



# MONTHLY WATER INVENTORY REPORT FOR OHIO

February 2004

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

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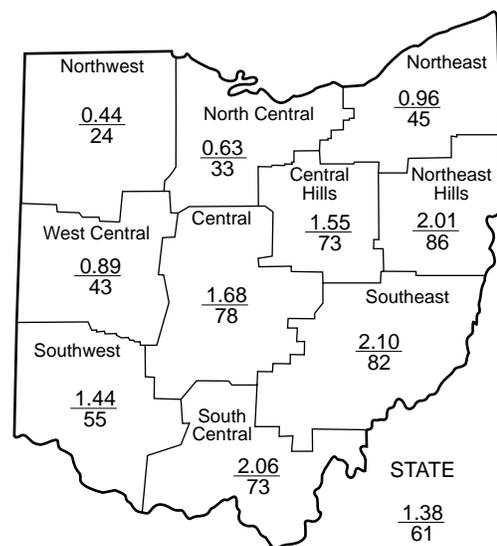
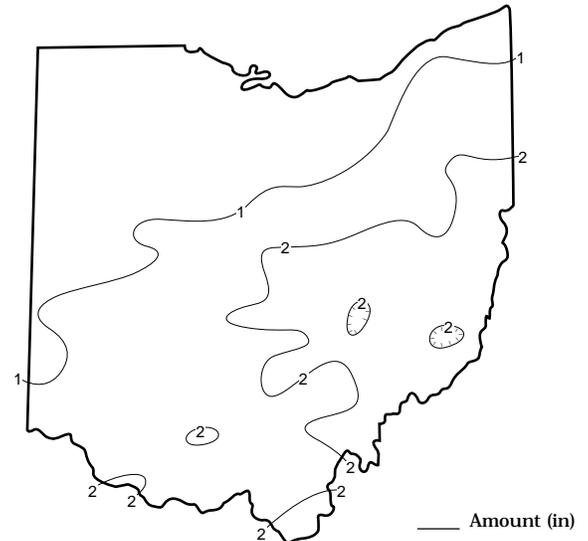
**PRECIPITATION** during February was below normal nearly statewide. The average for the state as a whole was 1.38 inches, 0.88 inch below normal. Regional averages ranged from 2.10 inches, 0.47 inch below normal, for the Southeast Region to 0.44 inch, 1.40 inches below normal, for the Northwest Region. This was the 5<sup>th</sup> driest February during the past 110 years for the Northwest Region, the 7<sup>th</sup> driest for the North Central Region, the 9<sup>th</sup> driest for the Northeast Region and the 13<sup>th</sup> driest for the West Central Region. Chester (Meigs County) reported the greatest amount of February precipitation, 2.78 inches. Grover Hill (Paulding County) reported the least amount, a scant 0.23 inch. More than a dozen stations in northwestern Ohio reported less than 0.50 inch of February precipitation.

Precipitation during February fell as both rain and snow. Snowfall for the month was noticeably below normal statewide. Most of the precipitation for the month fell during the first week. A period of unsettled weather brought on and off precipitation to the state during February 2-3 and 5-7. Precipitation fell as mostly rain, but mixed precipitation fell on February 5 and ended as light snow on February 7. Precipitation totals were generally 1-2 inches in the southern half of the state, decreasing to the north and west to less than 0.25 inch in northwestern Ohio. Some minor flooding was reported in mainly the southeastern half of the state due to runoff and ice jams on streams. The remainder of the month was rather dry with only light, scattered showers reported on a few days. Total precipitation amounts during this 3-week period generally ranged from around 0.25 inch in the northern half of the state to about 0.1 inch in extreme southern Ohio.

Precipitation for the 2004 calendar year is above normal across much of the state, but below normal in the northern third and in some areas of south-central Ohio. The average for the state as a whole is 5.14 inches, 0.31 inch above normal. Regional averages range from 6.74 inches, 2.04 inches above normal, for the Central Region to 2.32 inches, 1.56 inches below normal, for the Northwest Region.

