MONTHLY WATER INVENTORY REPORT FOR OHIO

January 2000

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 below normal in northern, eastern and southeastern Ohio, but above normal in southwestern, central and portions of north-central Ohio. The state average was 2.64 inches, 0.12 inch below normal. Regional averages ranged from 3.97 inches, 0.74 inch above normal, for the Southwest Region to 1.40 inches, 0.78 inch below normal, for the Northwest Region. Cheviot (Hamilton County) reported the greatest amount of precipitation for January, 5.50 inches. Sandusky (Erie County) reported the least amount for the month, 1.00 inch.

Precipitation during January generally fell as rain during the first half of the month and as snow during the second half. Snowfall for the month ranged from near to slightly above normal with the greatest amounts reported in the snowbelt counties in northeastern Ohio. Chardon (Geauga County) received 37 inches of snow, which is about 10 inches above normal. The first storm system of the new year produced beneficial rain across much of the state during January 2-4. The heaviest rains fell in southwestern and central Ohio and into portions of eastern Ohio. Storm amounts of 2-3 inches of rain in this area were common with a few reports of nearly 4 inches in southwestern Ohio. Rain amounts from this storm diminished to 0.25-0.50 inch northwest and southeast of this area. The next two weeks of the month were relatively dry across most of the state with only a few light scattered rain showers during January 10. Conditions changed quickly after mid-month as winter prevailed in Ohio during the last two weeks of January. Snow fell across the state on several days during this two-week period. Most of the snowfall was light with less than an inch or 2 (0.1 to 0.2 inch melted precipitation) occurring on any given day. A notable exception to these light snows, other than lake effect snowfall in the northeastern snowbelt areas, was around January 20 when a winter storm passed through the region bringing about 4-8 inches of snow (0.25-0.50 inch liquid precipitation) across much of the state. At the end of the month, 0.5-1.0 inch of liquid precipitation remained frozen on the ground throughout much of the state.

The 2000 calendar year is off to a good start as far as precipitation is concerned in some areas of Ohio that were severely impacted by the drought conditions of 1999. However, much of northwestern and southeastern Ohio have started the new year with below normal precipitation. Near-normal precipitation during the next several months is needed to help replenish Ohio's water resources.

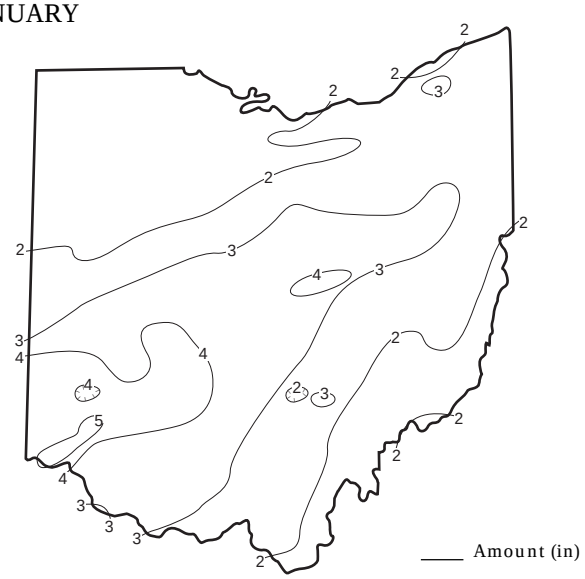
Precipitation for the 2000 water year is generally above normal in the eastern half of Ohio and below normal in the western half. The state average is 9.99 inches, 0.34 inch below normal. Regional averages range from 12.10 inches, 0.76 inch above normal, for the South Central Region to 7.01 inches, 2.20 inches below normal, for the Northwest Region.

