



# MONTHLY WATER INVENTORY REPORT FOR OHIO

October 2002

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

Compiled By David H. Cashell and Scott Kirk

Hydrologists  
Water Inventory Unit

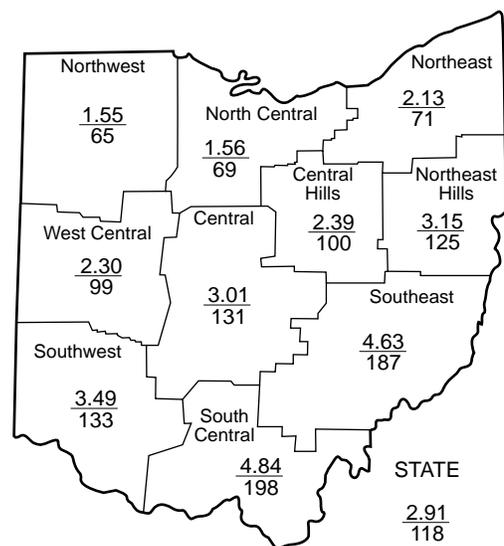
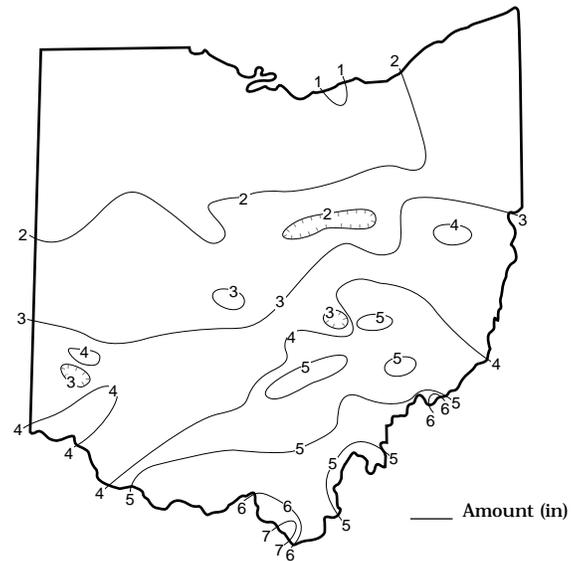
**PRECIPITATION** during October was above normal across the southern two-thirds of the state and below normal in the northern third. The average for the state as a whole was 2.91 inches, 0.44 inch above normal. Regional averages ranged from 4.84 inches, 2.40 inches above normal, for the South Central Region to 1.55 inches, 0.82 inch below normal, for the Northwest Region. This was the 11<sup>th</sup> wettest October for the Southeast Region and the 13<sup>th</sup> wettest for the South Central Region during the past 107 years of record. South Point (Lawrence County) reported the greatest amount of October precipitation, 7.03 inches. Elyria (Lorain County) reported the least amount, 0.90 inch.

Precipitation during October was greatest in southeastern Ohio and decreased in amount to the north and west. Remnants from Hurricane Lili passed through Ohio during October 3-4 bringing generally 0.25-0.75 inch of rain with only northeastern Ohio receiving less than 0.25 inch. Scattered showers during October 10-11 brought 0.25-0.50 inch of rain to the southern half of Ohio with isolated heavier showers bringing as much as 1 inch of rain. Steady rain fell across the southeastern half of the state during October 16-17 with storm totals of 0.50-1.0 inch common. Heavier rains in and around Athens, Washington, and Morgan counties produced amounts of more than 2 inches during this period. Widespread rain on October 25 brought 0.50-1.0 inch of precipitation across the state, with a large area through central and southwestern Ohio receiving 1-2 inches. Precipitation during October 28-30 was heaviest in the southern half of the state. Generally, 0.25 inch or less of rain fell in the northern half of Ohio, while the southern half received 0.50-1.5 inches of precipitation.

