



# MONTHLY WATER INVENTORY REPORT FOR OHIO

January 2001

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

Compiled By David H. Cashell and Scott Kirk

Hydrologists  
Water Inventory Unit

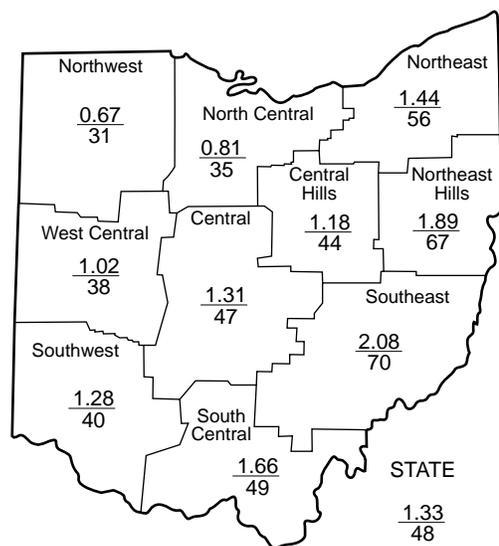
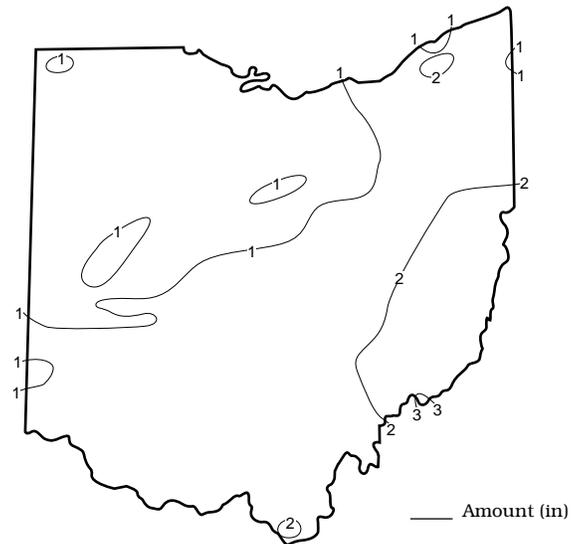
**Precipitation** during January was noticeably below normal across Ohio. The state average was 1.33 inches, 1.43 inches below normal. For the state as a whole, this was the 9th driest January during the past 119 years. Regional averages ranged from 2.08 inches, 0.89 inch below normal, for the Southeast Region to 0.67 inch, 1.51 inches below normal, for the Northwest Region. January precipitation in several regions ranked among their driest of record including: North Central Region, 4th driest; Northwest Region, 5th driest; Central Hills Region, 9th driest; Southwest Region, 10th driest; Central Region, 11th driest; West Central Region, 13th driest; Northeast Region, 14th driest; South Central Region, 16th driest. Marietta State Nursery (Washington County) reported the greatest amount of January precipitation, 3.14 inches. Bowling Green (Wood County) reported the least amount, 0.35 inch. Many other stations in the north-western quarter of the state reported less than 1 inch of precipitation for the month.

Precipitation fell as both rain and snow during January. Monthly totals ranged from nearly 3 inches in extreme east-central and southeastern Ohio to less than 1 inch in the northwestern quarter of the state. Snowfall for the month was near or slightly above normal in the eastern half of the state and below normal in the western half. The first 18 days of the month were rather dry with only light snow falling on several days. An exception was in the northeastern Ohio snowbelt areas where greater amounts fell. Most of January's precipitation fell in the last two weeks of the month during two events. The first was during January 18-20 from a weather system that affected mainly east-central and southeastern Ohio. Precipitation began as rain with 0.25-0.50 inch reported on January 18 from the region. The precipitation turned to snow on the 19th and as much as 6-8 inches of snow fell across the area (another 0.25-0.50 inch liquid precipitation). A few reports of more than an inch of precipitation were received from this area while less than 0.25 inch was reported across most of the remainder of the state. The second event was during January 29-31 and was the most notable and widespread of the month. Rain fell across the entire state with amounts of 0.25-0.50 inch common in the northern half of Ohio and 0.50-1.0 inch reported in the southern half. The combination of the rain and icejams caused some streams to overflow their banks causing minor, lowland flooding locally.

