



# MONTHLY WATER INVENTORY REPORT FOR OHIO

## February 2003

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

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Hydrologists  
Water Inventory Unit

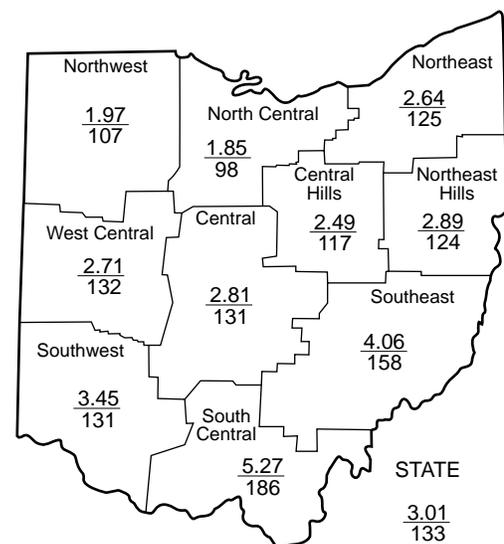
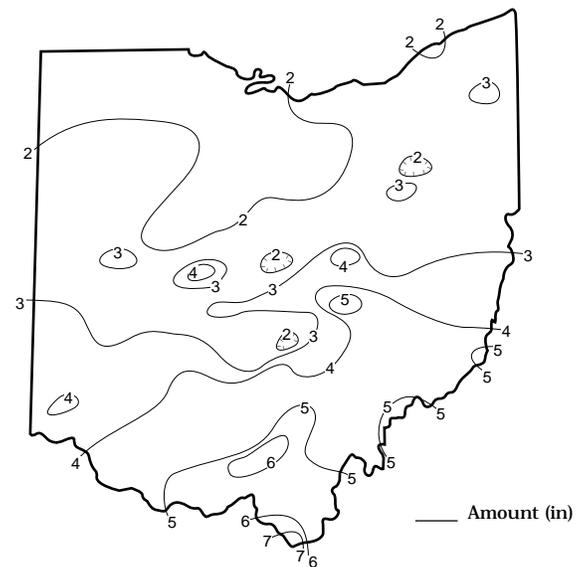
**PRECIPITATION** during February was above normal across most of the state with only a few locations in north-central Ohio receiving slightly below normal precipitation. The average for the state as a whole was 3.01 inches, 0.75 inch above normal. Regional averages ranged from 5.27 inches, 2.43 inches above normal, for the South Central Region to 1.85 inches, 0.04 inch below normal, for the North Central Region. This was the 11<sup>th</sup> wettest February during the past 109 years for the South Central Region. South Point (Lawrence County) reported the greatest amount of February precipitation, 7.56 inches. Sandusky (Erie County) reported the least amount, 1.08 inches.

Precipitation during February fell as rain, freezing rain, snow and a wintry mix. Total snow amounts for most areas of the state were notable, generally ranging from 10 to 30 inches. Although there was measurable precipitation during several days of the month, the majority of the precipitation at most locations fell during two storms. The first storm began late on February 14 and ended on February 17. Precipitation initially impacted the southern half of the state where heavy snow fell in central Ohio and freezing rain in southern Ohio during February 14-15. Precipitation continued to fall across most of the state during February 16 and statewide on the 17<sup>th</sup> with snow reported in all but extreme southern Ohio where it was a mixture of snow and freezing rain. Liquid, melted precipitation amounts from this storm ranged from around 0.25-0.50 inch in the northern third of Ohio to as much as 4 inches in extreme southern Ohio. For more on this storm, see *Valentine's Day Weekend Storm Results In Disaster Declaration* in the Notes and Comments section on the last page of this report. The month's second significant storm occurred during February 22-24. Precipitation on the 22<sup>nd</sup> fell mainly as snow in northwestern Ohio and rain elsewhere, and as snow statewide on the 23<sup>rd</sup> and 24<sup>th</sup>. Snow accumulations of 6-12 inches were reported in northwestern Ohio, while 3-6 inches were common across the remainder of the state. Liquid, melted precipitation totals from this storm were generally 1.0-1.5 inches statewide.

Precipitation for the 2003 calendar year is below normal across much of the state, but above normal in southeastern Ohio. The average for the state as a whole is 4.74 inches, 0.09 inch below normal. Regional averages range from 6.99 inches, 1.17 inches above normal, for the South Central Region to 3.12 inches, 0.76 inch below normal, for the Northwest Region.