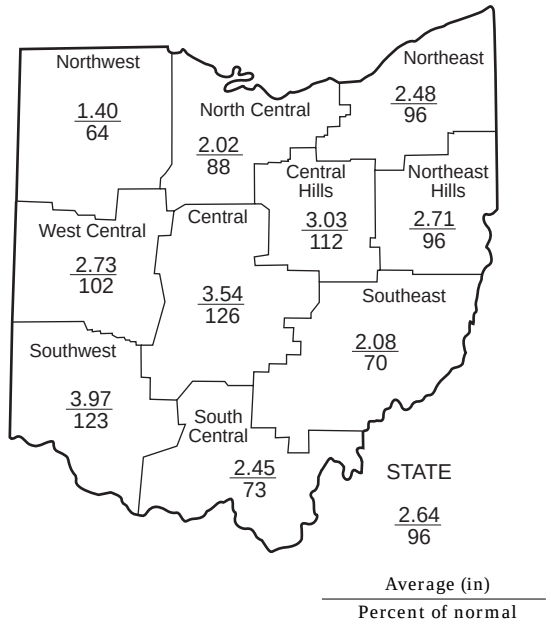
PRECIPITATION

Region	DEPARTURE FROM NORMAL (IN.) This Month	Past 3 Mos.	Past 6 Mos.	Past 12 Mos.	Past 24 Mos.	Palmer Drought Severity Index*
Northwest	-0.78	-2.06	-3.94	-4.32	+0.24	-3.1
North Central	-0.28	+0.22	-0.63	-2.48	+0.82	-0.1
Northeast	-0.11	+0.62	+0.89	-0.75	-2.01	+0.8
West Central	+0.06	-1.02	-4.26	-6.57	-2.50	-1.6
Central	+0.73	+0.30	-1.58	-7.02	-5.48	-3.1
Central Hills	+0.33	+0.24	-0.91	-4.68	-1.20	-0.3
Northeast Hills	-0.12	+0.21	-1.66	-5.06	+0.41	-2.9
Southwest	+0.74	-0.53	-4.20	-10.78	-5.87	-2.5
South Central	-0.92	+0.09	-0.11	-8.57	-4.21	+0.6
Southeast	-0.89	+0.07	-0.86	-7.02	-1.77	-0.3
State	-0.12	-0.18	-1.73	-5.74	-2.18	

*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

PRECIPITATION JANUARY





MEAN STREAM DISCHARGE

This Month

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	1,153	109	80	70	61
Great Miami River at Hamilton	3,630	1,456	49	23	28	61
Huron River at Milan	371	291	82	81	71	70
Killbuck Creek at Killbuck	464	423	112	68	67	68
Little Beaver Creek near East Liverpool	496	463	93	75	72	63
Maumee River at Waterville	6,330	1,298	41	22	22	70
Muskingum River at McConnelsville	7,422	6,594	83	63	61	73
Scioto River near Prospect	567	281	83	34	33	61
Scioto River at Higby	5,131	3,256	88	41	44	55
Stillwater River at Pleasant Hill	503	78	22	16	19	52

STREAMFLOW during January was below normal throughout most of the state, except for some basins in northeast Ohio where it was slightly above normal. Flows were low enough to be considered deficient in the western one-third of the state. The January flows increased seasonally from December's flow across most of the state.

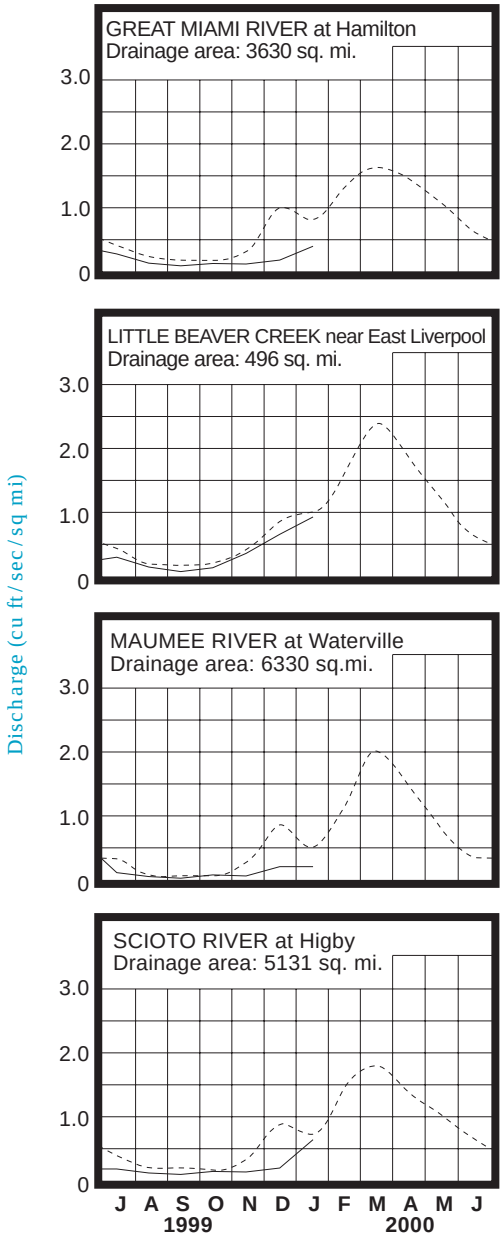
Streamflow at the beginning of the month was below normal statewide. Lowest flows were recorded during the first 2 days of the month in most drainage basins in the southern, central and east-central areas of the state. Flows increased rapidly during January 2-7 throughout Ohio in response to the widespread rainfall that occurred during January 2-4. Greatest flows for the month were recorded during this period statewide. Flows generally declined throughout the remainder of the month and in northern and west-central Ohio reached their lowest January rate during the last week of the month. Streamflow at the end of January was below normal throughout most of the state.

