

MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS

TO: NATIONAL WEATHER SERVICE (W/OS31)
HYDROMETEOROLOGICAL INFO CENTER
1325 EAST-WEST HIGHWAY, RM 13468
SILVER SPRING, MD 20910

When no flooding occurs, include miscellaneous river conditions, such as significant rises, record low stages, ice conditions, snow cover, droughts, and hydrologic products issued (WSOM E-41).

An **X** inside this box indicates that no flooding occurred within this Hydrologic Service Area.

Summary

Minor river flooding occurred in March along the Flat, Chippewa, Grand, Rogue, Maple, Pine and Muskegon rivers. Areal flood warnings were issued for, and minor areal flooding occurred, in Newaygo and Mecosta counties. Urban and small stream flood advisories were issued for Muskegon, Kent, Ottawa, Newaygo, Mecosta, and Montcalm counties. No significant property damage was reported and no lives were lost during the minor flooding that occurred in March.

Flood Conditions

Multiple rainfall events occurred over a week long span that resulted in urban and small stream flood advisories for six counties, areal flood warnings for two counties, and minor flooding along the Flat, Chippewa, Grand, Rogue, Maple, Pine and Muskegon Rivers.

On March 9th, 2006, a flood watch was issued at 11:30 AM EST to highlight the potential for flooding from thunderstorms with heavy rainfall over saturated soils. On March 10th, 2006, urban and small stream flood advisories were issued at 5:05 AM EST for Muskegon, Kent and Ottawa Counties. The urban and small stream flood advisories were cancelled at 4:47 PM EST on March 10th, 2006. On March 11th, 2006, a river flood warning was issued at 3:43 PM EST for the Flat River near Smyrna.

Another round of thunderstorms with heavy rain, in excess of 3 inches in some areas, moved through the area from March 12th into March 13th, 2006. Urban and small stream flood advisories were issued for Newaygo, Mecosta, Muskegon, Montcalm, Kent and Ottawa Counties at 1:48 AM EST on March 13th, 2006. Later that morning, at 9:51 AM EST, the urban and small stream flood advisories for Newaygo and Mecosta Counties were upgraded to areal flood warnings. Many small streams and creeks were out of their banks, and over 40 roads were underwater, during the peak of the flooding in Newaygo and Mecosta Counties. Also on the 13th, river flood warnings were issued for the Chippewa River near Mt. Pleasant, Pere Marquette River near Scottville, Grand River at Comstock Park and Robinson Township, Rogue River near Rockford, Maple River at Maple Rapids, Pine River at Alma, and the Muskegon River at Evert. As the areal flooding transitioned into river flooding, the areal flood warnings for Newaygo and

Mecosta Counties were cancelled at 8:39 AM EST, and the urban and small stream flood advisories for Muskegon, Montcalm, Kent, and Ottawa Counties were cancelled at 9:03 AM EST on March 14th, 2006. An increase in reservoir releases resulted in a river flood warning being issued downstream of the reservoir for the Muskegon River at Croton at 10:45 AM EST on March 14th, 2006.

Later that week, river flood warnings were cancelled as river levels fell below flood stage, with the last river flood warning being cancelled on March 19th, 2006.

Flood Stage Report

Please refer to NWS Form E 3

River Conditions

River levels across the Grand Rapids HSA by the end of March were near to below normal by the end of the month.

The end of the month percentage of normal flow for selected rivers is listed below:

<u>Location</u>	<u>River</u>	<u>% of Normal</u>
Scottville	Pere Marquette	85
Whitehall	White	82
Evart	Muskegon	97
Mt. Pleasant	Chippewa	98
Lansing	Grand	75
Grand Rapids	Grand	76
East Lansing	Red Cedar	60
Hastings	Thornapple	59
Battle Creek	Battle Creek	63
Comstock	Kalamazoo	87

General Hydrologic Information

March precipitation and temperatures were above normal across Southwest Lower Michigan.

March precipitation totals at first order stations across our HSA were above normal for Grand Rapids, Lansing, and Muskegon, Michigan. March precipitation totals at Grand Rapids, Lansing, and Muskegon, were 3.31, 2.64, and 5.71 inches, respectively. Precipitation for the month at these three sites were 0.72 of an inch above normal at Grand Rapids, 0.31 of an inch above normal at Lansing, and 3.35 inches above normal at Muskegon, Michigan. On March 13th, both Grand Rapids and Muskegon set new daily rainfall records with 1.06 inches and 2.92 inches, respectively. For the year, precipitation totals were above normal at Grand Rapids, Lansing, and Muskegon, Michigan. Yearly precipitation totals were 3.84 inches above normal for Grand Rapids, 3.11 inches above normal for Lansing, and 5.34 inches above normal for Muskegon, Michigan.

Snowfall totals for the month of March were well below normal for Grand Rapids (-5.7") Lansing (-6.4") and Muskegon (-5.8"). March snowfall totals at Grand Rapids, Lansing, and Muskegon were 3.3, 2.3, and 5.3 inches, respectively. By the end of the month the snowpack across our HSA had all melted.

Temperatures for the month of March were slightly above normal at Grand Rapids, Lansing, and Muskegon, with average monthly departures of +1.9, +1.8, and +1.9 degrees Fahrenheit, respectively. At Grand Rapids the soil temperatures at the end of the month were 46 degrees near the surface and 38 degrees Fahrenheit at a depth of 60 inches.

Hydrologic Products issued this month:

13 Flood Warnings (ARBFLWGRR) were issued
61 Flood Statements (ARBFLSGRR) were issued
5 Flood Watches (ARBFFAGRR) were issued
2 Hydrologic Outlooks (ARBESFGRR) were issued
37 Hydrologic Statements (ARBRVSGRR) were issued
31 Hydrologic Summary's were issued (RVA)