

## MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS

DATE:  
March 4, 2013TO: 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

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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).

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

**Summary**

Significant ice jam flooding occurred during the month of January. Ice jams formed on the Grand River near Grand Haven, Michigan, and on the Muskegon River near Rogers Heights, Michigan. Flooding from the ice jam on the Muskegon River near Rogers Heights impacted over 60 homes and was reported to have caused approximately 2.6 million dollars in damages. As a result of the ice jam flooding along the Muskegon River, Mecosta County Emergency Services declared a state of emergency. High water marks from a flood damage survey indicated the Muskegon River near Rogers Heights had crested over 4 feet above the 1% chance flood (100 year flood). No damages were reported with the flooding from the ice jam on the Grand River near Grand Haven, Michigan. Minor flooding also occurred along the Muskegon River near Croton and the White River near Whitehall. A significant rain and snowmelt event in late January resulted in widespread flooding of small creeks and streams and the flooding of secondary roads in Allegan, Ottawa, Van Buren, Oceana, Mason, Muskegon and Newaygo counties.

**Flood Conditions****Wednesday, January 16<sup>th</sup>**

At 6:56 PM EST a flood watch was issued through Sunday evening for the Muskegon River near Rogers Heights, Michigan, in Mecosta County. Emergency Services had reported an ice jam and water levels rising upstream of the ice jam.

**Thursday, January 17<sup>th</sup>**

At 12:49 PM EST the flood watch remained in effect through Sunday evening for the Muskegon River near Rogers Heights, Michigan. Mecosta County Emergency Services reported that water levels were high but had stabilized behind the ice jam. Water levels were out of banks and in the backyards of homes but no roads or structures were being impacted by high water levels.

**Friday, January 18<sup>th</sup>**

At 12:23 PM EST the flood watch for the Muskegon River near Rogers Heights, Michigan was cancelled. Mecosta County Emergency Services reported that river levels had receded within banks and the ice jam had stabilized.

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### Friday, January 25<sup>th</sup>

At 10:52 PM EST the Hazardous Weather Outlook mentioned the ice jam potential would remain high on area rivers into next week.

### Saturday, January 26<sup>th</sup>

At 3:18 PM EST the Hydrology Section of the Area Forecast Discussion mentioned the potential for ice jams next week due to the anticipated ice movement from the thaw forecast to occur on Monday and Tuesday.

### Sunday, January 27<sup>th</sup>

At 6:17 AM EST the Hazardous Weather Outlook mentioned an increased risk for flooding Tuesday into Wednesday given the potential for heavy rain over frozen ground, and expected snowmelt, with the presence of ice in area rivers.

### Monday, January 28<sup>th</sup>

At 3:29 AM EST a flood watch was issued for Newaygo, Mecosta, Isabella, Muskegon, Montcalm, Gratiot, Ottawa, Kent, Ionia, Clinton, Allegan, Barry, Eaton, Ingham, Van Buren, Kalamazoo, Calhoun, and Jackson counties in Southwest Lower Michigan. A forecast of heavy rain along with significant snowmelt Tuesday night elevated the risk for flooding of small streams and rivers in the watch area.

At 4:41 PM EST the flood watch continued for Newaygo, Mecosta, Isabella, Muskegon, Montcalm, Gratiot, Ottawa, Kent, Ionia, Clinton, Allegan, Barry, Eaton, Ingham, Van Buren, Kalamazoo, Calhoun, and Jackson counties in Southwest Lower Michigan. The watch highlighted the increased flood potential due to the potential for rapid runoff from the rain plus snowmelt over frozen ground. The forecast was calling for one to two inches of rain combined with significant snowmelt Tuesday night into Wednesday morning.

At 9:00 PM EST the flood watch continued for most of Southwest Lower Michigan. The watch again highlighted the increased potential for small stream and river flooding due to the approaching rain and snowmelt event.

### Tuesday, January 29<sup>th</sup>

At 3:32 AM EST the flood watch continued for Newaygo, Mecosta, Isabella, Muskegon, Montcalm, Gratiot, Ottawa, Kent, Ionia, Clinton, Allegan, Barry, Eaton, Ingham, Van Buren, Kalamazoo, Calhoun, and Jackson counties in Southwest Lower Michigan. The watch highlighted the potential for flooding tonight and into Wednesday. The forecast still called for one to two inches of rain along with significant snowmelt, with the possibility of isolated rainfall amounts approaching three inches.

At 12:03 PM EST a river flood warning was issued for the Portage River near Vicksburg, Michigan. The river was forecast to crest near its flood stage of 5.0 feet Wednesday afternoon.

At 12:35 PM EST the flood watch was expanded to include all of our HSA from 7 PM EST this evening through Wednesday afternoon (added Mason, Lake, Osceola, Clare, and Oceana counties). The watch highlighted the increased threat for flooding due to the potential for significant runoff from rain and snowmelt.

At 3:55 PM EST the flood watch continued for all of our HSA. The forecast highlighted the elevated flood risk due to one to two inches of rain combined with significant snowmelt Tuesday night into Wednesday morning.

At 8:50 PM EST the flood watch continued for all of our HSA. The forecast highlighted the elevated flood risk, due to heavy rain from thunderstorms combined with significant snowmelt over frozen soils, tonight into Wednesday morning.

