



MONTHLY WATER INVENTORY REPORT FOR OHIO

April 2011

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Compiled By Scott C. Kirk

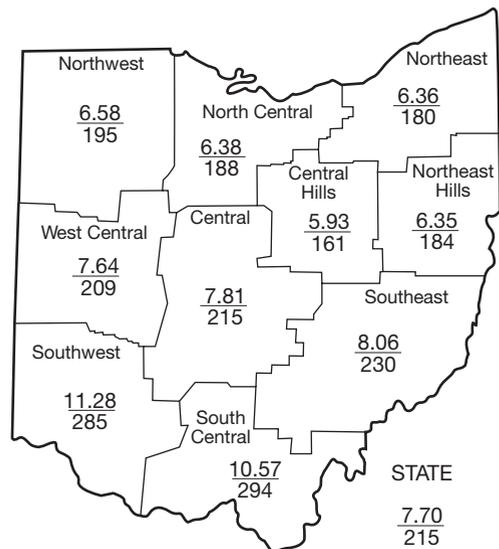
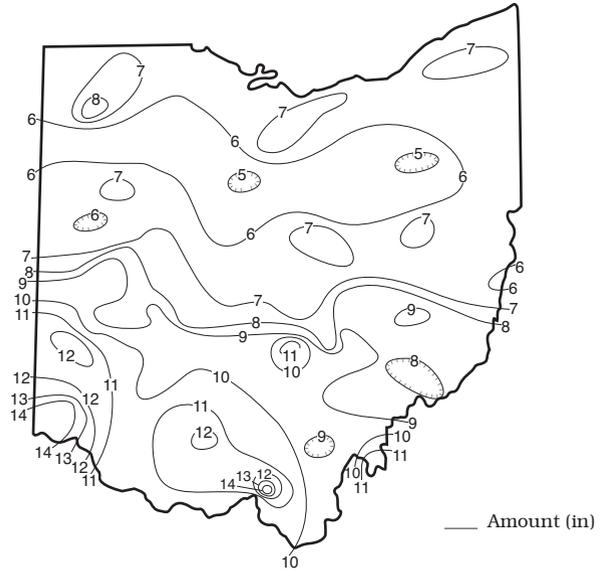
Hydrologist
Water Inventory Unit

PRECIPITATION during April was noticeably above normal throughout Ohio. The state average was 7.70 inches, 4.12 inches above normal. This was the wettest April during the past 129 years for the state as a whole. The new April record surpassed the previous mark of 6.37 inches set in 1893. Regional averages ranged from 11.28 inches, 7.32 inches above normal, for the Southwest Region to 5.93 inches, 2.25 inches above normal, for the Central Hills Region. All 10 of the state's climatic regions ranked in the top 3 wettest April's of record, including 6 regions that ranked as the wettest. Portsmouth-Sciotoville Waste Water Plant (Scioto County) reported the greatest amount of April precipitation, 14.62 inches. Other stations reporting over 14 inches were: Cheviot, Miamitown and Cincinnati Fernbank (Hamilton County); and Fairfield (Butler County). Bucyrus (Crawford County) reported the least amount, 4.81 inches.

Showers and thunderstorms crossed the state on several days throughout April. Locally severe storms with heavy rain were reported in many areas. Several areas of Ohio received record amounts of precipitation during April including Greater Cincinnati Airport (located near Covington, Kentucky), 13.52 inches; Port Columbus International Airport, 7.14 inches; and Cleveland-Hopkins International Airport, 6.89 inches. These rains fell on soils already at or near saturation from the above normal precipitation during March. As a result, flooding was a problem in many areas of the state throughout much of the month. Rain fell on several days during the first half of the month, but there were also several dry days. Showers and thunderstorms on April 4 brought generally 0.50-1.5 inches of rain throughout the state, with areas from west-central to central Ohio reporting around 2 inches. Light showers fell on April 8 with rainfall of around 0.50 inch occurring in northern Ohio. Showers and thunderstorms during April 11-12 brought 1-2 inches of rainfall across the southeastern half of the state with a few locations reporting nearly 3 inches. Precipitation fell almost daily during the second half of the month at most locations throughout Ohio. Total amounts during this period were well above normal with most of the state receiving 3-6 inches of rain and areas in southern Ohio reporting more than 10 inches. Showers and thunderstorms during April 15-16 brought generally 0.50-1.5 inches of rain statewide. The most noteworthy stormy period was during April 19-20. Strong storms rocked the state during this two day period. High winds, heavy rain and tornadoes were associated with many of these storms. Most of northern Ohio received at least 1 inch of rain while most of southern Ohio received 2-3 inches with some locations in southwestern Ohio reporting more than 4 inches of rain during this storm. Small stream and urban flooding, especially in southern Ohio, was reported. Showers

