MONTHLY WATER INVENTORY REPORT FOR OHIO

November 2000

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

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PRECIPITATION during November was below normal statewide. The state average was 1.81 inches, 0.84 inch below normal. Regional averages ranged from 2.50 inches, 0.38 inch below normal, for the Northeast Region to 1.44 inches, 1.33 inches below normal, for the South Central Region. This was the 12th driest November in 106 years of record for the South Central Region. Chardon (Geauga County) reported the greatest amount of precipitation for November, 4.45 inches. Bowling Green (Wood County) reported the least amount for the month, 1.01 inches.

Precipitation fell mainly as rain during the first half of the month and as both rain and snow during the second half. Most of the significant snowfall occurred in the northern half of the state with Dorset (Ashtabula County) reporting 21 inches of snow for the month. Snowfall was generally above normal in the northern half of the state and near to below normal in the southern half. The first week of November was rather dry across most of the state. The most widespread precipitation for the month occurred during the second week which included several days with occasional light rain and more moderate rain during November 9-10. Precipitation amounts of 0.5-1.5 inches were reported during this period. Dry conditions prevailed the next two weeks with only a few widely scattered showers occurring, except in northeastern Ohio where light to moderate snow fell on several days between November 17-22. Light, on and off showers fell during the last few days of the month. Generally, 0.25-0.50 inch was reported during this period across most of Ohio with a few scattered locations reporting up to an inch.

Precipitation for the 2000 calendar year is above normal statewide, except for a few isolated areas in southeastern Ohio where it is below normal. The average for the state as a whole is 37.87 inches, 2.88 inches above normal. Regional averages range from 40.43 inches, 2.98 inches above normal, for the Southwest Region to 34.86 inches, 3.35 inches above normal, for the Northwest Region.

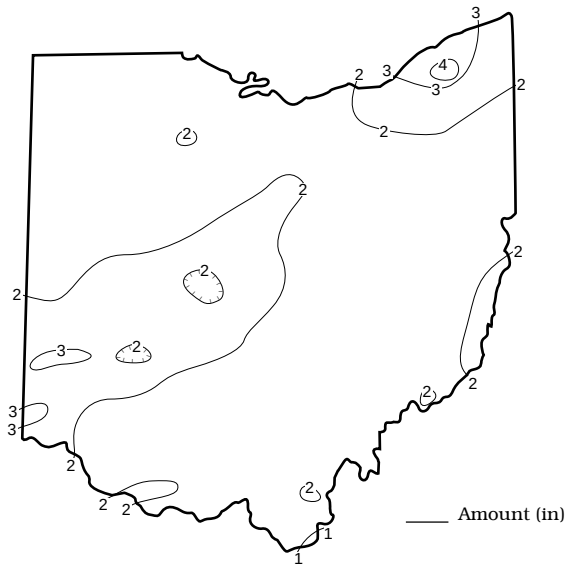
Precipitation for the 2001 water year is below normal statewide. The state average is 4.10 inches, 0.89 inch below normal. Regional averages range from 5.52 inches, 0.08 inch below normal, for the Northeast Region to 2.49 inches, 2.52 inches below normal, for the South Central Region.

