



# MONTHLY WATER INVENTORY REPORT FOR OHIO

January 2003

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

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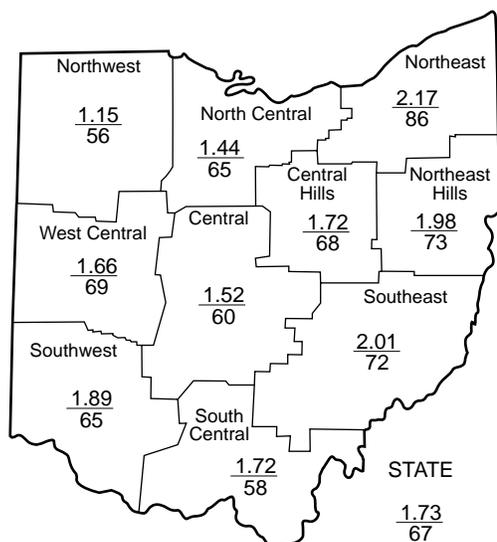
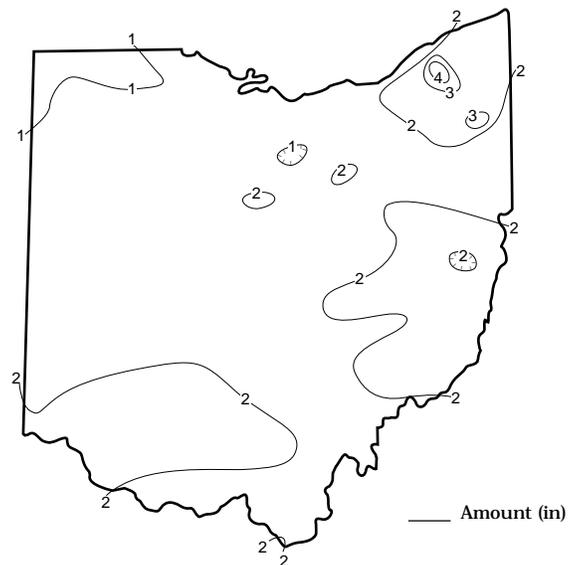
**PRECIPITATION** during January was below normal across nearly the entire state. The average for the state as a whole was 1.73 inches, 0.84 inch below normal. Regional averages ranged from 2.17 inches, 0.35 inch below normal, for the Northeast Region to 1.15 inches, 0.89 inch below normal, for the Northwest Region. This was the 20<sup>th</sup> driest January during the past 109 years for the South Central Region and the 21<sup>st</sup> driest for the Northwest Region. Chardon (Geauga County) reported the greatest amount of January precipitation, 4.14 inches. Montpelier (Williams County) reported the least amount, 0.58 inch.

Precipitation fell as rain at the beginning of the month and as snow or a wintry mix the remainder of January as temperatures ranged below normal during most of the month. Several stations reported measurable precipitation on more than half of the days during January, but only a few days had noteworthy amounts of precipitation. Snow amounts for the month were above normal across most of the state. Chardon reported 67 inches of snow, a record amount for January, and nearly 3 times their January average snowfall. A steady rain fell throughout most of the state on New Years Day, ending on January 2 as a period of snow in northern Ohio and a wintry mix elsewhere. Precipitation amounts during this period varied from 0.50-1.0 inch in the southern half of the state to 0.25-0.50 inch in the northern half. Most of the snow during the month was light across much of the state, but more notable amounts fell around January 5-6, 26 and 29. Moderate snow during January 5-6 accumulated to generally 3-6 inches across most of the state. Snowfall during January 26 added another 2-6 inches statewide while snowfall around January 29 totaled generally 2-5 inches across northern Ohio with little accumulations elsewhere.

Precipitation for the 2003 water year is below normal across most of the state, but above normal in southeastern Ohio. The average for the state as a whole is 10.25 inches, 0.53 inch below normal. Regional averages range from 12.63 inches, 1.24 inches above normal, for the South Central Region to 7.62 inches, 2.01 inches below normal, for the Northwest Region.

The 2003 calendar year is not off to a very good start as far as precipitation is concerned. However, several months remain during which there is the potential for additional recharge. Near normal precipitation during the next several months will be important in order to replenish the states water supplies. Currently, water supplies are adequate as we begin the new year.

