightly in the Scioto River basin. Storage remained above normal in both basins.

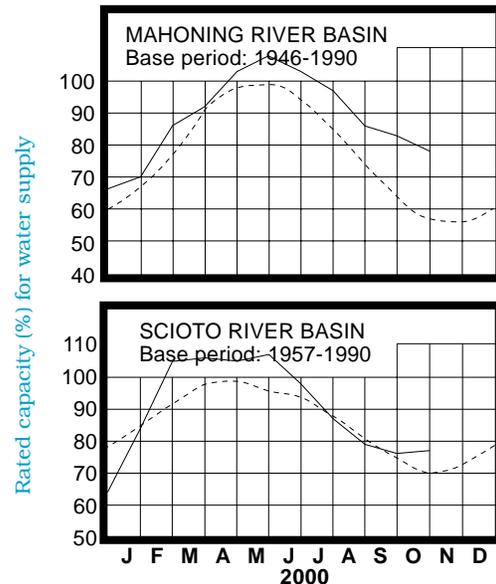
Reservoir storage at the end of October in the Mahoning basin index reservoirs was 78 percent of rated capacity for water supply compared with 83 percent for last month and 64 percent for October 1999. Month-end storage in the Scioto basin index reservoirs was 77 percent of rated capacity for water supply compared with 76 percent for last month and 55 percent for October 1999. Levels in most recreational and flood control reservoirs will soon be lowered to winter pool elevations. Surface water supplies are adequate at the start of the 2001 water year.

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

GROUND WATER levels during October generally showed net rises in unconsolidated aquifers and net declines in consolidated aquifers. In either case, net changes from September's levels were more favorable than usually observed. Ground water levels in unconsolidated aquifers rose following the early October widespread precipitation and then remained relatively stable through month's end. Levels in consolidated aquifers were somewhat stable or declined slowly during the first half of the month and then rose slightly during the second half due to delayed recharge from the earlier precipitation.

Widespread precipitation early in the month had a positive impact on ground water levels during October. This, combined with frost early in the month, brought an apparent start to the recharge season in many areas of the state. Although the prognosis is good, ground water levels still remain below normal across most of Ohio, ranging up to 2 feet below the normal seasonal levels. Exceptions are in some carbonate aquifers in the western half of the state where levels are above normal. Current levels in most aquifers remain higher than last year, ranging up to 5 feet above October 1999 levels. With continued near-normal precipitation and other favorable climatic conditions during the next several months, ground water supplies should remain adequate across the state.

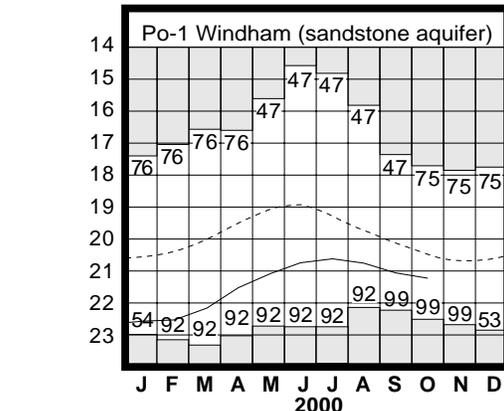
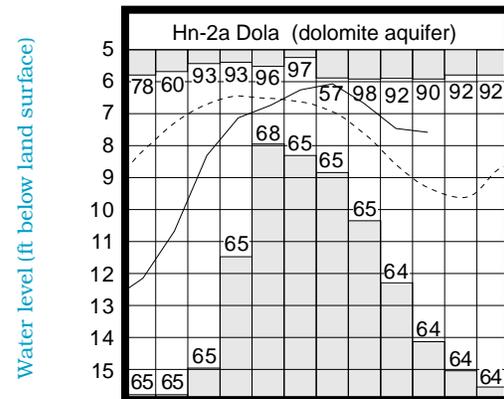
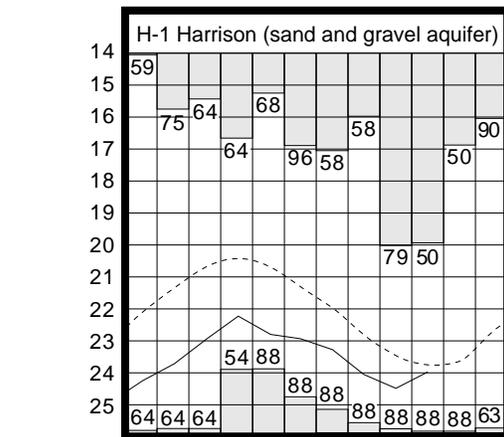
LAKE ERIE level declined seasonally during October. The mean level was 571.00 feet (IGLD-1985), 0.26 foot lower than last month's mean level and 0.04 foot above normal. This month's mean level is 0.17 foot higher than the October 1999 level and 1.80 feet above Low Water Datum.

The U. S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during October averaged 2.16 inches, 0.15 inch below normal. The entire Great Lakes basin averaged 1.85 inches for the month, 0.98 inch below normal. For calendar year 2000 through October, the Lake Erie basin has averaged 34.19 inches, 5.09 inches above normal, and the entire Great Lakes basin has averaged 28.36 inches, which is 1.09 inches above normal.

The USACE predicts that, based on the current condition of the Great Lakes basin and anticipated future weather conditions, the level of Lake Erie should continue to range from near normal to about 1.5 feet below the long-term average for the foreseeable future.