RESERVOIR STORAGE for water supply during January increased in both the Mahoning and Scioto river basins. Storage remained above normal in the Mahoning basin reservoirs and slightly below normal in the Scioto basin reservoirs.

Reservoir storage at the end of January in the Mahoning basin index reservoirs was 70 percent of rated capacity for water supply compared with 66 percent for last month and 79 percent for January 1999. Month-end storage in the Scioto basin index reservoirs was 84 percent of rated capacity for water supply compared with 64 percent for last month and 97 percent for January 1999.

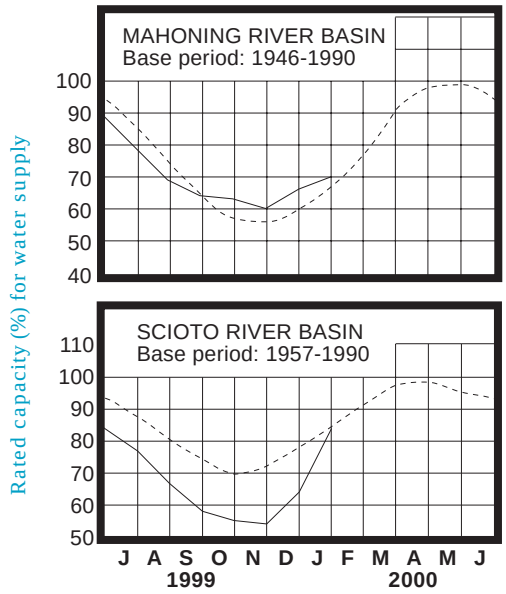
Precipitation during January was beneficial to surface-water supplies throughout the state, but near-normal precipitation during the next several months is still needed to fill reservoirs to normal capacity or summer pool elevations.

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

Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from: Last Month	Change in feet from: Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	22.02	-6.47	+0.49	-5.71
Fa-1	Jasper Mill, Fayette Co.	Limestone	12.66	-5.22	+2.04	-3.45
Fr-10	Columbus, Franklin Co.	Gravel	45.79	-2.18	+0.32	-1.68
H-1	Harrison, Hamilton Co.	Gravel	24.15	-2.02	+0.66	-1.42
Hn-2a	Dola, Hardin Co.	Dolomite	12.07	-3.87	+0.68	-2.52
Po-1	Windham, Portage Co.	Sandstone	22.57	-2.02	+0.09	-0.80
Tu-1	Strasburg, Tuscarawas Co.	Gravel	15.78	-2.85	+0.69	-1.85

GROUND WATER levels during January showed net improvement in all aquifers throughout the state. However, net changes from December's levels were less than usually observed in most aquifers. Generally, levels in most aquifers rose early in the month responding to recharge from rain that fell during the first week of January. Levels in shallow unconsolidated aquifers remained rather stable or declined slightly throughout the remainder of the month while levels in consolidated aquifers generally rose steadily through the end of the month receiving some delayed recharge.

