

MONTHLY REPORT OF RIVER AND FLOOD CONDITIONSDATE:
May 29, 2009TO: NATIONAL WEATHER SERVICE (W/OS31)
HYDROMETEOROLOGICAL INFO CENTER
1325 EAST-WEST HIGHWAY, RM 13468
SILVER SPRING, MD 20910SIGNATURE:
Daniel K. Cobb, MIC
Mark L. Walton, Service Hydrologist

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 significant flooding occurred within this Hydrologic Service Area.

Summary

Minor flooding of secondary roads, low lying areas, basements, and crawl spaces of homes adjacent to the rivers occurred during the month of April. No significant impacts to life or property were reported.

Flood Conditions**Thursday, April 2nd**

A low pressure system moved into the area on Thursday and initial Quantitative Precipitation Forecasts (QPF) called for around an inch of rainfall. The QPF pushed the river forecast for the Portage River near Vicksburg, Michigan, above flood stage. At 9:58 PM EDT, a river flood warning was issued, for the Portage River near Vicksburg, Michigan.

Saturday, April 4th

At 10:05 AM EDT, a river flood warning was cancelled for the Portage River near Vicksburg, Michigan, when the river crested at 4.91 feet, just 0.09 feet below its flood stage of 5 feet.

Friday, April 24th

A warm front moved into the area early Friday morning resulting in rainfall amounts of around a third of an inch.

Saturday, April 25th

A cold front stalled over the area Saturday resulting in widespread rainfall amounts of one to three inches by Sunday morning.

At 11:04 PM EDT, river flood advisories were issued for the following rivers:

- Grand River at Ionia, Michigan
- Grand River at Lowell, Michigan
- Sycamore Creek at Holt, Michigan
- Looking Glass River near Eagle, Michigan
- Maple River at Maple Rapids, Michigan
- Flat River near Smyrna, Michigan

- Thornapple River near Hastings, Michigan
- Kalamazoo River near New Richmond, Michigan
- Portage River near Vicksburg, Michigan

At 11:41 PM EDT, a river flood advisory was issued for the Grand River at Comstock Park, Michigan.

Sunday, April 26th

The cold front remained in the area and stalled near the Indiana/Michigan border. By late Sunday an additional half to one inch of rainfall had fallen over the area.

At 2:02 AM EDT, a flood advisory for urban and small streams was issued for Barry, Allegan, Clinton, Ionia, Muskegon, Mecosta, Newaygo, Isabella, Oceana, Ottawa, Kent, Gratiot, and Montcalm counties in Southwest Lower Michigan.

At 2:48 PM EDT, a flood warning for urban and small streams was issued for Gratiot County.

At 2:51 PM EDT, a river flood warning was issued for the Pine River at Alma, Michigan.

At 7:55 PM EDT, the flood advisory for urban and small streams was cancelled for Barry, Allegan, Clinton, Ionia, Muskegon, Mecosta, Newaygo, Isabella, and Oceana counties and extended for Ottawa, Kent, Gratiot, and Montcalm counties.

At 8:09 PM EDT, the flood warning for urban and small streams was cancelled for Gratiot County.

At 11:04 PM EDT, river flood advisories were issued for the following rivers:

- Red Cedar River at East Lansing, Michigan
- Rogue River below Rockford, Michigan
- Pere Marquette River near Scottville, Michigan
- Muskegon River near Croton, Michigan
- Chippewa River below Mt Pleasant, Michigan

Monday, April 27th

Showers and thunderstorms along the stalled front moved through the area resulting a half, to an inch and a half, of additional rainfall.

At 6:54 AM EDT, a river flood warning was cancelled for the Pine River at Alma, Michigan, when the river fell below flood stage.

At 10:12 AM EDT, a river flood watch was issued for the Portage River near Vicksburg, Michigan. Also at 10:12 AM EDT, the flood advisory for urban and small streams was cancelled for Ottawa, Kent, Gratiot, and Montcalm counties.

At 11:15 AM EDT, a river flood warning was issued for the Rogue River near Rockford, Michigan (upgraded from a river flood advisory).

At 11:33 AM EDT, a river flood advisory was issued for the Grand River at Jackson, Michigan.