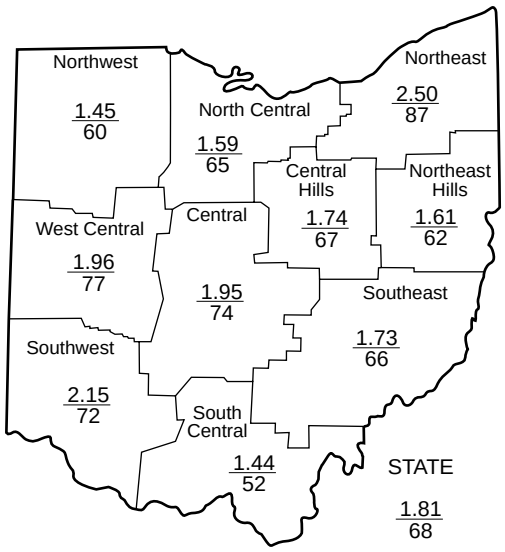
PRECIPITATION

Region	DEPARTURE FROM NORMAL (IN.) This Month	Past 3 Mos.	Past 6 Mos.	Past 12 Mos.	Past 24 Mos.	Palmer Drought Severity Index*
Northwest	-0.98	+0.60	+3.50	+3.23	-0.22	+1.4
North Central	-0.84	+0.13	+4.91	+6.32	+3.64	+2.2
Northeast	-0.38	+0.02	+2.25	+3.73	+3.64	+2.0
West Central	-0.60	+0.63	+1.63	+2.47	-3.16	+1.6
Central	-0.67	+0.50	+0.31	+3.65	-3.38	+0.5
Central Hills	-0.87	-0.09	+0.25	+3.60	-0.17	+0.6
Northeast Hills	-0.99	-0.43	+0.77	+2.13	-0.16	0.0
Southwest	-0.83	+0.32	+0.97	+3.12	-7.17	+0.9
South Central	-1.33	-1.32	-0.42	+1.07	-5.32	-0.5
Southeast	-0.91	-0.39	-2.49	-0.44	-4.77	-0.4
State	-0.84	-0.01	+1.16	+2.88	-1.73	

*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 NOVEMBER





MEAN STREAM DISCHARGE

River and Location	Drainage Area (Sq. Mi.)	This Month: Mean Discharge (CFS)	This Month: % of Normal	% of Normal Past: 3 Mos.	% of Normal Past: 6 Mos.	% of Normal Past: 12 Mos.
Grand River near Painesville	685	466	41	40	79	80
Great Miami River at Hamilton	3,630	1,667	127	139	119	73
Huron River at Milan	371	139	160	245	361	137
Killbuck Creek at Killbuck	464	128	62	90	96	83
Little Beaver Creek near East Liverpool	496	115	50	68	88	80
Maumee River at Waterville	6,330	1,298	73	135	194	78
Muskingum River at McConnelsville	7,422	2,526	54	79	88	86
Scioto River near Prospect	567	102	105	100	140	79
Scioto River at Higby	5,131	1,772	94	115	115	83
Stillwater River at Pleasant Hill	503	81	88	127	165	66

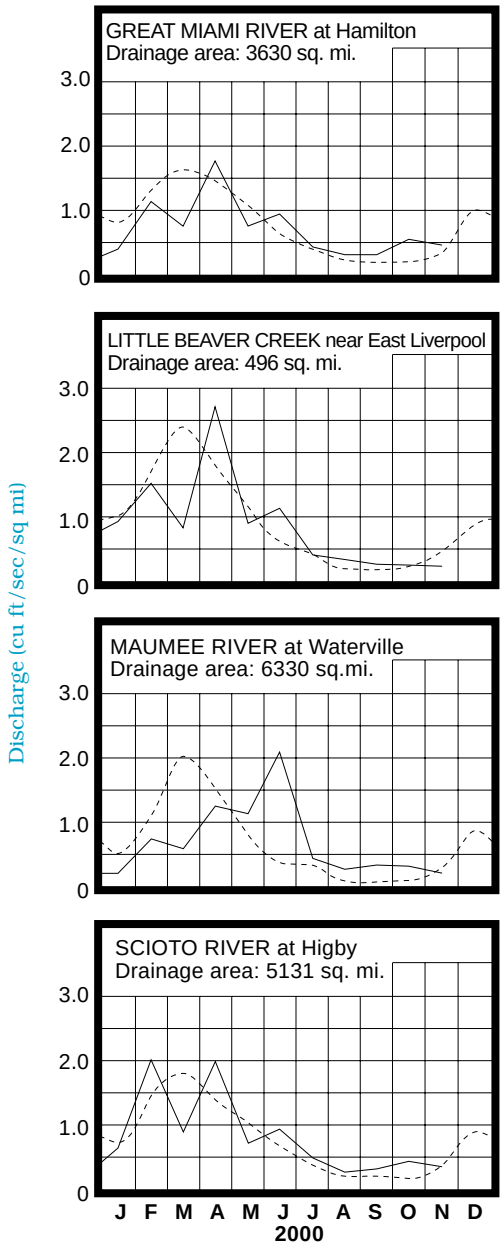
STREAMFLOW during November was below normal across most of the state, except for some basins in north-central, central and southwestern Ohio where flows were above normal. Flows were low enough to be considered deficient in basins located in the eastern third of the state. November flows decreased from the October flows throughout most of the state.