(Continued on back)

PRECIPITATION APRIL



Average (in)
Percent of normal

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	+3.20	+5.85	+5.03	+5.26	+1.64	+2.4
North Central	+2.99	+6.59	+5.84	+8.92	+4.19	+3.8
Northeast	+2.83	+7.68	+8.34	+9.67	+7.04	+3.9
West Central	+3.98	+8.69	+8.22	+8.10	+3.91	+3.0
Central	+4.18	+7.89	+7.19	+7.82	+6.43	+2.1
Central Hills	+2.25	+6.11	+5.76	+6.33	+2.99	+2.3
Northeast Hills	+2.89	+6.75	+6.33	+7.00	+2.88	+2.2
Southwest	+7.32	+10.19	+9.47	+7.72	+5.68	+3.1
South Central	+6.98	+10.27	+9.31	+15.15	+15.16	+3.2
Southeast	+4.55	+7.96	+7.16	+9.27	+5.07	+3.0
State	+4.12	+7.80	+7.27	+8.55	+5.52	

*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

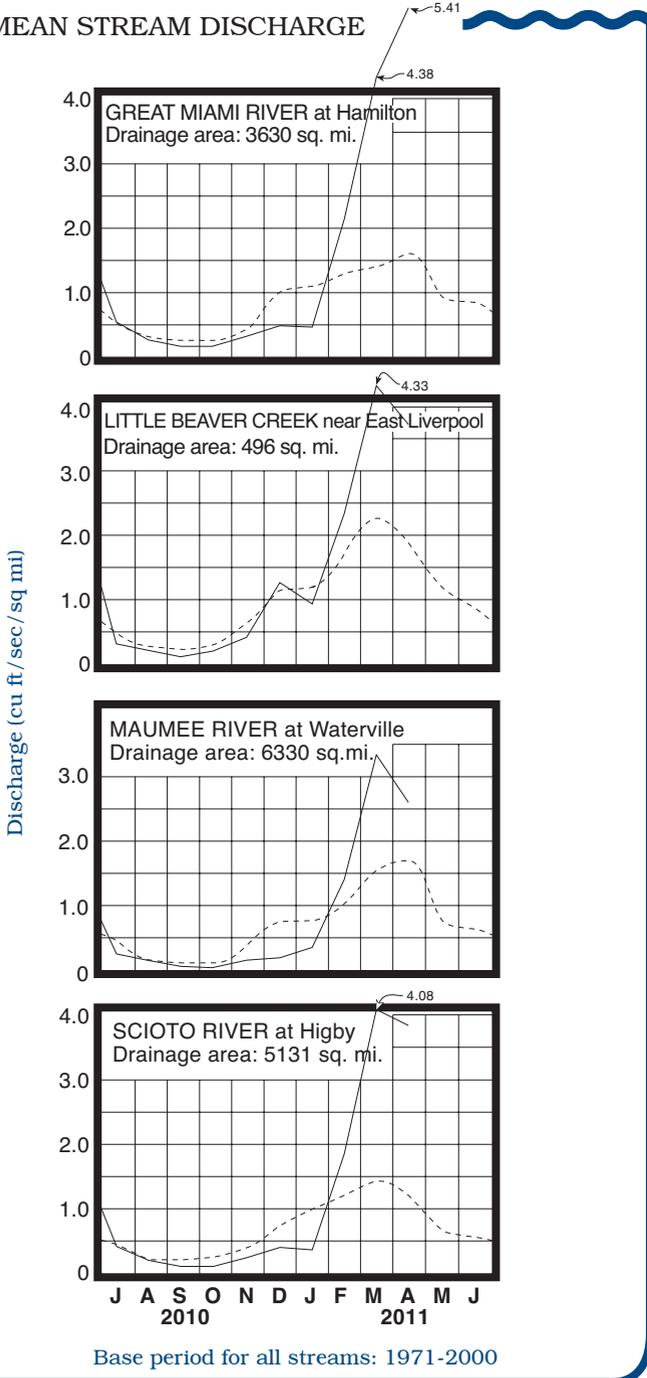
MEAN STREAM DISCHARGE

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	2,810	191	185	137	124
Great Miami River at Hamilton	3,630	19,620	335	251	169	142
Huron River at Milan	371	1,457	244	235	169	151
Killbuck Creek at Killbuck	464	1,125	142	168	126	112
Little Beaver Creek near East Liverpool	496	1,839	199	180	137	122
Maumee River at Waterville	6,330	16,470	154	153	107	113
Muskingum River at McConnellsville	7,422	25,030	148	223	172	98
Scioto River near Prospect	567	1,833	201	227	161	142
Scioto River at Higby	5,131	19,670	258	197	133	118
Stillwater River at Pleasant Hill	503	2,266	309	233	159	137