Precipitation for the 2001 water year is below normal statewide. The state average is 8.50 inches, 1.83 inches below normal. Regional averages range from 10.08 inches, 0.75 inch below normal, for the Northeast Region to 7.06 inches, 2.09 inches below normal, for the North Central Region.

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## PRECIPITATION JANUARY



Average (in)  
Percent of normal

## PRECIPITATION

Region	This Month	DEPARTURE FROM NORMAL (IN.)				Palmer Drought Severity Index*
		Past				
		3 Mos.	6 Mos.	12 Mos.	24 Mos.	
Northwest	-1.51	-1.65	+0.72	+3.34	-0.89	+0.9
North Central	-1.49	-2.21	-0.21	+5.00	+2.45	+1.5
Northeast	-1.15	-1.05	-0.45	+3.15	+2.39	+0.9
West Central	-1.65	-2.03	+0.08	+0.85	-5.57	+0.2
Central	-1.50	-1.29	-0.18	+2.14	-4.84	0.0
Central Hills	-1.52	-1.38	+0.61	+2.83	-1.73	0.0
Northeast Hills	-0.94	-1.78	-0.93	+2.00	-3.13	+0.2
Southwest	-1.95	-2.56	-1.51	+0.53	-10.27	-0.4
South Central	-1.71	-2.46	-2.17	+0.50	-8.10	-0.8
Southeast	-0.89	-1.40	-1.41	-0.01	-6.91	-0.5
State	-1.43	-1.78	-0.55	+2.03	-3.69	

\*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

## MEAN STREAM DISCHARGE

River and Location	Drainage Area (Sq. Mi.)	Mean Discharge (CFS)	% of Normal	% of Normal Past		
				3 Mos.	6 Mos.	12 Mos.
				This Month		
Grand River near Painesville	685	1,473	140	85	78	85
Great Miami River at Hamilton	3,630	1,773	60	63	80	81
Huron River at Milan	371	242	68	168	210	153
Killbuck Creek at Killbuck	464	259	69	91	100	88
Little Beaver Creek near East Liverpool	496	440	89	82	93	82
Maumee River at Waterville	6,330	2,307	73	62	75	86
Muskingum River at McConnelsville	7,422	3,971	50	81	89	89
Scioto River near Prospect	567	176	52	66	67	84
Scioto River at Higby	5,131	2,131	57	81	95	89
Stillwater River at Pleasant Hill	503	208	58	49	61	73

**STREAMFLOW** during January was below normal statewide except in a few basins in extreme northeastern Ohio where it was above normal. Flows were low enough to be considered deficient in some south-central and southeastern Ohio basins. January's flows were less than December's.