At 4:04 PM EDT, an areal flood watch was issued for 14 counties in the lower half of our HSA. The forecast was for heavy rain to move into the watch area that night.

Tuesday, April 28th

After four days of rain, a high pressure system moved into the area. The stalled front finally moved out of the area Tuesday afternoon with only an additional tenth of an inch of rain across the area.

At 12:09 AM EDT, the river flood watch was cancelled for the Portage River near Vicksburg, Michigan, and replaced by a river flood warning.

At 12:25 AM EDT, the following river flood warnings were issued:

- Grand River near Comstock Park, Michigan (upgraded from a river flood advisory)
- Red Cedar River at East Lansing, Michigan (upgraded from a river flood advisory)
- Looking Glass River near Eagle, Michigan (upgraded from a river flood advisory)
- Maple River at Maple Rapids, Michigan (upgraded from a river flood advisory)
- Thornapple River above Hastings, Michigan (upgraded from a river flood advisory)

At 12:30 AM EDT, a river flood warning was issued for the Grand River near Robinson Township, Michigan.

At 12:41 AM EDT, a river flood advisory was issued for the following rivers:

- Grand River at Eaton Rapids, Michigan
- Grand River at Lansing, Michigan
- Grand River at Ada, Michigan
- Grand River at Grand Rapids, Michigan
- Red Cedar River above Williamston, Michigan
- Thornapple River near Caledonia, Michigan
- Kalamazoo River at Marshall, Michigan
- Kalamazoo River at Comstock, Michigan
- Pine River at Alma, Michigan

At 8:16 AM EDT, the river flood advisory was cancelled for the Portage River near Vicksburg, Michigan.

At 8:40 AM EDT, the river flood advisory was cancelled for the Muskegon River near Croton, Michigan.

At 8:45 AM EDT, the river flood advisory was cancelled and the Grand River at Jackson, Michigan.

At 8:59 AM EDT, a flood advisory for urban and small streams was issued for Gratiot, Montcalm, Calhoun, Clinton, Eaton, Ingham, Ionia, Allegan, Barry, Kalamazoo, Kent, Ottawa, and Van Buren counties in Southwest Lower Michigan.

At 10:10 AM EDT, the river flood warning for the Portage River near Vicksburg, Michigan, was cancelled when the updated river forecast called for the river to crest below flood stage.

At 11:48 AM EDT, the river flood warning for the Red Cedar River at East Lansing, Michigan, was cancelled when the river crested a half a foot below flood stage.

At 12:12 PM EDT, the river flood advisories for the following rivers were cancelled:

- Grand River at Eaton Rapids, Michigan
- Grand River at Lansing, Michigan
- Red Cedar River above Williamston, Michigan
- Kalamazoo River at Marshall, Michigan
- Kalamazoo River at Comstock, Michigan
- Chippewa River below Mt Pleasant, Michigan

At 4:33 PM EDT, the river flood warning for the Rogue River near Rockford, Michigan, was cancelled when the river fell below flood stage.

At 10:10 PM EDT, the river flood warning for the Looking Glass River near Eagle, Michigan, was cancelled when the river crested just two tenths of a foot below flood stage.

At 10:25 PM EDT, the river flood advisory was cancelled for the Sycamore Creek near Holt, Michigan.

Wednesday, April 29th

At 6:15 AM EDT, the river flood advisory was upgraded to a river flood warning for the Grand River at Ionia, Michigan.

At 10:12 AM EDT, the flood advisory for urban and small streams was cancelled for Gratiot, Montcalm, Calhoun, Eaton, Ingham, Ionia, Kalamazoo, Kent, and Van Buren counties and continued for Ottawa, Barry, Allegan, and Clinton counties in Southwest Lower Michigan.

At 10:55 AM EDT, river flood advisories were cancelled for the Sycamore Creek near Holt, Michigan and for the Pine River near Alma, Michigan.

At 8:42 PM EDT, the flood advisory for urban and small streams was cancelled for Ottawa, Barry, Allegan, and Clinton counties in Southwest Lower Michigan.

At 10:23 PM EDT, the river flood warning for the Grand River at Ionia, Michigan, was cancelled when the river fell back below flood stage.

At 10:27 PM EDT, the river flood advisory was upgraded to a river flood warning for the Grand River at Lowell, Michigan.