## PRECIPITATION JANUARY



## PRECIPITATION

Region	This Month	DEPARTURE FROM NORMAL (IN.) Base period 1951-2000				Palmer Drought Severity Index*
		Past				
		3 Mos.	6 Mos.	12 Mos.	24 Mos.	
Northwest	-0.89	-1.19	-3.33	-4.57	-0.13	-2.6
North Central	-0.77	-0.46	-0.61	-0.68	-2.15	+0.5
Northeast	-0.35	-0.03	-1.58	-0.57	-5.92	-0.6
West Central	-0.76	-0.52	-0.23	-0.20	+4.96	+0.3
Central	-1.03	-1.41	+0.19	+0.59	+1.89	+1.2
Central Hills	-0.80	-1.42	-1.30	-1.64	-4.94	-0.8
Northeast Hills	-0.74	-1.04	-0.32	-2.49	-5.82	+0.3
Southwest	-1.04	-0.99	+1.13	+4.33	+7.60	+1.9
South Central	-1.26	-1.16	+0.03	+3.33	+0.75	+1.4
Southeast	-0.77	-1.13	-0.50	+1.18	+2.06	+0.9
State	-0.84	-0.94	-0.66	-0.09	-0.20	

\*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	702	46	45	38	75
Great Miami River at Hamilton	3,630	4,399	110	96	92	122
Huron River at Milan	371	294	68	92	76	87
Killbuck Creek at Killbuck	464	255	49	45	41	72
Little Beaver Creek near East Liverpool	496	393	67	48	43	63
Maumee River at Waterville	6,330	3,668	75	40	37	80
Muskingum River at McConnelsville	7,422	5,909	64	86	84	75
Scioto River near Prospect	567	749	149	99	89	96
Scioto River at Higby	5,131	5,671	90	84	76	93
Stillwater River at Pleasant Hill	503	369	82	45	38	93

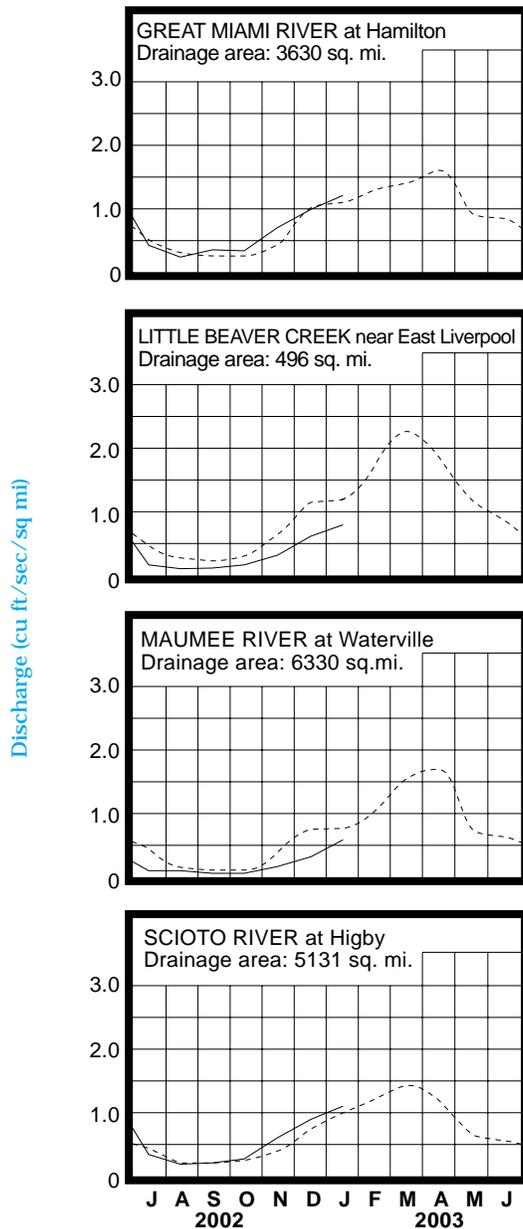
**STREAMFLOW** during January was below normal across most of the state, but was above normal in central and southwestern Ohio. Flows were low enough to be considered deficient across many basins in the eastern half of the state.

Flows at the beginning of the month were above normal across much of the state, but below normal in southeastern Ohio. Greatest flows for January occurred at the beginning of the month statewide, reflecting the precipitation that fell near the end of December and beginning of January. Following these peaks, except for some temporary increases noted following a brief thaw on the 8<sup>th</sup> and 9<sup>th</sup>, flows declined the remainder of the month as only light frozen precipitation fell across most of the state. This, combined with below normal temperatures, resulted in little runoff through month's end. As a result, low flows for January occurred at the end of the month and these flows were below normal statewide.