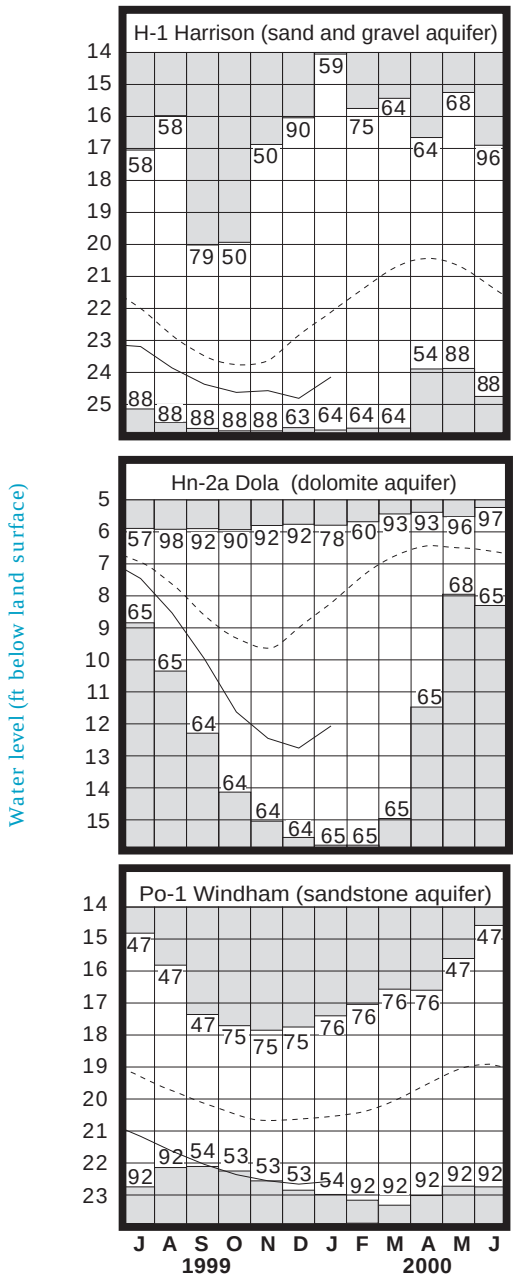
Ground water supplies remain below normal statewide with levels ranging from 2 feet to about 6.5 feet below normal. Current levels are also lower than they were at this time last year ranging from about 1 foot to more than 5.5 feet below the January 1999 levels. Several index observation wells again reached markedly low levels during the month. Index observation well Fa-1 near Washington Court House (Fayette County), representing limestone aquifers in south-central and southwestern Ohio, reached a record-low level for January. Index observation well F-1 near West Rushville (Fairfield County), representing sandstone aquifers in eastern and southeastern Ohio, tied its all-time record-low level, and index observation well Tu-1 near Strasburg (Tuscarawas County), representing sand and gravel aquifers in eastern and northeastern Ohio, reached its lowest level ever recorded. These record-low levels were reached near the beginning of the month before levels began to rise following the rains of January 2-4.

This was the first month since March 1999 where ground water levels statewide have shown improvement. With a considerable snow cover on the ground, the potential for future additional recharge is positive. Near normal precipitation and other climatic conditions over the next several months would provide ample opportunity for much needed recharge to the state's ground water supplies.

LAKE ERIE level declined during January. The mean level was 570.41 feet (IGLD-1985), 0.10 foot lower than last month's mean level and 0.19 foot below normal. This month's level is 0.49 foot lower than the January 1999 level and 1.21 feet above Low Water Datum.

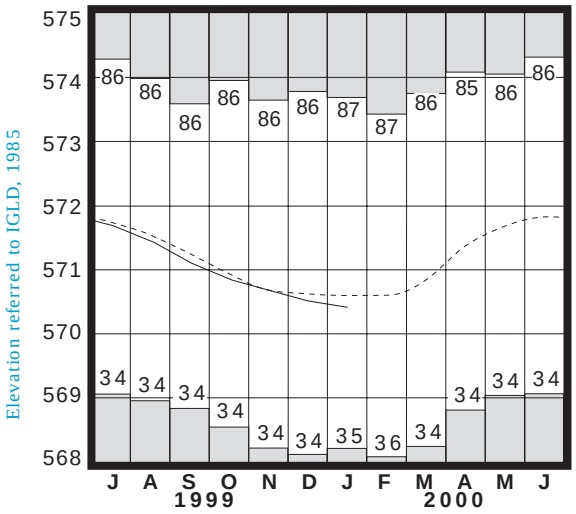
The U. S. Army Corps of Engineers reports that precipitation in the Lake Erie basin during January averaged 2.0 inches, which is 0.4 inch below normal. The entire Great Lakes basin averaged 1.9 inches of precipitation during January, 0.3 inch below normal.