Precipitation for the 2002 calendar year is generally below normal in the northern half of the state and above normal in the southern half. The average for the state as a whole is 32.60 inches, 0.32 inch above normal. Regional averages range from 39.16 inches, 4.51 inches above normal, for the South Central Region to 25.93 inches, 3.13 inches below normal, for the Northwest Region.

As far as precipitation is concerned, the 2003 (October 2002-September 2003) water year is off to a very good start in the southern two-thirds of the state. However, the droughty conditions that have affected much of Ohio during the summer months continued into October in northern Ohio. Near-normal precipitation during the next several months (the 2003 water year recharge season) will have positive benefits for water supplies throughout the state.

## PRECIPITATION OCTOBER



## 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	-0.82	-2.14	-4.20	-4.14	-0.87	-2.2
North Central	-0.71	+0.02	-1.30	-0.28	-3.47	-0.5
Northeast	-0.85	-1.53	-2.09	-2.08	-7.81	-0.9
West Central	-0.03	+0.29	-2.11	-0.38	+3.17	+0.2
Central	+0.72	+1.68	+1.66	+1.81	+1.84	+1.0
Central Hills	0.00	+0.03	-1.41	-0.90	-5.41	-0.8
Northeast Hills	+0.62	+0.72	-1.25	-2.02	-6.95	-1.3
Southwest	+0.87	+2.12	+3.41	+5.27	+5.90	+2.0
South Central	+2.40	+1.19	+2.45	+3.86	-0.45	+1.5
Southeast	+2.16	+0.79	+2.03	+2.39	+1.75	+1.3
State	+0.44	+0.32	-0.28	+0.36	-1.23	

\*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	% of Normal Past		
				3 Mos.	6 Mos.	12 Mos.
Grand River near Painesville	685	54	23	9	79	79
Great Miami River at Hamilton	3,630	1,210	126	80	129	132
Huron River at Milan	371	9	21	25	59	80
Killbuck Creek at Killbuck	464	73	54	33	83	76
Little Beaver Creek near East Liverpool	496	79	50	30	70	67
Maumee River at Waterville	6,330	336	43	25	71	92
Muskingum River at McConnelsville	7,422	1,612	63	78	170	78
Scioto River near Prospect	567	35	129	43	72	98
Scioto River at Higby	5,131	1,392	110	56	103	93
Stillwater River at Pleasant Hill	503	28	45	17	91	113

**STREAMFLOW** during October was below normal in the northern half of the state and above normal in the southern half of Ohio. Flows were low enough to be considered deficient throughout most of northern Ohio.

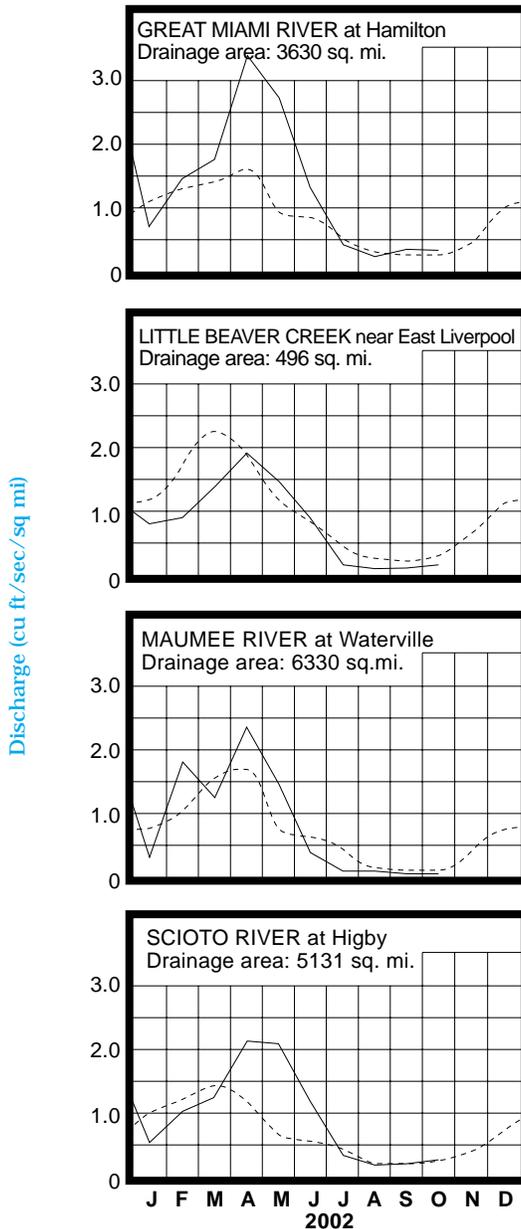
Streamflow was generally above normal in the southern half of Ohio and below normal in the northern half at the beginning of October. Flows tended to decline through the first half of the month. Low flows for October occurred around mid-month across most of the state. Greatest flows for October occurred at the beginning of the month in the northern third of the state and near the end of the month throughout the remainder of the state. Flows at the end of October were below normal in the northern half of the state