Precipitation for the 2004 water year is above normal across most of the state, but below normal in northwestern and in a few areas of northeastern Ohio. The average for the state as a whole is 14.11 inches, 1.07 inches above normal. Regional averages range from 17.06 inches, 3.43 inches above normal, for the Southeast Region to 9.68 inches, 1.79 inches below normal, for the Northwest Region.

## PRECIPITATION FEBRUARY



## 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	-1.40	-1.45	+1.28	+6.49	+1.76	+2.1
North Central	-1.26	-0.45	+2.82	+6.53	+5.16	+2.7
Northeast	-1.16	-0.11	+3.11	+9.71	+9.39	+3.1
West Central	-1.17	+0.18	+4.90	+13.87	+14.50	+3.5
Central	-0.47	+2.10	+5.75	+9.62	+11.46	+3.2
Central Hills	-0.58	+1.24	+4.15	+7.38	+6.30	+2.3
Northeast Hills	-0.32	+1.40	+5.85	+10.83	+9.70	+3.4
Southwest	-1.20	+0.18	+3.25	+6.85	+12.87	+3.1
South Central	-0.78	-0.46	+4.41	+9.16	+16.74	+3.3
Southeast	-0.47	+1.47	+6.51	+9.96	+13.93	+4.0
State	-0.88	+0.40	+4.22	+9.00	+10.12	+4.0

\*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	This Month		
				% of Normal Past		
				3 Mos.	6 Mos.	12 Mos.
Grand River near Painesville	685	2,317	137	127	135	166
Great Miami River at Hamilton	3,630	5,502	116	172	214	180
Huron River at Milan	371	578	118	162	184	185
Killbuck Creek at Killbuck	464	685	98	133	171	150
Little Beaver Creek near East Liverpool	496	1,136	131	157	203	171
Maumee River at Waterville	6,330	4,971	76	108	137	153
Muskingum River at McConnelsville	7,422	13,920	114	242	284	130
Scioto River near Prospect	567	735	113	174	229	197
Scioto River at Higby	5,131	9,781	126	170	196	160
Stillwater River at Pleasant Hill	503	517	82	138	222	168

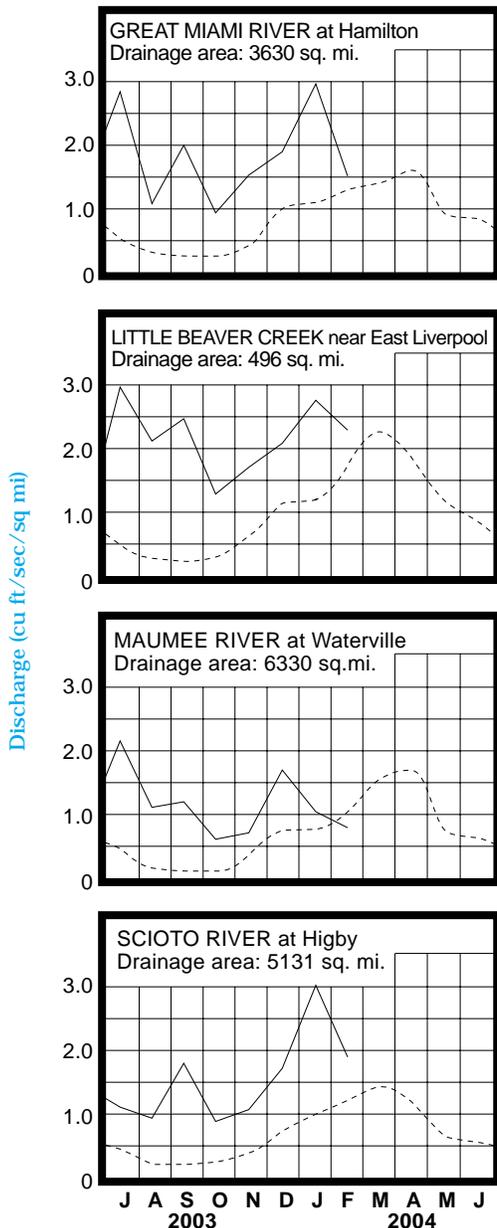
**STREAMFLOW** during February was generally above normal across much of the state, but below normal in northwest-ern and west-central Ohio. Flows during February declined contra-seasonally from the January flows throughout most of the state.