Streamflow at the beginning of the month was below normal in most areas of the state with the exception of basins in north-central Ohio where they were above normal. Lowest flows for November occurred during the first week of the month across most of the state. Flows increased during the second week following precipitation that occurred statewide. As a result, greatest flows for November occurred during November 10-13 in the western two-thirds of the state. Following these peaks, flows declined statewide until late in the month when precipitation returned to Ohio. Greatest flows in the eastern third of the state occurred near the end of the month following this precipitation. Flows at the end of November were below normal across most of the state, except for basins in north-central and northeastern Ohio where they were above normal.

RESERVOIR STORAGE for water supply during November decreased in the Mahoning River basin and increased in the Scioto River basin. Storage remained above normal in both basins.

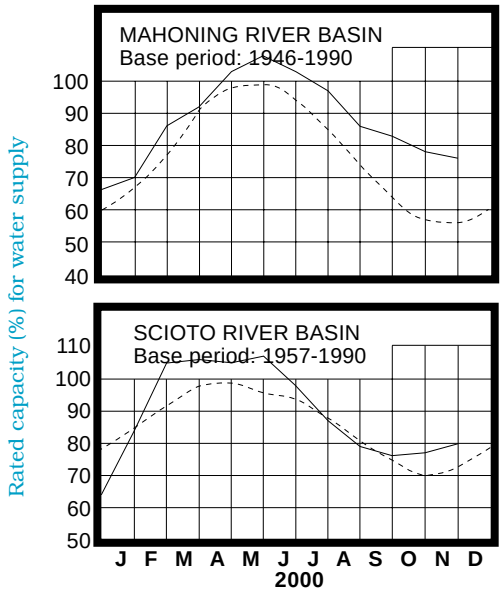
Reservoir storage at the end of November in the Mahoning basin index reservoirs was 76 percent of rated capacity for water supply compared with 78 percent for last month and 61 percent for November 1999. Month-end storage in the Scioto basin index reservoirs was 80 percent of rated capacity for water supply compared with 77 percent for last month and 54 percent for November 1999.

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	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	19.18	-1.92	-0.52	+2.72
Fa-1	Jasper Mill, Fayette Co.	Limestone	8.11	+0.84	+0.49	+6.17
Fr-10	Columbus, Franklin Co.	Gravel	46.06	-1.77	+0.37	+0.43
H-1	Harrison, Hamilton Co.	Gravel	23.77	-0.11	+0.21	+0.81
Hn-2a	Dola, Hardin Co.	Dolomite	7.34	+2.29	+0.25	+5.10
Po-1	Windham, Portage Co.	Sandstone	21.40	-0.72	-0.18	+1.17
Tu-1	Strasburg, Tuscarawas Co.	Gravel	15.69	-2.13	-0.34	+0.67