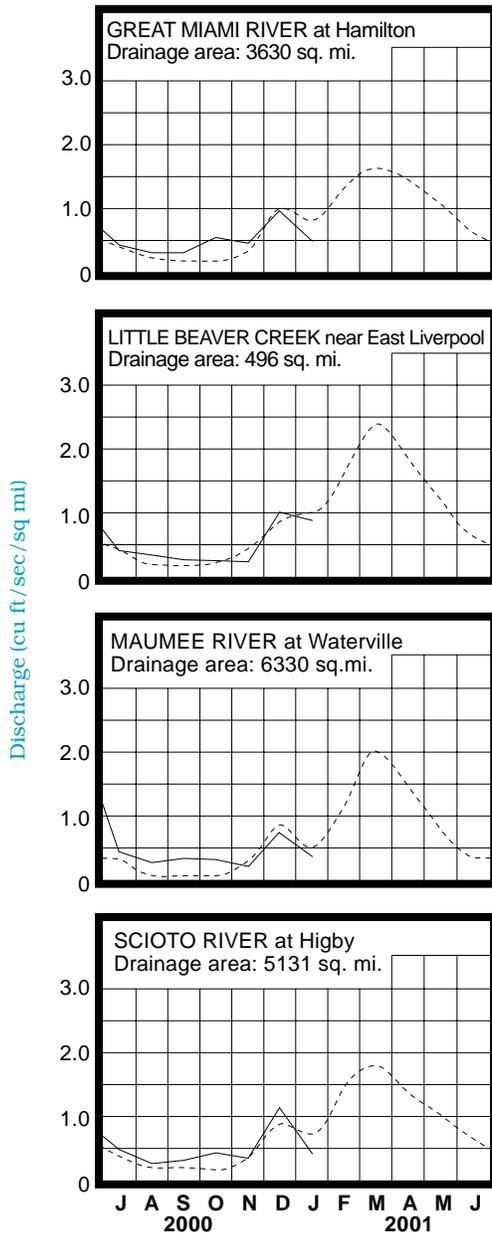
Streamflow at the beginning of the month was below normal across most of the state. Flows steadily declined during the first half of the month as a result of prevailing dry conditions. The lowest flows for the month occurred during this time, generally between January 13-15, in many northwestern and southeastern Ohio basins. Streamflow increased statewide during

the next 3 or 4 days following light rain showers and melting of snow and ice. After this, flows decreased steadily until late in the month with the remainder of the state recording its lowest flows at this time. Rainfall during January 29-31 increased streamflow statewide resulting in greatest flows for the month occurring on January 31 with some minor, lowland flooding reported locally. Flows at the end of January were generally above normal.

**RESERVOIR STORAGE** for water supply during January increased in the Mahoning River basin and was unchanged in the Scioto River basin. Month-end storage remained above normal in both basins.

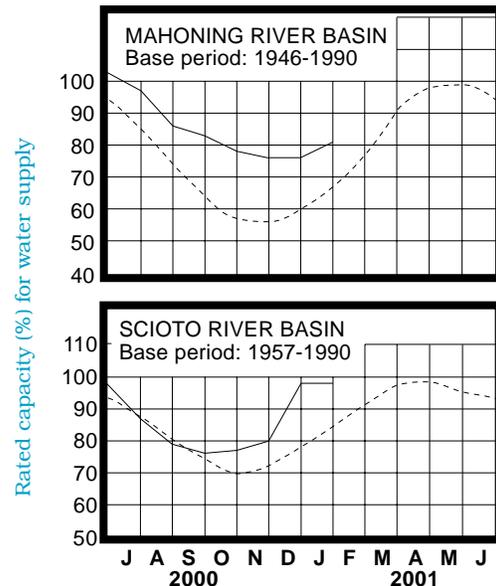
Reservoir storage at the end of January in the Mahoning basin index reservoirs was 81 percent of rated capacity for water supply compared with 76 percent for last month and 70 percent for January 2000. Month-end storage in the Scioto basin index reservoirs was 98 percent of rated capacity for water supply compared with the same for last month and 84 percent for January 2000.

## 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 January showed mixed responses across the state. Net changes from December's levels were less than usually observed. Generally, ground water levels remained steady or declined gradually during the month. Some improvement occurred near the end of the month in a few unconsolidated aquifers in response to the rain that fell late in the month. The frozen soils and noticeably below normal precipitation limited recharge.