STREAMFLOW during April was above normal statewide. Flows were high enough to be considered excessive throughout Ohio. Flows during April decreased from the excessive March flows across most of the state, but were greater in basins in west-central and southwestern Ohio. Preliminary data indicates that for the period of respective records, this month's mean monthly flow for the Great Miami River at Hamilton and the Scioto River at Higby were the greatest recorded for April. The gauging station for the Grand River at Painesville recorded its second greatest April flow and the Stillwater River at Pleasant Hill, Huron River at Milan, Little Beaver Creek near East Liverpool and Muskingum River at McConnellsville all recorded their third greatest April flow.

MEAN STREAM DISCHARGE

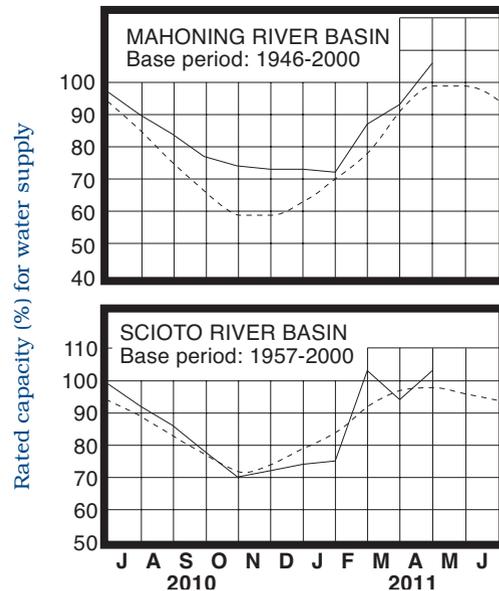


Streamflow at the beginning of the month was below normal. Lowest flows for April were recorded early in the month with most occurring on April 3 just prior to precipitation that moved into the state. Flows increased in response to widespread precipitation that occurred on April 4. Flooding occurred in many areas of the state as a result of this precipitation, especially across west-central and central Ohio. Additional flooding occurred following heavy rain during April 11-12 in southern Ohio. Greatest flows for April occurred during the second half of the month but varied as locally heavy rains fell across the state on several days. However, greatest flows generally occurred on April 20 in the southwestern one-third of the state and between April 26 and 29 in the northeastern two-thirds of the state. More small stream and urban flooding was reported following the severe storms of April 19-20. Flooding continued in many areas of the state and along the Ohio River as a result of the rainfall that fell during April 22-28. Flows were declining at month's end, but remained above normal throughout Ohio and excessive in the southwestern two-thirds of the state.

RESERVOIR STORAGE for water supply during April increased in both the Mahoning and Scioto river basins. Storage at the end of the month was above normal in both basins.

Reservoir storage at the end of April in the Mahoning basin index reservoirs was 106 percent of rated capacity for water supply compared with 93 percent for last month and 99 percent for April 2010. Month-end storage in the Scioto basin index reservoirs was 103 percent of rated capacity for water supply compared with 94 percent for last month and 97 percent for April 2010.

RESERVOIR STORAGE FOR WATER SUPPLY



GROUND-WATER LEVELS

Based on daily lowest level in feet below land-surface datum

GROUND WATER levels during April rose throughout the state. Levels generally rose steadily throughout the month in most aquifers in response to recharge from the above normal precipitation. Net rises during April from last month's levels were greater than usually observed in unconsolidated aquifers and less than usually observed in consolidated aquifers.

Ground water supplies continue to benefit from the noticeably above normal precipitation the state has experienced the past three months. Ground water levels are near or above normal across much of the state. Levels in some aquifers in central and southwestern Ohio remain below normal, but are much improved from late 2010 when levels in some of these aquifers were more than 3 feet below normal. Also, current levels in most aquifers are above those levels of a year ago, ranging up to 3 feet higher than the April 2010 levels. Current soil conditions throughout the state favor additional improvement to ground water supplies. The Ohio Agricultural Statistics Service reports that near the end of April, soil moisture was rated as being adequate in 7 percent of the state and surplus in 93 percent of the state. With near-normal precipitation during the next month or two the opportunity for additional recharge will continue to be favorable.