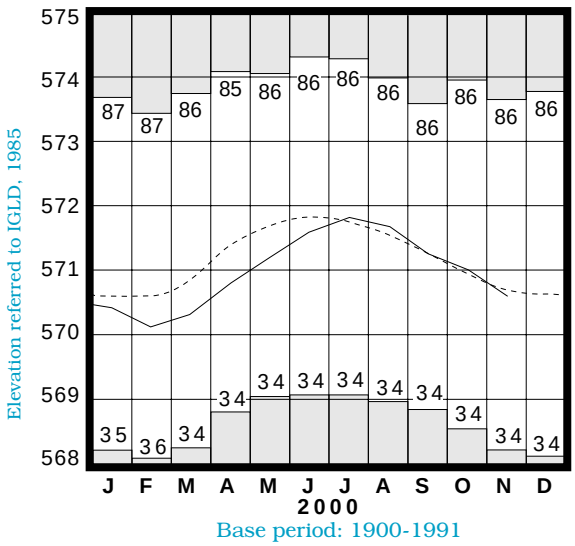
GROUND WATER levels during November generally rose in the western half of the state and declined in the eastern half. Net changes from October's levels were more favorable than usually observed in most aquifers across Ohio. Levels in aquifers in the western half of the state were relatively stable or rose slightly throughout the month while aquifers in eastern Ohio declined steadily throughout the month.

Ground water supplies are in a much more favorable position than they were a year ago. This is reflected by the fact that current levels range up to more than 6 feet above the November 1999 levels. Although improved, ground water levels remain below normal across most of the state with the exception of some carbonate aquifers in the western half of Ohio where levels are above normal. Current conditions favor a beneficial recharge season. Soil moisture is rated as adequate and long-range forecasts predict near-normal climatic conditions. Should these trends continue, ground water supplies should be adequately recharged across most of the state.

LAKE ERIE level declined seasonally during November. The mean level was 570.60 feet (IGLD-1985), 0.40 foot lower than last month's level and 0.10 foot below normal. This month's mean level is 0.07 foot lower than the November 1999 level and 1.40 feet above Low Water Datum.

The U. S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during November averaged 2.32 inches, 0.53 inch below normal. The entire Great Lakes basin averaged 2.79 inches of precipitation during November, 0.04 inch above normal. For calendar year 2000 through November, the Lake Erie basin has averaged 37.91 inches of precipitation, 5.53 inches above normal, while the entire Great Lakes basin has averaged 32.12 inches, which is 2.09 inches above 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 remain in a range from near average to about 1.5 feet below the long-term average for the foreseeable future.