GROUND-WATER LEVELS



Base periods: H-1, 1951-1990. Hn-2a, 1955-1990. Po-1, 1947-1990 Record high and low, year of occurrence

LAKE ERIE LEVELS at Fairport



Base period: 1900-1991

Record high and low, year of occurrence

Normal – – – – Current ———

SUMMARY

Precipitation was below normal in northern, eastern and southeastern Ohio, but above normal in southwestern, central and portions of north-central Ohio. Streamflow was below normal throughout most of the state. Reservoir storage increased statewide. Ground water levels showed net improvement in all aquifers across the state, but remained below normal statewide. Lake Erie level declined 0.10 foot and is 0.19 foot below the long-term January average.

NOTES AND COMMENTS

ANNUAL MIDWEST GROUND WATER CONFERENCE
CALL FOR ABSTRACTS

You are invited to submit your abstract for the 45th Annual Midwest Ground Water conference to be held October 16-18, 2000 at the Holiday Inn East, Columbus, Ohio. The Midwest Ground Water conference is an informal annual meeting held at the invitation of a participating state. This year's conference is being sponsored by the Ohio Department of Natural Resources, Division of Water and Division of Geological Survey; the Ohio Environmental Protection Agency, Division of Drinking and Ground Waters; the Ohio Department of Health; and the U. S. Geological Survey, Ohio District.

The conference provides an opportunity for hydrogeologists, geologists, engineers, students and others studying ground water resources in their respective states to meet and exchange ideas, discuss mutual problems affecting the Midwest, and summarize results of field and laboratory studies.

Suggested session topics include:

- Till hydrology
- Naturally occurring ground water quality
- Well head and source water protection
- Well construction issues
- Ground water law
- Contamination/remediation/cleanup programs
- Ground water and surface water interaction
- Quality and quantity monitoring
- Emerging contaminants (MTBE, pharmaceuticals, etc.)
- Karst hydrology and policy
- Mining or construction related ground water issues
- Ground water modeling and computer applications
- NPS pollution and prevention
- Aquifer characterization
- Aquifer mapping and GIS

Abstracts of papers to be presented at the conference must be received by June 30, 2000. Abstracts are limited to 300 words, and must include title, author name(s), their affiliation, contact address, phone number, and e-mail address if available. Submit abstracts on PC diskette [MS WORD 7 or less, Rich Text Format (RTF), or ASCII text] or electronically via e-mail. A paper copy of the abstract should also be submitted. Send all abstracts to:

Kristy Hunt, MWGWC Technical Committee
Ohio EPA, DDAGW
Lazarus Government Center
P.O. Box 1049
Columbus, Ohio 43216-1049
e-mail: kristy.hunt@epa.state.oh.us

For additional information, contact Mike Hallfrisch or Jim Raab at the Ohio Department of Natural Resources, phone (614) 265-6739, or e-mail mike.hallfrisch@dnr.state.oh.us or jim.raab@dnr.state.oh.us.

DIVISION OF WATER REVIEWS RULES

State law requires all state agencies to review their rules in the Ohio Administrative Code every five years. Three sets of rules are currently being reviewed by the Division pursuant to this requirement: Ohio Water Advisory Council Administrative Procedures, Coastal Floodplain Management, and Water Diversion rules. The Division has reviewed the rules for the Ohio Water Advisory Council and the Coastal Floodplain Management and is not recommending any changes to those two sets of rules. The Division is proposing changes in the Water Diversion rules. If you have any questions or would like to see copies of these rules, please contact Dick Bartz of the Division of Water at 614/265-6730 or at dick.bartz@dnr.state.oh.us.

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
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50th Anniversary
Ohio Department of Natural Resources
1949-1999

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