**RESERVOIR STORAGE** during January decreased slightly in the Mahoning River basin and increased in the Scioto River basin. Storage at the end of the month was above normal in the Mahoning River basin and below normal in the Scioto River basin.

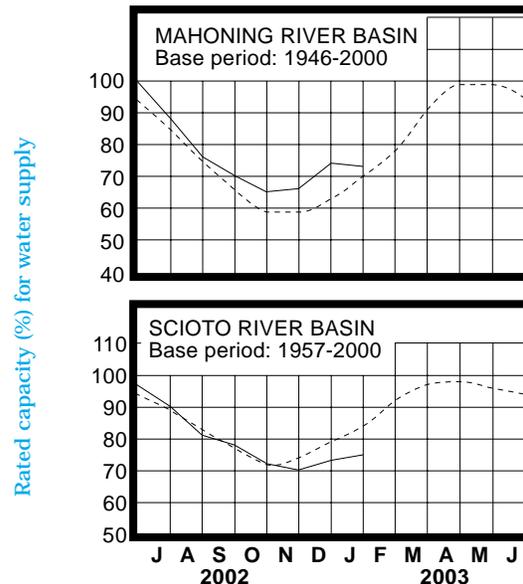
Reservoir storage at the end of January in the Mahoning basin index reservoirs was 73 percent of rated capacity for water supply compared with 74 percent for last month and 73 percent for January 2002. Month-end storage in the Scioto basin index reservoirs was 75 percent of rated capacity for water supply compared with 73 percent for last month and 86 percent for January 2002.

## 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

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	14.55	+1.24	+2.46	+2.36
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.01	-0.49	+0.58	+0.15
Fr-10	Columbus, Franklin Co.	Gravel	45.33	-1.99	+0.34	+0.14
H-1	Harrison, Hamilton Co.	Gravel	22.50	-0.27	+0.84	-0.44
Hn-2a	Dola, Hardin Co.	Dolomite	10.33	-2.25	+2.49	-3.47
Po-1	Windham, Portage Co.	Sandstone	21.15	-0.48	+0.13	+0.09
Tu-1	Strasburg, Tuscarawas Co.	Gravel	15.62	-2.50	+0.66	+0.17

**GROUND WATER** levels during January showed net improvement in all aquifers throughout the state. Net changes from December's levels were near normal or greater than usually observed in most aquifers. Ground water levels rose early in the month, responding to recharge from precipitation that occurred at the end of December and beginning of January. Levels in shallow unconsolidated aquifers remained rather stable or declined slightly during the remainder of the month, while levels in most consolidated aquifers rose during the first 3 weeks of the month, receiving some delayed recharge, then declined during the last week of January.

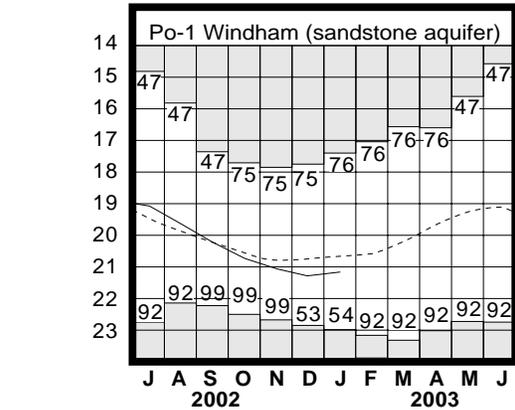
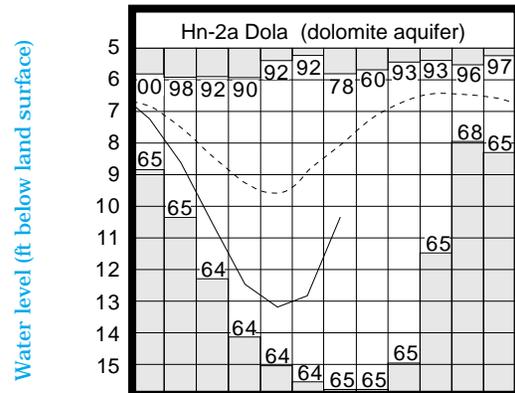
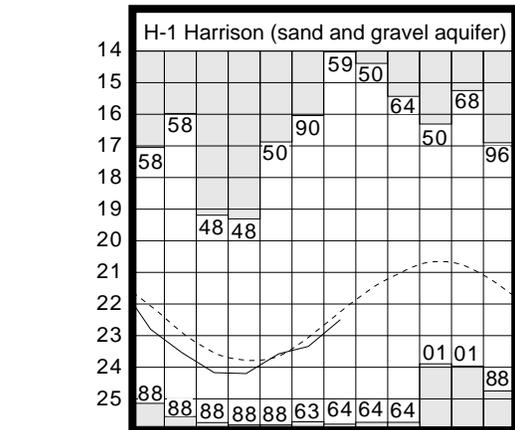
This was the first month of the 2003 recharge season where ground water levels have shown improvement statewide. However, ground water levels remain below normal across most of the state. Current levels are also lower than they were a year ago in aquifers across much of western Ohio, while they are higher than last year's levels in most eastern Ohio aquifers. Despite being at below-normal levels across most of the state, ground water storage is adequate statewide. Near normal precipitation and other climatic conditions during the next several months would provide ample opportunity for needed recharge to the state's ground water supplies.