and above normal in the southern half of Ohio.

**RESERVOIR STORAGE** for water supply during October declined in both the Mahoning and Scioto river basins. Storage at the end of the month was near or above normal statewide.

Reservoir storage at the end of October in the Mahoning basin index reservoirs was 65 percent of rated capacity for water supply compared with 70 percent for last month and 62 percent for October 2001. Month-end storage in the Scioto basin index reservoirs was 72 percent of rated capacity for water supply compared with 78 percent for last month and 77 percent for October 2001.

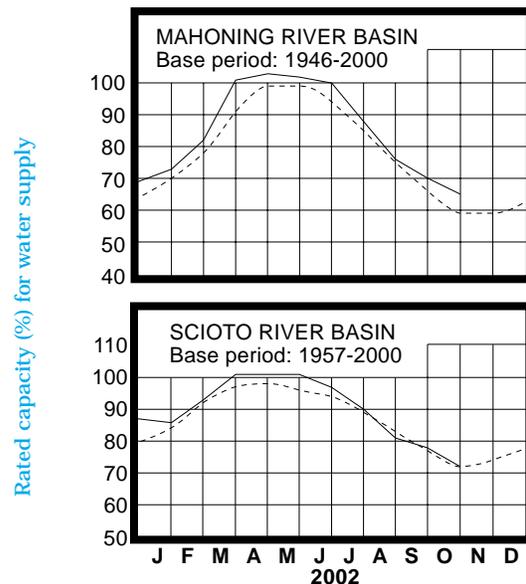
## MEAN STREAM DISCHARGE



Base period for all streams: 1971-2000

Normal - - - - Current ———

## RESERVOIR STORAGE FOR WATER SUPPLY



Rated capacity (% for water supply)

## GROUND-WATER LEVELS

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

**GROUND WATER** levels during October declined across most of Ohio, but a few exceptions were observed in some aquifers in the southern half of the state. Generally, levels declined throughout most of the month, but in some aquifers in southern Ohio levels rose during the last week of October following abundant precipitation that fell during the period. Net declines during the month were greater than usually observed for October in northern Ohio and less than usually observed in southern Ohio.

Above normal precipitation during October in southern Ohio had a positive impact on ground water storage. This, combined with the end of the growing season and below normal temperatures during most of the month, brought an apparent start to the 2003 recharge season in some areas of southern Ohio. Although the prognosis seems positive for recharge in southern Ohio, ground water levels remain below normal across most of the state. Current ground water levels range from slightly below to more than 3 feet below the normal October level. Also, current levels range from nearly 1 foot above to about 1.5 feet below the October 2001 levels. One notable exception is observation well HN-2A (Dola, Hardin County), representing the carbonate aquifers of northwestern Ohio, which was nearly 4.5 feet below the October 2001 level and more than 3 feet below the normal October level, reflecting the deficit in precipitation that part of the state has received during the past several months. Although below the normal seasonal levels, ground water supplies are adequate across the state. With near-normal precipitation and other climatic conditions during the next several months, ground water supplies should remain adequate statewide.