Flows at the beginning of February were below normal across most of Ohio. Low flows across the southern two-thirds of the state occurred at the beginning of February. Flows increased during the first week of the month in response to precipitation and melting snow. Greatest flows for the month occurred during February 6-7 in southern and east-central Ohio. Minor low-land flooding was observed during this period across mainly the south-eastern half of the state where frozen or saturated ground promoted much of the precipitation to quickly run off directly into streams. Ice jams on several streams also contributed to the flooding. Flows declined during the next 2 weeks as drier weather prevailed. Low flows for the month were observed in the northern third of Ohio near the end of this two-week period. Precipitation during February 20-21, which was greatest in northern Ohio, contributed to temporary rises in streamflow, most notably in northern Ohio. Greatest flows for the month in much of northern and west-central Ohio occurred between February 21 and 24 following this precipitation and snowmelt from warmer temperatures. Flows decreased the remainder of the month and were below normal across most of the state with only a few basins in extreme northern Ohio having above-normal flows.

**RESERVOIR STORAGE** during February increased in both the Mahoning and Scioto river basins. Storage remained above normal in both basins.

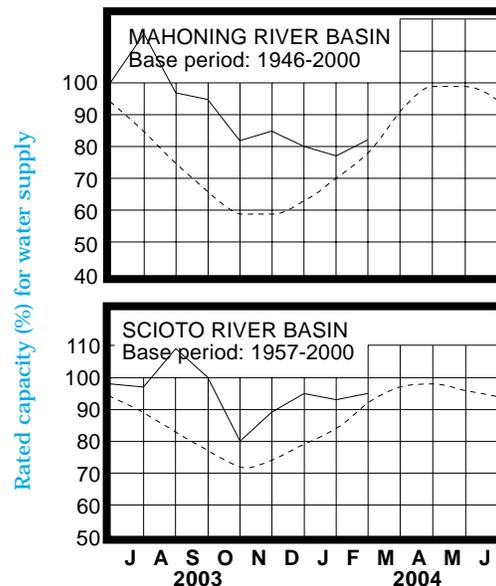
Reservoir storage at the end February in the Mahoning basin index reservoirs was 82 percent of rated capacity for water supply compared with 77 percent for last month and 80 percent for February 2003. Month-end storage in the Scioto basin index reservoirs was 95 percent of rated capacity for water supply compared with 93 percent for last month and 81 percent for February 2003.

## 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 declined contra-seasonally across most of the state. Conditions during February were not conducive for ground water recharge. Some aquifers, especially in southern Ohio, responded favorably to the precipitation and snowmelt that occurred during the first week of the month. However, frozen soils, especially in the northern half of the state, inhibited infiltration. Noticeably drier weather conditions during the last three weeks of the month provided little opportunity for significant recharge during this period. Some temporary rises were noted in some aquifers in northern Ohio, most notably around February 21, from the combination of light precipitation, melting snow and thawing soils. Even with less than ideal conditions during February, ground water supplies remain adequate statewide. Ground water levels remain above normal across most of the state, but are below normal in southwestern Ohio. Also, current levels remain higher than they were a year ago statewide. The current hydrologic conditions remain favorable for improvement to the state's ground water supplies. With near normal precipitation and other climatic conditions during the next few months, there should be ample opportunity for adequate recharge to the state's ground water supplies.