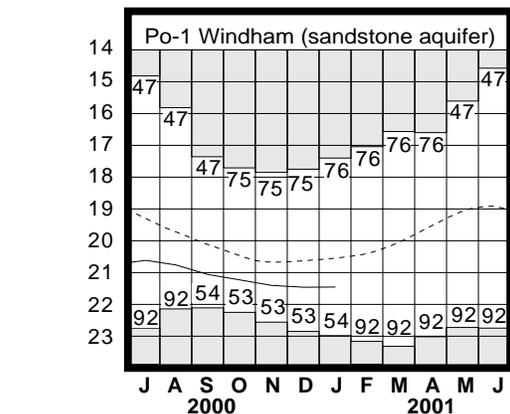
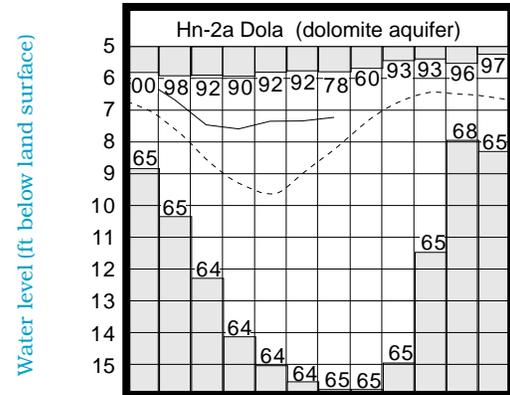
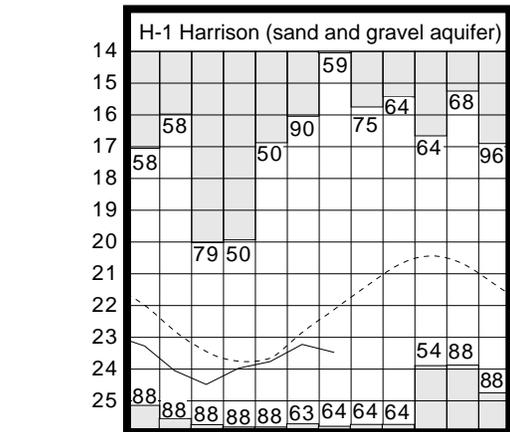
Ground water storage continues to remain below normal across most of the state. The only exception is in some carbonate aquifers in northwestern Ohio where levels are above normal. However, ground water levels remain higher than they were at this time last year. Current levels range from about 0.5 foot to nearly 5 feet above the exceptionally low January 2000 levels. Although the potential for recharge is still favorable, normal precipitation and other climatic conditions during the next few months would be adequate for improvement to the state's ground water storage.

**LAKE ERIE** level declined noticeably during January. The mean level was 570.11 feet (IGLD-1985), 0.30 foot lower than last month's level and 0.49 foot below normal. This month's mean level is 0.30 foot lower than the January 2000 level and 0.91 foot above Low Water Datum.

The U. S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during January averaged 1.83 inches, 0.61 inch below normal, and the entire Great Lakes basin averaged 1.68 inches which is 0.49 inch below normal. In addition, 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 range from 0.5 foot to 1 foot below the long-term seasonal average for the foreseeable future. However, deviations from the expected weather patterns could result in the lake level ranging from slightly below to nearly 2 feet below the normal seasonal levels.

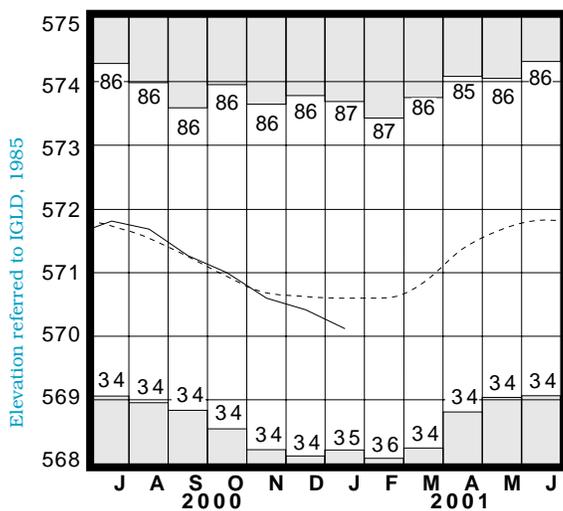
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	17.30	-1.75	+1.83	+4.72
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.22	-0.78	-0.10	+4.44
Fr-10	Columbus, Franklin Co.	Gravel	45.34	-1.73	+0.47	+0.45
H-1	Harrison, Hamilton Co.	Gravel	23.47	-1.34	-0.25	+0.68
Hn-2a	Dola, Hardin Co.	Dolomite	7.23	+0.97	+0.10	+4.84
Po-1	Windham, Portage Co.	Sandstone	21.45	-0.90	+0.01	+1.12
Tu-1	Strasburg, Tuscarawas Co.	Gravel	14.82	-1.89	+0.56	+0.96