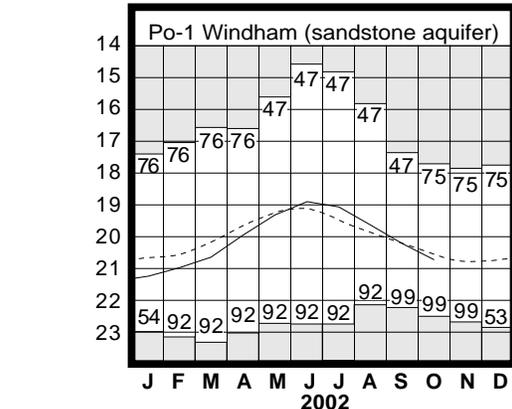
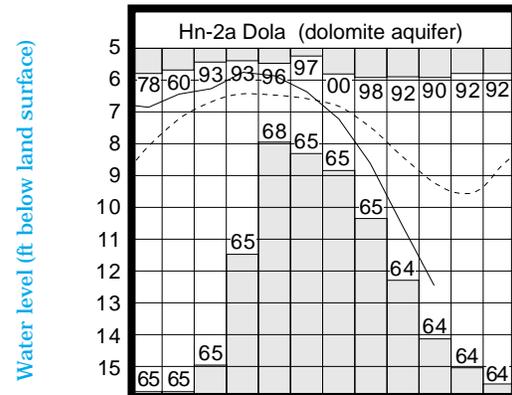
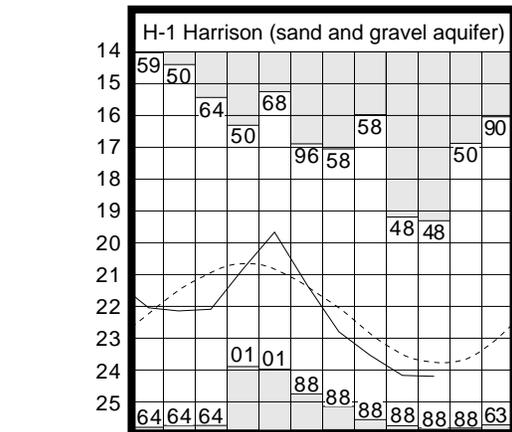
**LAKE ERIE** level declined seasonally during October. The mean level was 570.73 feet (IGLD-1985), 0.30 foot lower than last month's mean level and 0.37 foot below normal. This month's mean level is 0.45 foot higher than the October 2001 level and 1.53 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during October averaged 1.90 inches, which is 0.85 inch below normal. The entire Great Lakes basin averaged 3.05 inches, which is 0.22 inch above normal. For calendar year 2002 through October, the Lake Erie basin has averaged 28.50 inches of precipitation, 1.03 inches below normal, while the entire Great Lakes basin has averaged 28.05 inches, which is 0.77 inch above normal.

In addition, the USACE reports that based on the current condition of the Great Lakes basin and anticipated weather conditions, the level of Lake Erie should range about 4 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 as high as 5 inches above normal to as much as 16 inches below the normal seasonal level.

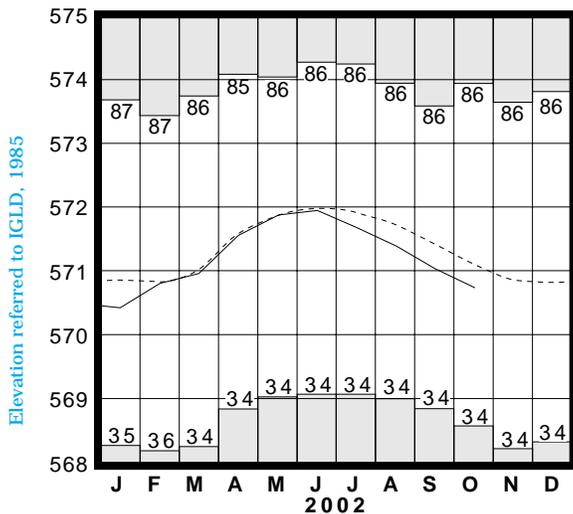
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	18.52	-1.08	-0.49	+0.06
Fa-1	Jasper Mill, Fayette Co.	Limestone	11.80	-2.72	+0.44	-1.67
Fr-10	Columbus, Franklin Co.	Gravel	46.40	-2.17	+0.35	+0.30
H-1	Harrison, Hamilton Co.	Gravel	24.20	-0.44	-0.03	-1.59
Hn-2a	Dola, Hardin Co.	Dolomite	12.45	-3.22	-1.86	-4.45
Po-1	Windham, Portage Co.	Sandstone	20.71	-0.16	-0.49	+0.72
Tu-1	Strasburg, Tuscarawas Co.	Gravel	16.24	-2.28	-0.24	+0.22