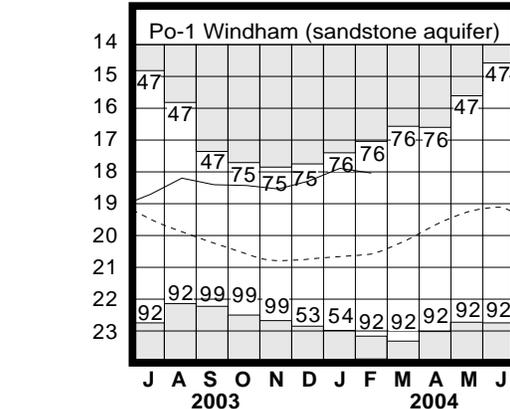
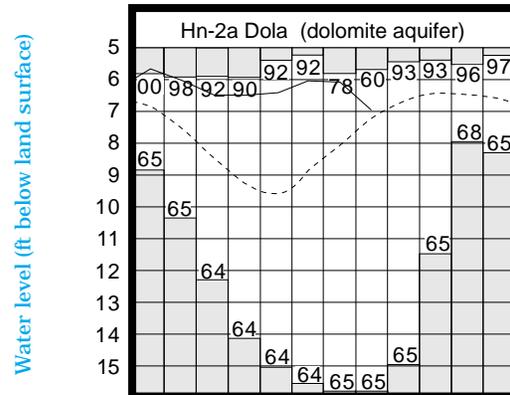
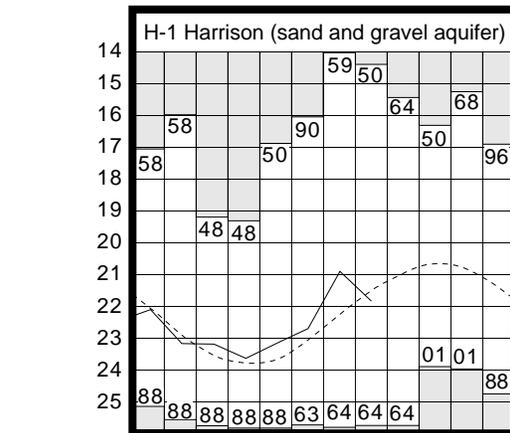
**LAKE ERIE** level declined during February. The mean level was 570.41 feet (IGLD-1985), 0.29 foot lower than last month's mean level and 0.42 foot below normal. This month's mean level is 0.40 foot higher than the February 2003 level and 1.21 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during February averaged 0.91 inch, which is 1.15 inches below normal. For the entire Great Lakes basin, February precipitation averaged 1.20 inches, which is 0.56 inch below normal. For calendar year 2004 through February, the Lake Erie basin has averaged 3.30 inches of precipitation, 1.20 inches below normal, while the entire Great Lakes basin has averaged 3.25 inches, 0.68 inch below normal.

In addition, the USACE predicts that based on the current condition of the Great Lakes basin and anticipated weather conditions, the level of Lake Erie should range between 5-9 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 near normal to as much as 18 inches below the normal seasonal level.

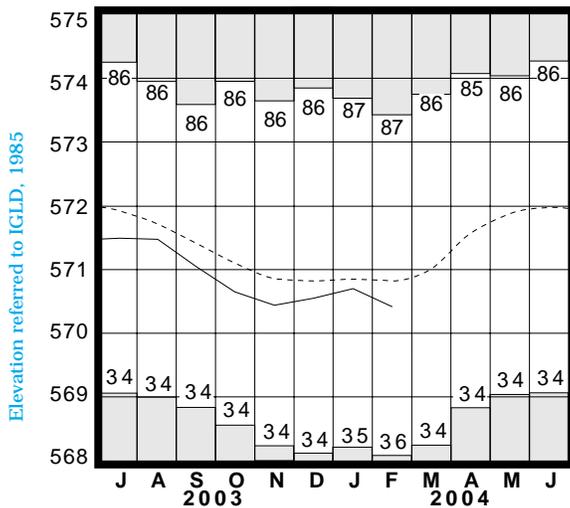
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	11.81	+2.76	-1.20	+2.15
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.10	-0.93	-0.47	+0.12
Fr-10	Columbus, Franklin Co.	Gravel	43.97	-1.09	+0.38	+1.16
H-1	Harrison, Hamilton Co.	Gravel	21.83	-0.33	-0.93	+1.27
Hn-2a	Dola, Hardin Co.	Dolomite	6.97	+0.26	-0.89	+2.02
Po-1	Windham, Portage Co.	Sandstone	18.03	+2.55	-0.14	+3.16
Tu-1	Strasburg, Tuscarawas Co.	Gravel	11.78	+0.66	-0.17	+3.71