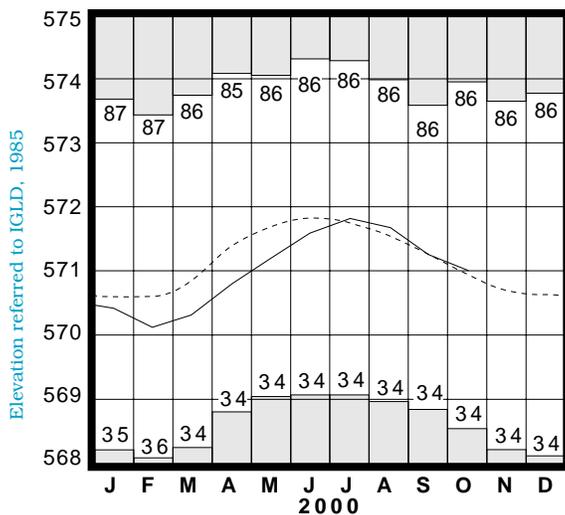
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	18.66	-1.77	-0.30	+2.57
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.60	+0.41	+0.49	+4.96
Fr-10	Columbus, Franklin Co.	Gravel	46.43	-1.99	+0.11	+0.22
H-1	Harrison, Hamilton Co.	Gravel	23.98	-0.22	+0.51	+0.64
Hn-2a	Dola, Hardin Co.	Dolomite	7.59	+1.74	-0.13	+4.02
Po-1	Windham, Portage Co.	Sandstone	21.22	-0.75	-0.16	+1.15
Tu-1	Strasburg, Tuscarawas Co.	Gravel	15.35	-1.74	-0.06	+0.95

GROUND-WATER LEVELS



Base periods: H-1, 1951-1990. Hn-2a, 1955-1990.
Po-1, 1947-1990 Record high and low, year of occurrence

LAKE ERIE LEVELS at Fairport



Base period: 1900-1991
Record high and low, year of occurrence

Normal - - - - - Current - - - - -

SUMMARY

Precipitation during October was above normal across much of western, central and northeastern Ohio, but below normal elsewhere. Streamflow was above normal throughout most of the state, but was below normal in northeastern Ohio basins. Reservoir storage decreased in the Mahoning River basin, increased slightly in the Scioto River basin and was above normal in both basins. Ground water levels generally rose in unconsolidated aquifers and declined in consolidated aquifers. Ground water levels remain below normal across most of the state. Lake Erie level declined 0.26 foot and was 0.04 foot above the long-term October average.

NOTES AND COMMENTS

Division of Water Achieves Tier 1 Ohio Award for Excellence

The ODNR Division of Water was awarded Tier 1 recognition from the Ohio Award for Excellence (OAE) program. The OAE is a cooperative business, academic, labor, government, health care, education and not-for-profit initiative designed to promote quality awareness, leadership, and operational performance throughout the state. The OAE criteria are based upon the Malcolm Baldrige National Quality Award and the President's Quality Award Program. The Division submitted an application in November 1999 and received a site visit of OAE examiners in March 2000 before being recognized at the OAE Conference in September.

NEW PUBLICATIONS

State of Ohio Technical Guidance for Well Construction and Ground Water Protection

by the State Coordinating Committee on Ground Water

The State of Ohio Technical Guidance for Well Construction and Ground Water Protection is now available. This new publication is the product of months of meetings, research, comments and input from members of the well drilling and supply industry, the Ohio Water Well Association (OWWA), local health districts and environmental health organizations, and state and federal agency representatives. The Well Construction Standards Workgroup prepared the document, with Katherine Sprowls (ODNR Division of Water) serving as editor.

In early 1992, the State Coordinating Committee on Ground Water (SCCGW) identified several major ground water resource issues and problems that they determined should be addressed. One of these issues was the lack of consistent standards and regulations between state agencies regarding the construction of water wells and test borings. The OWWA also identified the need for consistent well construction standards between state agencies and the lack of regulation of non-potable water wells. Due to these increasing concerns and efforts by the Ohio Department of Health to implement improvements to the private water systems program, in June 1996 the SCCGW formed the Well Construction Standards Workgroup to develop consistent technical standards for the construction of water wells and test borings. This guidance has already been used as a basis for the recent revisions of the Ohio Department of Health's Private Water Systems rules.

The primary purpose of the 86-page guidance is to provide consistent state standards on proper well siting, construction, testing and development/rehabilitation to ensure the protection of public health and the state's ground water resources. The guidance describes the recommended construction standards for both permanent and temporary well installations and is designed for use by drilling contractors, hydrogeologists, engineers, and state and local regulatory officials. Printed copies can be obtained from the Ohio Department of Health, the Ohio Environmental Protection Agency, and the Ohio Department of Natural Resources, Division of Water (614-265-6739). The guidance is also available to download as a Portable Document Format (PDF) file on the Division of Water's web site (www.dnr.state.oh.us/odnr/water).

1999 WATER WITHDRAWAL ANNUAL REPORT

compiled by Al Luczyk

The Ohio Water Withdrawal Facility Registration Program: 1999 annual report pamphlet is now available. This four-page report depicts on a statewide basis the amount of water withdrawn by registered facilities in 1999. It also details on a county basis the water withdrawals for each of five 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 withdraw more than 100,000 gallons of water or more per day are required to register that facility with the ODNR Division of Water and submit annual reports of actual withdrawals pursuant to Section 1521.16 of the Ohio Revised Code. Copies of the 1999 annual water withdrawal report (in grey-tones) are available from the ODNR Division of Water at 1939 Fountain Square, Building E-1, Columbus, Ohio, 43224-1385, phone (614) 265-6735. Both a color and grey-tone version of the report in a PDF format is available through the Division's web page. The address is:

<http://www.dnr.state.oh.us/odnr/water/waterinv/wwfprog/wwfprog.html>.

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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