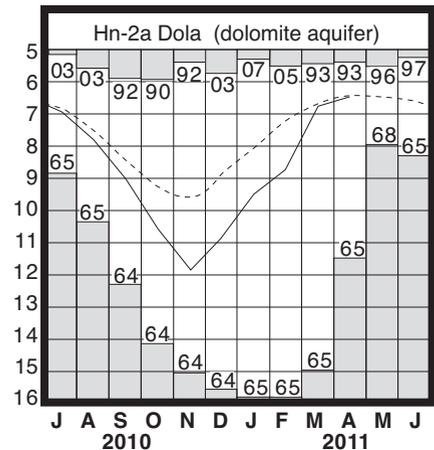
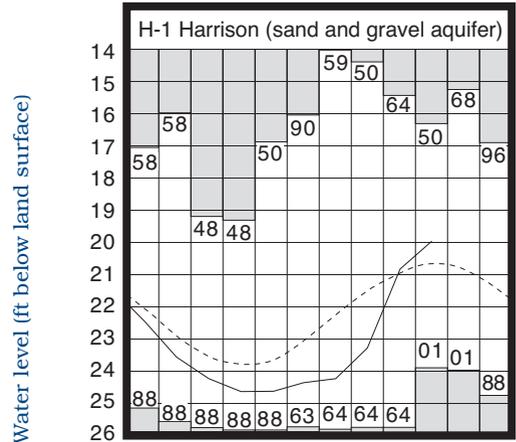
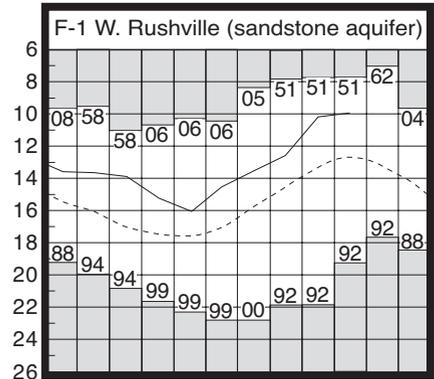
LAKE ERIE level rose during April. The mean level was 571.52 feet (IGLD-1985), 0.56 foot above last month's mean level and 0.07 foot below normal. This month's mean level is 0.36 foot above the April 2010 level and 2.32 feet above Low Water Datum.

The U.S. Army Corps of Engineers (USACE) reports that precipitation in the Lake Erie basin during April averaged 5.80 inches, 2.64 inches above normal. For the entire Great Lakes basin, April precipitation averaged 4.99 inches, 2.45 inches above normal. For calendar year 2011 through April, the Lake Erie basin has averaged 15.64 inches, 5.14 inches above normal, while the entire Great Lakes basin has averaged 10.83 inches, 2.13 inches above normal.

In addition, the USACE reports that based on the current condition of the Great Lakes basin and anticipated weather conditions, the level of Lake Erie should remain near-normal for the foreseeable future. Deviations from the anticipated weather patterns could result in the level of Lake Erie ranging from about 7 inches above to as much as 9 inches below the normal seasonal average.

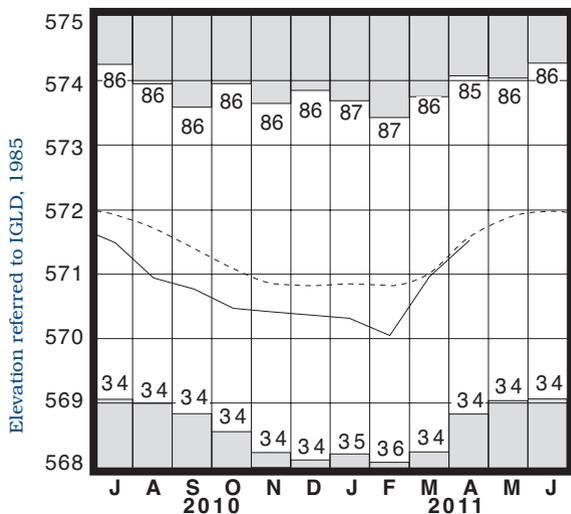
Index Well	Location	Aquifer	Mean This Month	Departure From Normal	Change in feet from:	
					Last Month	Year Ago
F-1	W. Rushville, Fairfield Co.	Sandstone	9.91	+2.78	+0.27	+1.91
Fa-1	Jasper Mill, Fayette Co.	Limestone	7.91	-1.08	+0.27	+0.03
Fr-10	Columbus, Franklin Co.	Gravel	43.17	-0.90	+0.72	+0.15
H-1	Harrison, Hamilton Co.	Gravel	19.97	+0.70	+0.85	+2.01
Hn-2a	Dola, Hardin Co.	Dolomite	6.48	-0.05	+0.29	+0.86
Po-124	Freedom, Portage Co.	Sandstone	76.93	+0.84	+0.31	-0.66
Tu-1	Strasburg, Tuscarawas Co.	Gravel	10.44	+0.72	+0.65	+2.98