## GROUND-WATER LEVELS



Base periods: H-1, 1951-2000. Hn-2a, 1955-2000.  
Po-1, 1947-2000

## LAKE ERIE LEVELS



Base period: 1918-2000

□ Record high and low, year of occurrence

Normal - - - - Current ———

## SUMMARY

Precipitation during February was below normal nearly statewide. Streamflow was above normal across much of the state, but below normal in northwestern and west-central Ohio. Reservoir storage increased statewide and was above normal in both the Mahoning and Scioto river basins. Ground water levels declined contra-seasonally throughout most of the state, but remained above normal across much of Ohio. Lake Erie level declined 0.29 foot and was 0.42 foot below the long-term February average.

## NOTES AND COMMENTS

### Redesigned Web Site For The Division of Water

The Division of Water recently unveiled a redesigned and expanded web site. Two new key design features include top and side navigation areas that allow users to choose between whole programs and program-specific pages at all times. This feature has also been incorporated with the division's fact sheets and stream guides allowing users to sequentially view pages within a topic area. For a visual guide illustrating these changes please visit the new features page at: [http://www.dnr.state.oh.us/water/about\\_new\\_design.htm](http://www.dnr.state.oh.us/water/about_new_design.htm).

The redesigned web site also includes several new and expanded items. For example, statewide maps showing the locations of active and inactive observation wells may now be used to access well data simply by clicking on the observation well ID number. Check it out at: [http://www.dnr.state.oh.us/water/waterobs/obs\\_well\\_map.asp](http://www.dnr.state.oh.us/water/waterobs/obs_well_map.asp). You may now also view, order or download Ground Water Resource Maps (<http://www.dnr.state.oh.us/water/gwrmaps/>) and Pollution Potential Maps (<http://www.dnr.state.oh.us/water/gwppmaps/>). Also updated is the Well Log and Drilling Report search results page, which now has a more printer friendly and easier to read layout. Give it a try at: <http://www.dnr.state.oh.us/water/maptechs/wellogs/app/>. Any questions or comments about the Division of Water's updated web site can be sent to: [dave.orr@dnr.state.oh.us](mailto:dave.orr@dnr.state.oh.us).

### Water Pioneer Passes

We are sad to report that Sherman L. "Jack" Frost, a friend of the Division of Water, a colleague to all water resources professionals and a well known advocate of environmental and conservation issues, past away March 11, 2004 in Columbus, Ohio. Jack's career as a natural resource conservationist in Ohio spanned more than 50 years. His career began with the Civilian Conservation Corps where he helped unemployed men find forestry jobs. He also worked for the Texas Forest Service for 14 years and later in Washington D.C. as a consultant for the American Forestry Association. Jack then moved to Ohio, first working for the Ohio Forestry Association and then the Ohio Department of Natural Resources (ODNR), Division of Water. During his tenure, Jack quickly became well known as an expert on Ohio water issues. Among his many accomplishments, Jack served as the Assistant Chief of the Division of Water, was the Executive Director of the Ohio Water Commission in the late 1960's and early 1970's, and was one of the founders of the Water Management Association of Ohio. He served as Adjunct Professor at the Ohio State University's School of Natural Resources since the mid-1980's and was a recipient of ODNR's Hall of Fame Award recognizing his many years devoted to environmental issues. Then, at the age of 88, Jack was inducted into the Central Ohio Senior Citizens Hall of Fame. He was preceded in death by his wife and is survived by a son, three grandchildren, two great-grandchildren and countless friends. Jack Frost was 94.

## 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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