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### PRECIPITATION FEBRUARY



Average (in)  
Percent of normal

### 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	0.13	-1.08	-2.09	-4.68	-0.59	-2.5
North Central	-0.04	-0.88	-0.15	-1.28	-1.81	+0.5
Northeast	0.52	0.23	0.10	-0.32	-4.62	-0.6
West Central	0.65	0.21	1.41	0.62	6.06	+0.4
Central	0.66	-0.46	2.08	1.81	3.37	+1.4
Central Hills	0.36	-0.93	-0.46	-0.83	-3.82	-0.6
Northeast Hills	0.56	-0.52	1.05	-0.97	-4.17	+0.7
Southwest	0.81	0.33	3.85	5.99	9.45	+2.1
South Central	2.43	1.33	4.60	7.70	4.38	+2.5
Southeast	1.49	0.40	3.43	4.07	4.70	+1.8
State	0.75	-0.15	1.37	1.19	1.24	

\*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	1,212	72	58	46	73
Great Miami River at Hamilton	3,630	3,225	68	83	88	117
Huron River at Milan	371	704	143	100	93	91
Killbuck Creek at Killbuck	464	328	47	42	43	69
Little Beaver Creek near East Liverpool	496	302	35	45	42	61
Maumee River at Waterville	6,330	3,611	55	44	38	69
Muskingum River at McConnelsville	7,422	5,634	46	77	80	73
Scioto River near Prospect	567	368	56	81	80	89
Scioto River at Higby	5,131	4,519	58	73	74	91
Stillwater River at Pleasant Hill	503	266	42	47	40	87

**STREAMFLOW** during February was below normal across nearly all of Ohio. Flows were low enough to be considered deficient in several basins, most notably in eastern and southeastern Ohio.

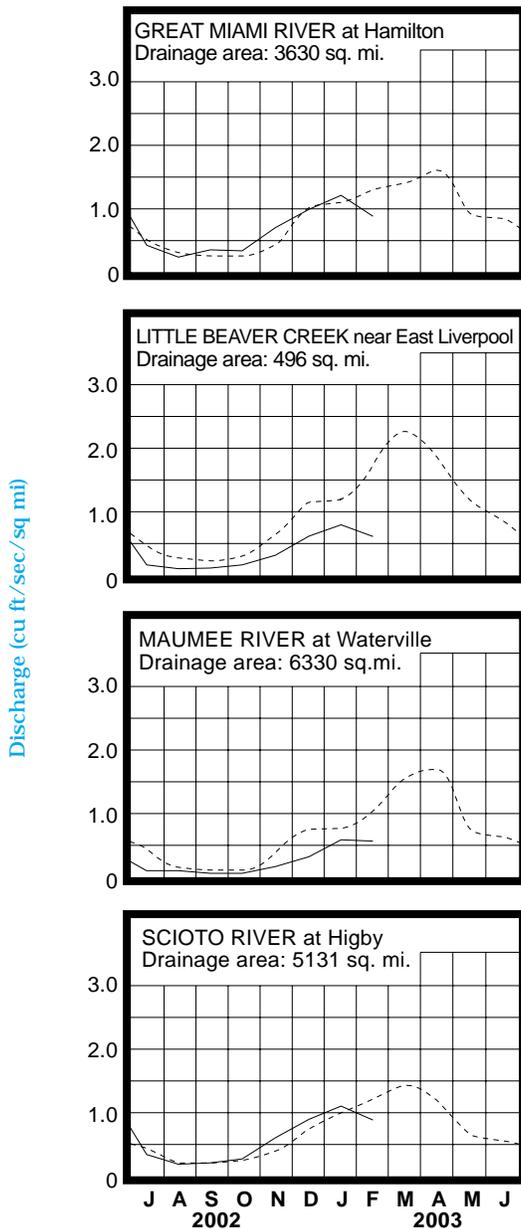
Flows at the beginning of the month were below normal statewide. Lowest flows for February in the northern third of the state occurred during the first 3 days of the month, just prior to a brief thaw that combined with light rain and melting snow, briefly increasing flows statewide. Temperatures soon turned colder and any precipitation that fell was frozen, reducing runoff and decreasing flows statewide. Low flows throughout the southern two-thirds of the state occurred generally around February 18-20, just before warmer temperatures returned to the state

and precipitation fell statewide during February 22-24. Flows increased rapidly in response to the melting snow and precipitation during this period, resulting in the greatest flows for the month around February 23-25 statewide. Some minor, lowland flooding was observed during this time, mainly in the Ohio River counties of southern Ohio. Following these peaks, flows decreased as colder temperatures returned and little, if any precipitation fell through month's end. By the end of the month, flows throughout most of the state were below normal.

**RESERVOIR STORAGE** during February increased in both the Mahoning and Scioto river basins. Storage at the end of the month was above normal in the Mahoning River basin and below normal in the Scioto River basin.