Thursday, April 30th

Showers associated with a low pressures system moved in Thursday and resulted in a half, to an inch and a half, of rainfall over the area.

At 11:51 AM EDT, a river flood warning was issued for the Portage River near Vicksburg, Michigan.

At 12:17 PM EDT, river flood advisories were issued for the Sycamore Creek near Holt, Michigan, and the Looking Glass River near Eagle, Michigan.

At 10:11 PM EDT, river flood advisories were issued for the following rivers:

- Kalamazoo River at Comstock, Michigan
- White river above Whitehall, Michigan
- Little Muskegon River above Morley, Michigan

At 10:43 PM EDT, river flood advisories were issued for the Chippewa River near Mt. Pleasant, Michigan, and the Pine River at Alma, Michigan.

The following river flood advisories carried over into May:

- Grand River at Ada, Michigan
- Grand River at Grand Rapids, Michigan
- Sycamore Creek at Holt, Michigan
- Looking Glass River near Eagle, Michigan
- Flat River near Smyrna, Michigan
- Thornapple River near Caledonia, Michigan
- Kalamazoo River near New Richmond, Michigan
- Kalamazoo River at Comstock, Michigan
- Pere Marquette River near Scottville, Michigan
- White River near Whitehall, Michigan
- Pine River at Alma, Michigan
- Chippewa River near Mt. Pleasant, Michigan
- Little Muskegon River near Morley, Michigan

The following river flood warnings carried over into May:

- Grand River at Lowell, Michigan
- Grand River near Comstock Park, Michigan
- Maple River at Maple Rapids, Michigan

- Thornapple River above Hastings, Michigan
- Portage River near Vicksburg, Michigan
- Grand River at Robinson Township, Michigan

Flood Stage Report

Eight river forecast points exceeded flood stage during the month of April.

Please refer to NWS Form E-3 “Flood Stage Report”.

River Conditions

Above normal rainfall for the month combined with a significant rainfall at the end of the month resulted in river levels by the end of April significantly above normal for our HSA. 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>
Whitehall	White	180
Evert	Muskegon	140
Mt. Pleasant	Chippewa	250
Lansing	Grand	300
Grand Rapids	Grand	460
East Lansing	Red Cedar	500
Hastings	Thornapple	600
Battle Creek	Battle Creek	392
Comstock	Kalamazoo	242

General Hydrologic Information

April 2009 will be remembered for slightly above normal average temperatures, and significantly above normal precipitation.

April precipitation totals at Grand Rapids, Lansing, and Muskegon, Michigan, were 5.56, 6.49, and 4.80 inches, respectively. Precipitation totals for the month at these three sites were 2.08 inches above normal at Grand Rapids, 3.40 inches above normal at Lansing, and 1.89 inches above normal at Muskegon, Michigan. For Lansing, it was the wettest April on record. For Grand Rapids and Muskegon, it was the seventh wettest April on record. Yearly precipitation totals were 3.63 inches above normal for Grand Rapids, 4.46 inches above normal for Lansing, and 5.17 inches above normal for Muskegon, Michigan.

Snowfall totals for the month were a Trace (-2.8) at Grand Rapids, 5 (+2.5) inches at Lansing, and a Trace (-3.1) at Muskegon, Michigan. Snow depths across the HSA were zero by the end of the month.

The frost depths across the HSA were zero by the end of the month.

The daily mean temperature for the month was slightly warmer than average across southwest Lower Michigan. Temperatures for the month of April were above normal at

Grand Rapids, Lansing, and Muskegon, with average monthly departures of +1.2, +1.2 and +1.4 degrees Fahrenheit, respectively.

Hydrologic Products issued this month:

- 4 Areal Flood Watches (ARBFFAGRR)
- 2 River Flood Watches (ARBFFAGRR)
- 10 River Flood Warnings (ARBFLWGRR)
- 14 River Flood Statements (ARBFLSGRR)
- 20 River Flood Advisories (ARBFLSGRR)
- 12 Areal Flood Advisories (ABRFLSGRR)
- 56 Hydrologic Statements (ARBRVSGRR)
- 30 Hydrologic Summaries (ARBRVAGRR)
- 1 Hydrologic Outlook (ARBESFGRR)