**LAKE ERIE** level rose during January. The mean level was 570.31 feet (IGLD-1985), 0.03 foot higher than last month's level and 0.56 foot below normal. This month's mean level is 0.10 foot lower than the January 2002 level and 1.11 feet above Low Water Datum.

The U. S. Army Corps of Engineers (USACE) reports that based on the current condition of the Great Lakes basin and anticipated weather conditions, the level of Lake Erie should range between 6-13 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 about 1 inch below normal to as much as 20 inches below the normal seasonal level.

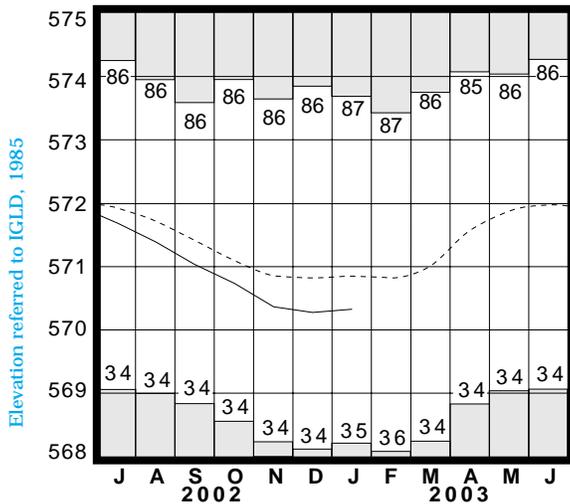
The USACE also reports that precipitation in the Lake Erie basin during January averaged 1.54 inches, which is 0.90 inch below normal. For the entire Great Lakes basin, precipitation during January averaged 1.28 inches, which is 0.89 inch below normal.

## 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 January was below normal across nearly the entire state. Streamflow was below normal across most of the state, but above normal in central and southwestern Ohio. Reservoir storage decreased in the Mahoning River basin and increased in the Scioto River basin. Reservoir storage was above normal in the Mahoning and below normal in the Scioto river basins. Ground water levels rose statewide, but remained below normal across most of the state. Lake Erie level rose 0.03 foot and was 0.56 foot below the long-term January average.

## NOTES AND COMMENTS

### Long-Time Division of Water Employee Retires

Patsy Cutler, Administrative Assistant for the Water Resources Section, retired from the Division of Water on January 31, 2003 after more than 19 years of service. Patsy began her career at ODNR with the Division of Oil and Gas, spending the past 12 years with the Division of Water. During her career at ODNR, Patsy provided dependable, professional and dedicated service to both divisions. She handled the daily administrative operations of the Water Resources Section, processed information requests, assisted the staff geologists with the water well log computer system, and helped others in the section wherever she could. Patsy was a joy to work with and will be greatly missed by all who had an opportunity to work with her. The entire Division of Water staff wishes Patsy the best in her retirement.

### Observation Well Network Pioneer Passes

Lloyd C. Flowers, one of the founding fathers of Ohio's Observation Well Network, passed away on February 7, 2003. Lloyd worked as a field hydrologist for the Division of Water after its creation within ODNR in 1949. Prior to that, he worked for the Ohio Water Resources Board, beginning there in October 1946. Lloyd was instrumental in operating and maintaining the Observation Well Network. Many of the wells in the network today were originally located and equipped by Lloyd. He retired from the division in 1974. Lloyd, a WWII veteran with the U.S. Army Air Corps, was 86 and is survived by his wife, son and daughter in law, and 2 grandsons.

## 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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