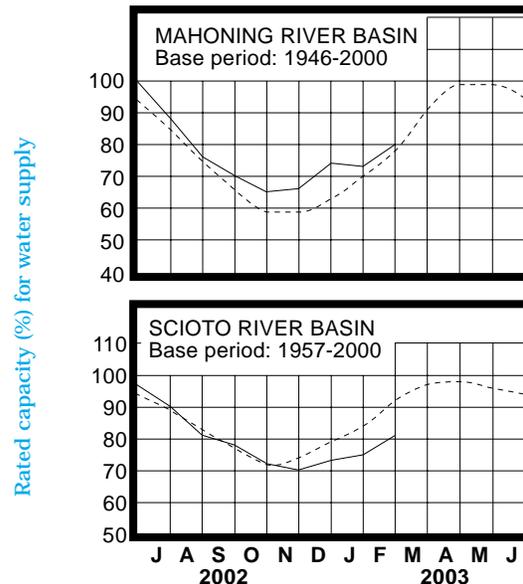
Reservoir storage at the end of February in the Mahoning basin index reservoirs was 80 percent of rated capacity for water supply compared with 73 percent for last month and 82 percent for February 2002. Month-end storage in the Scioto basin index reservoirs was 81 percent of rated capacity for water supply compared with 75 percent for last month and 93 percent for February 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

**GROUND WATER** levels during February showed mixed responses. Ground water levels in most aquifers were rather stable or declined slightly during much of the month. However, levels in most aquifers responded favorably to the melting snow and light rain that occurred early in the month and again around February 22-24. Positive net changes in most aquifers across the state were less than usually observed and in some cases, contra-seasonal declines were noted.

Ground water levels remain below normal across most of the state ranging up to around 3 feet below the long-term February average. An exception is in some sandstone aquifers of eastern Ohio, where levels are slightly above normal. Current levels are also lower than they were a year ago across much of the state, most notably the western half of Ohio.

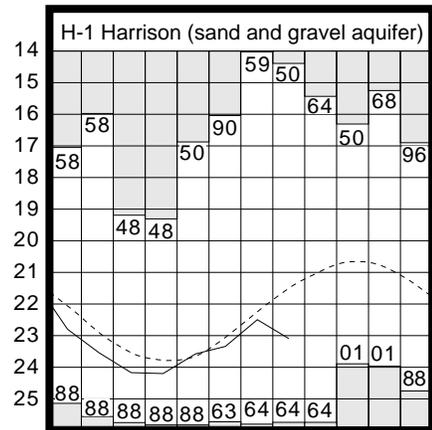
Climatic conditions were not particularly favorable for sustained recharge in most aquifers during February. However, at month's end, a significant amount of snow remained on the ground across most of the state. As this snow melts it will help replenish soil moisture, especially if it melts slowly, thus increasing the potential for adequate recharge during the next few months. Near normal precipitation and other climatic conditions during the next few months will be needed to sustain any positive improvement in ground water supplies.

**LAKE ERIE** level declined during February. The mean level was 570.01 feet (IGLD-1985), 0.30 foot lower than last month's mean level and 0.82 foot below normal. This month's mean level is 0.79 foot lower than the February 2002 level and 0.81 foot above Low Water Datum.

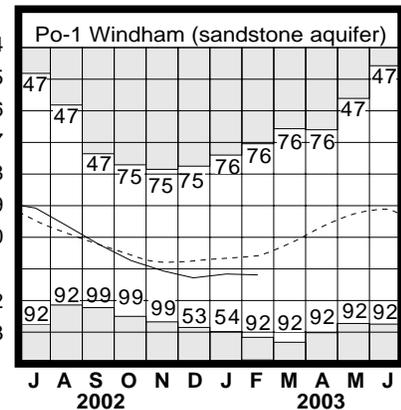
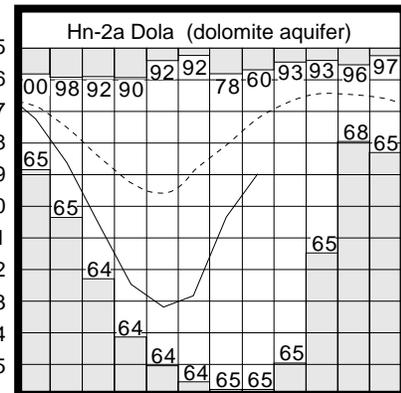
The U.S. Army Corps of Engineers reports that based on the current condition of the Great Lakes basin and anticipated weather conditions, the level of Lake Erie should range between 10-14 inches below the long-term seasonal average for the foreseeable future. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from as high as 4 inches below normal to as much as 22 inches below the normal seasonal level. The lake levels projected for mid-summer are expected to be about 1 foot lower than last summer's 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	13.96	0.61	0.59	0.69
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.22	-1.05	-0.21	-0.28
Fr-10	Columbus, Franklin Co.	Gravel	45.13	-2.25	0.20	0.02
H-1	Harrison, Hamilton Co.	Gravel	23.10	-1.60	-0.60	-0.98
Hn-2a	Dola, Hardin Co.	Dolomite	8.99	-1.76	1.34	-2.55
Po-1	Windham, Portage Co.	Sandstone	21.19	-0.61	-0.04	-0.20
Tu-1	Strasburg, Tuscarawas Co.	Gravel	15.49	-3.05	0.13	0.08