GROUND-WATER LEVELS



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

LAKE ERIE LEVELS



Base period: 1918-2000

■ Record high and low, year of occurrence

Normal - - - - Current ———

(Precipitation continued from front)

and thunderstorms were widespread during April 22-28. Most of Ohio received between 1.5 and 3.0 inches of rain during this period, but some areas in southern Ohio received more than 5 inches.

Precipitation for the 2011 water year is above normal statewide. The state average is 26.60 inches, 6.81 inches above normal. Regional averages range from 30.53 inches, 8.82 inches above normal, for the South Central Region to 21.28 inches, 3.78 inches above normal, for the Northwest Region.

Precipitation for the 2011 calendar year is also above normal statewide. The state average is 18.36 inches, 6.78 inches above normal. Regional averages range from 22.36 inches, 9.06 inches above normal, for the South Central Region to 15.20 inches, 5.29 inches above normal, for the Northwest Region. Precipitation has been noticeably above normal during the past three months throughout the state. Preliminary data indicates the state average for February through April 2011 is 16.81 inches, 7.80 inches above normal. This ranks February-April 2011 as the wettest during the past 129 years of record for this period. Eight of the state's 10 climatic regions had their wettest February-April of record. The Central Hills Region had its second wettest and the Central Region its third wettest. Several locations have received more than one-half of their normal annual precipitation in just the past 3 months.

The above normal precipitation has been beneficial for water supplies. However, in addition to flooding problems, the excessive precipitation has caused farmers to delay their spring planting. Fields throughout most of the state are currently too wet for any planting to take place. At the end of April, about 1 percent of the corn crop had been planted and 16 percent of the oats. At this time last year, 60 percent of the corn crop was planted and 91 percent of the oats.

SUMMARY

Precipitation during April was noticeably above normal statewide. Several areas received record amounts of precipitation for the month of April. Streamflow was above normal and excessive statewide with minor to moderate flooding occurring at various times throughout the month. Reservoir storage increased and was above normal statewide. Ground water levels rose and are near to above normal throughout much of the state. Lake Erie level rose 0.56 feet and was 0.07 foot below the long-term April average.

NOTES AND COMMENTS

Division of Soil and Water Resources Has New Chief

On April 8, 2011, ODNR Director David Mustine announced the appointment of Ted Lozier as the new Chief of the Division of Soil and Water Resources and Division of Recycling and Litter Prevention. Ted had been serving as the acting Chief since January 10, 2011 (see January 2011 issue of this report for more information about Ted). As Chief, Ted will oversee the duties of the Division of Soil and Water Resources and the Division of Recycling and Litter Prevention. Congratulations to Ted on his appointment.

Long-Time Administrator Retires

Mark Ogden, Administrator of the Water Management Section of the Division of Soil and Water Resources, retired on April 8 after more than 25 years of dedicated service to the Ohio Department of Natural Resources (ODNR). Mark began his career with the Division of Water, Dam Safety Program in November 1985. In 1996, he became the administrator of the Water Engineering Group, directing Ohio's dam safety program including inspections of existing dams, issuing permits for new dams, dikes and levies, and operations and maintenance of Ohio's canal systems. In August 1997, Mark was named the administrator of the Water Management Section which included the Dam Safety, Canal Hydraulics, Coastal Engineering and Floodplain Management programs. He was on the Board of Directors and served as the Treasurer of the Water Management Association of Ohio. He was also on the Board of Directors and President of the Association of State Dam Safety Officials (ASDSO). After his retirement from ODNR, Mark will continue to be involved on dam safety issues. He will be a project manager for the ASDSO working on state dam safety advocacy issues. The Division of Soil and Water Resources staff congratulates Mark on his retirement from ODNR and thank him for his many years working to assure Ohio's dams are safe.

ACKNOWLEDGMENTS

This report has been compiled from Division 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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