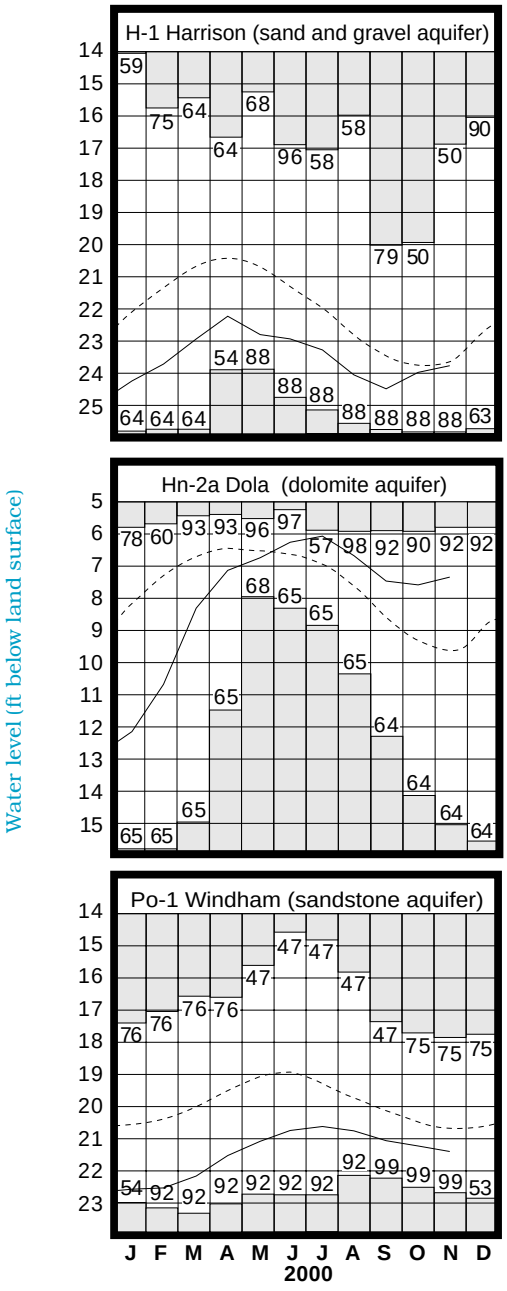
LAKE ERIE LEVELS at Fairport



Base period: 1900-1991

Record high and low, year of occurrence

GROUND-WATER LEVELS



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

Record high and low, year of occurrence

Normal – – – – Current ————

SUMMARY

Precipitation during November was below normal statewide. Streamflow was below normal across most of the state, except for some basins in north-central, central and southwestern Ohio were flows were above normal. Reservoir storage decreased in the Mahoning River basin and increased in the Scioto River basin. Reservoir storage remained above normal in both basins. Ground water levels generally rose in the western half of the state and declined in the eastern half and remain below normal across most of the state. Lake Erie level declined 0.40 foot and was 0.10 foot below the long-term November average.

NOTES AND COMMENTS

WRS STAFF RECEIVES OHIO GIS CONFERENCE AWARD

Paul Spahr, a hydrogeologist with the Division of Water, Water Resources Section (WRS), was recently awarded second place at the tenth annual Ohio GIS Conference for his map "The Ground Water Resources of the Unconsolidated Aquifers of Ohio." Paul's map was derived from a digital map that was produced during the Statewide Aquifer Mapping Project at the Division of Water. The award-winning map depicts the approximate yield (in gallons per minute) of the unconsolidated aquifers of Ohio. In addition to the yield of the aquifers, the map also depicts the thickness of the glacial deposits, the hydrogeologic settings of the aquifers, and the primary lithology of the aquifers. Previously, another of Paul's maps, "The Silurian Aquifers of Northwestern Ohio", won first place at the 1999 Ohio GIS Conference.

GOVERNOR TAFT APPOINTS NEW OWAC MEMBERS

Governor Robert Taft has recently announced the appointment of two new members to Ohio Water Advisory Council (OWAC). They are Paul R. Labovitz and Sandi B. Zellmer.

Paul R. Labovitz is from Peninsula (Summit County). Mr. Labovitz is employed as a program leader with the U. S. Department of Interior, National Park Service Midwest Region. As the program leader for the Rivers, Trails and Conservation Assistance Program, Midwest Region, Paul coordinates a technical program in 13 midwest states that helps to conserve river resources and protect and develop greenways and trails. He is also a member of the Ohio and Erie Canal Workgroup. Paul will be representing the OWAC on issues pertaining to canal lands. Paul is married and has three children.

Sandra B.Zellmer was appointed to the OWAC in June, 2000. She is Associate Professor of Law at the University of Toledo. Prior to joining the University of Toledo faculty, Professor Zellmer practiced as a trial attorney in the Environment and Natural Resources Division of the U. S. Department of Justice. She litigated public land and wildlife issues for various federal agencies. Professor Zellmer will be representing public interests on the council.

Others on the seven member council are: Joan Brasaemle (Akron), Doug Johnson (Dayton), Dr. Harry Kaneshige (Athens), Dr. Vincent T. Ricca (Columbus) and Dr. Robert Stiefel (Columbus).

The council consists of persons who have a demonstrated interest in water management and expertise in the various responsibilities of the Division of Water. The council's mission includes: 1) advising the chief of the Division of Water in carrying out the duties under state law; 2) recommending policy and legislation about water management and conservation to promote the economic, industrial and social development of the state, while minimizing threats to the environment; 3) reviewing and recommending the development of plans and programs for long-term, comprehensive water management; and 4) recommending ways to enhance cooperation among governmental agencies with an interest in water to encourage wise use and protection of Ohio's ground and surface waters.

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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