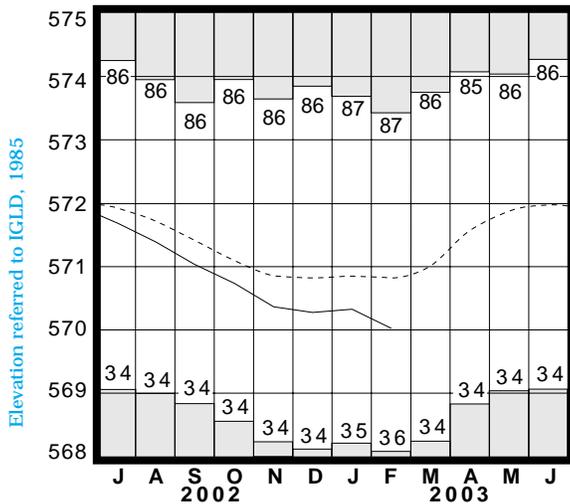
## GROUND-WATER LEVELS



Water level (ft below land surface)



## LAKE ERIE LEVELS



Base period: 1918-2000

□ Record high and low, year of occurrence

Base periods: H-1, 1951-2000. Hn-2a, 1955-2000.

Po-1, 1947-2000 □ Record high and low, year of occurrence

Normal - - - - Current ———

(Precipitation continued from front)

Precipitation for the 2003 water year is generally above normal in the southern half of the state and below normal in the northern half. The average for the state as a whole is 13.26 inches, 0.22 inch above normal. Regional averages range from 17.90 inches, 3.67 inches above normal, for the South Central Region to 9.59 inches, 1.88 inches below normal, for the Northwest Region.

#### SUMMARY

Precipitation during February was above normal across nearly all of Ohio. Streamflow was below normal throughout most of the state. Reservoir storage increased in both the Mahoning and Scioto river basins. Reservoir storage was above normal in the Mahoning and below normal in the Scioto river basins. Ground water levels showed mixed responses, and remained below normal across most of the state. Lake Erie level declined 0.30 foot and was 0.82 foot below the long-term February average.

#### NOTES AND COMMENTS

##### Valentine's Day Weekend Storm Results In Disaster Declaration

One of the worst winter storms to hit Ohio in several years occurred during February 14-17. Heavy snow blanketed most of the state except in extreme southern Ohio, where a major ice storm caused many problems. Light precipitation began falling during the afternoon of February 14 in southwest Ohio, slowly spreading northeast and picking up in intensity as the evening progressed. The precipitation during the evening of February 14 and early morning hours on the 15<sup>th</sup> was falling as snow across the central third of the state and as a wintry mix and/or freezing rain across southern Ohio. Several inches of snow accumulated across central Ohio by the morning of the 15<sup>th</sup>. After a lull during the afternoon of February 15, precipitation returned late in the day, falling as snow across central Ohio and as snow and freezing rain across southern Ohio. Late in the day on February 16, snow was falling across most of the state, except in northwest Ohio where no precipitation had yet occurred, and extreme southern Ohio where most of the precipitation was falling as freezing rain. By the 17<sup>th</sup> snow was falling statewide. At storms end, 12-18 inches of snow was on the ground across the central third of the state, decreasing to the north and west to 3-6 inches in northwestern Ohio, and to the south where 2-3 inches of snow fell on top of the ice accumulation. Columbus Airport (Franklin County) recorded 15.5 inches of snow during the Valentine's weekend storm, making this the greatest amount of snow ever recorded for a single snowstorm in Columbus.

While snow removal was the main problem across most of the state, the accumulation of ice in southern Ohio created much bigger problems. In some areas, the coating of ice was nearly 2 inches thick. The weight of the ice toppled trees and snapped branches where they often fell on dwellings and roads, closing many to travel. Power lines also came down, either from the weight of ice or from falling branches. Many were without power for more than 10 days as repair crews had a difficult time navigating roads made nearly impassable by all the downed trees and branches. At one point, approximately 45,000 people in Scioto County were without power. The hardest hit areas of Belmont, Lawrence, Gallia, Meigs, Monroe, Morgan, Noble and Scioto counties were declared disaster areas by Governor Bob Taft, making them eligible for state disaster relief. Preliminary surveys found nearly 300 homes and businesses damaged by the storm with 21 of those destroyed. Damage is estimated to reach several millions of dollars.

#### 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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