## 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



Base period: 1918-2000  
Record high and low, year of occurrence

Normal - - - - Current ———

## SUMMARY

Precipitation during October was above normal in the southern two-thirds of Ohio and below normal in the northern third. Streamflow was generally above normal in southern Ohio and below normal in northern Ohio. Reservoir storage declined in both the Mahoning and Scioto river basins, but was near or above normal statewide. Ground water levels declined seasonally across most of the state and were below normal. Lake Erie level declined 0.30 foot and was 0.37 foot below the long-term October average.

## NOTES AND COMMENTS

### Division of Water Employees Receive Awards

Three Division of Water Employees received awards recently for their dedicated service in the field of water resources. James R. Morris, Chief of the Ohio Department of Natural Resources (ODNR), Division of Water, was presented the *Wayne S. Nichols Award* at the Water Management Association of Ohio (WMAO) fall conference. This award is presented to a person who exemplifies public leadership, innovation and accomplishments in the water resources field. Jim's contribution to the protection and preservation of Ohio's water resources, including critical Lake Erie programs and the passing of knowledge about the importance of water resources to thousands of teachers and students every year through Project Wet and the Ohio Water Education Program, make him a perfect fit for this distinguished award.

Also at the WMAO fall conference, Mike Geese, a planner with the Floodplain Management Program, was presented the *Distinguished Service Award*. Mike was honored for his dedicated, conscientious and hard work in the field of floodplain management. He has used his understanding of water management and the natural floodplain functions to promote the best and comprehensive floodplain management strategies. He has been the lead in the development of regulations that will bring all of Ohio closer to less flood risk and better management of the floodplain resources.

Cynthia Crecelius, Program Manager for the Floodplain Management Program, was awarded the *Peter G. Finke Award for Most Valuable Contribution to Floodplain Management* at this year's State Floodplain Management Conference. This award was established as a tribute to Peter Finke in recognition of his three decades of distinguished service and leadership in Ohio and national floodplain management. Recipients are selected based upon their outstanding contribution to the multifaceted aspects of floodplain management. Cindy's contributions and accomplishments far exceed the criteria set for this award. In addition to serving as manager of the Floodplain Management Program, she is the State Coordinating Officer for the National Flood Insurance Program. Cindy, a strong advocate of wise floodplain management, has been instrumental in placing Ohio's Floodplain Management Program in the forefront of water-resource management in our region and the nation.

### 2001 Water Withdrawal Annual Report

*Compiled by Jason Remich and Frank Fugitt*

The ODNR, Division of Water, announces the availability of the Ohio Water Withdrawal Facility Registration Program: 2001 annual report. This four-page report depicts on a statewide basis the amount of water withdrawn by registered facilities in the 2001 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 withdraw 100,000 gallons of water or more per day are required by law to register their facilities with the ODNR Division of Water and are further required to submit annual reports of actual withdrawals pursuant to Section 1521.16 of the Ohio Revised Code. Copies of the 2001 annual withdrawal report are available from the ODNR Division of Water, 1939 Fountain Square, Building E-1, Columbus, Ohio, 43224, phone (614) 265-6739. This report is also available as a PDF file through the Division of Water's web page at: <http://www.dnr.state.oh.us/water/waterinv/wwfrprog/wwfrprog.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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