## GROUND-WATER LEVELS



Base periods: H-1, 1951-1990. Hn-2a, 1955-1990.  
Po-1, 1947-1990

## LAKE ERIE LEVELS at Fairport



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

Normal - - - - - Current ———

*(Precipitation continued from front)*

The 2001 calendar year is not off to a very good start as far as precipitation is concerned. Several months remain with the potential for additional recharge. Near normal precipitation during the next several months should be adequate for replenishing the state's water supplies.

#### SUMMARY

Precipitation during January was noticeably below normal statewide. Streamflow was below normal across most of the state. Reservoir storage increased in the Mahoning River basin and was unchanged in the Scioto River basin. Month-end storage remained above normal in both basins. Ground water levels showed mixed responses and remained below normal across most of Ohio. Lake Erie level decline 0.30 foot and was 0.49 foot below the long-term January average.

#### NOTES AND COMMENTS

##### **New Statewide Aquifer Maps Available for Distribution**

In March 2000 the Division of Water completed a series of new aquifer maps that cover the state of Ohio. Separate maps were constructed for the bedrock and unconsolidated aquifers. All maps were prepared at a scale of 1:24,000 (1 inch equals 2000 feet), digitized into the GIS program ArcInfo, and then joined into statewide aquifer coverages. These coverages contain information on aquifer yield, thickness, boundaries and names. Coverages are available in both ArcInfo (.e00) export format and ArcView shapefile (.shp) format. For information on this project and instructions on how to download coverage files or order a CD-ROM of the coverages, call Mike Hallfrisch at (614) 265-6745 or visit the Division's web site at: [www.dnr.state.oh.us/odnr/water/samp/](http://www.dnr.state.oh.us/odnr/water/samp/)

##### **Division of Water Assistant Chief Receives Award**

Richard S. Bartz, assistant chief of the ODNR's Division of Water, was presented with the 2000 Wayne S. Nichols Award at the 29th annual Water Management Association of Ohio conference for his 30 dedicated years of hard work promoting the wise use and management of Ohio's water resources. The Wayne S. Nichols award is given to a public employee who has demonstrated high qualities of leadership, innovation, cooperation and accomplishment in any field of water resources related endeavor in Ohio; and for exemplifying personal qualities that mirror the finest in character and public employment, in the spirit of Wayne S. Nichols.

From his early role in developing the coastal resources management program for Lake Erie to his current role in directing a broad range of critical water management programs, Dick has developed an expertise widely recognized by many state and local agencies across Ohio and neighboring states. His role in water management has led to improvements in many programs including enacting requirements for reporting consumptive water uses and other withdrawals. He has worked to help expand the ability of the floodplain management program to assist the hundreds of local floodplain programs and improve their performance. Dick has worked on several drought task forces which various Governor's have had to establish and he also helped the Division of Water effectively take on responsibility for management of Ohio's historic canals. He has helped guide the state's involvement in deliberations at the national and international level regarding the use of Great Lakes water and its potential diversion. Dick helped establish improvements in Ohio's dam safety program and has helped maintain a modern groundwater management program. He also has provided leadership and support for several important state level initiatives for water, including Governor Voinovich's Blue Ribbon Task Force on Water Resources and establishment of the Water Resources Council. The entire Division of Water staff congratulates Dick on receiving this much-deserved recognition.

#### 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.*



DIVISION OF WATER  
1939 FOUNTAIN SQUARE  
COLUMBUS, OHIO 43224

Bob Taft

Governor

Samuel W. Speck

Director

James R. Morris P.E.

Chief

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