At 9:41 PM EST a flood warning was issued for Allegan, Lake, Mason, Muskegon, Newaygo, Oceana, Ottawa, and Van Buren Counties until 9:30 PM EST Wednesday. Heavy rain combined with rapid snowmelt prompted the warning. Over two inches of rain had already fallen at Muskegon, Michigan.

At 10:06 PM EST the river flood warning continued for the Portage River near Vicksburg, Michigan. The river was forecast to crest just above its flood stage of 5.0 feet, near 5.2 feet, Wednesday evening.

### Wednesday, January 30<sup>th</sup>

At 1:00 AM EST the flood watch was cancelled for Allegan, Lake, Mason, Muskegon, Newaygo, Oceana, Ottawa, and Van Buren Counties (upgraded to a flood warning). The flood watch continued for Osceola, Clare, Mecosta, Isabella, Montcalm, Gratiot, Kent, Ionia, Clinton, Barry, Eaton, Ingham, Kalamazoo, Calhoun, and Jackson counties.

At 3:12 AM EST the flood watch continued for Osceola, Clare, Mecosta, Isabella, Montcalm, Gratiot, Kent, Ionia, Clinton, Barry, Eaton, Ingham, Kalamazoo, Calhoun, and Jackson counties. Heavy rain had moved into the area and was forecast to continue to mid-morning with total rainfall amounts of one to three inches possible.

At 7:18 AM EST the flood warning for Van Buren County was cancelled. The flood warning for rain and melting snow continued for Allegan, Lake, Mason, Muskegon, Newaygo, Oceana, and Ottawa Counties until 9:30 PM EST Wednesday. In the warned area many secondary roads remained closed due to flooding and/or washouts.

At 9:02 AM EST the flood watch was cancelled for Osceola, Clare, Mecosta, Isabella, Montcalm, Gratiot, Kent, Ionia, Clinton, Barry, Eaton, Ingham, Kalamazoo, Calhoun, and Jackson counties.

At 10:18 AM EST the river flood warning continued for the Portage River near Vicksburg, Michigan. The river was forecast to crest near its flood stage of 5.0 feet this afternoon.

At 1:49 PM EST the flood warning was cancelled for Allegan, Lake, Muskegon, Oceana, and Ottawa Counties. The flood warning for rain and melting snow remained in effect for Mason and Newaygo Counties until 9:30 PM EST. Mason and Newaygo County Emergency Services reported numerous secondary roads still closed due to flooding and/or washouts.

At 2:02 PM EST a river flood warning was issued for the Muskegon River near Croton, Michigan. The forecast called for the river to crest just above its flood stage of 9.0 feet, near 9.2 feet, Friday afternoon.

At 2:20 PM EST a flood warning was issued for the Muskegon River near Rogers Heights due to rising waters behind an ice jam. Osceola County Emergency Services reported significant ice moving down the Muskegon River towards Rogers Heights. Mecosta County Emergency Services reported flooding in homes along the Muskegon River near Riverside Drive and 12 Mile Road.

At 2:43 PM EST a flood watch was issued for the Grand River near Grand Haven, Michigan, due to water backing up behind an ice jam near the U.S. 31 drawbridge. Ottawa County Emergency Management reported the ice jam with water levels rising in the Grand River behind the ice jam. Additional ice was coming down the river and packing into the existing ice jam.

At 9:24 PM EST the flood warning for rain and melting snow was extended for Mason

and Newaygo Counties until 9:30 PM EST Thursday. Mason and Newaygo County Emergency Management reported ongoing flooded roadways and road closures across the warned area.

At 9:56 PM EST the flood warning continued for the Muskegon River near Rogers Heights, Michigan. Mecosta County Emergency Services reported that the ice jam had stabilized but water levels were still high and flooding homes near the Muskegon River along Riverside Drive and 12 Mile Road.

At 10:40 PM EST a river flood warning was issued for the White River near Whitehall, Michigan. The forecast called for the river to crest just above its flood stage of 6.0 feet, near 6.3 feet, Thursday morning.

At 10:49 PM EST the river flood warning for the Portage River near Vicksburg, Michigan was cancelled when the river crested below flood stage. The river flood warning continued for the Muskegon River near Croton, Michigan. The Muskegon River near Croton, Michigan, crested earlier that evening near 9.88 feet, and was forecast to continue to fall.

At 10:53 PM EST a river flood warning was issued for the Chippewa River near Mt. Pleasant, Michigan. The forecast called for the river to crest just above its flood stage of 8.0 feet, near 8.3 feet, Thursday afternoon.

At 11:26 PM EST the flood watch continued for the Grand River near Grand Haven, Michigan. Ice from upstream was still packing into the ice jam and water levels were still rising overnight.

#### Thursday, January 31<sup>st</sup>

At 9:19 AM EST the flood watch for the Grand River near Grand Haven was cancelled when the Ottawa County Emergency Management reported the ice jam had broken up and water was moving freely through the area.

At 11:14 AM EST the river flood warning for the Chippewa River near Mt. Pleasant, Michigan was cancelled when the river crested below flood stage. The river flood warnings continued for the White River near Whitehall, Michigan and for the Muskegon River near Croton, Michigan.

At 12:01 PM EST the flood warnings for Mason and Newaygo Counties were cancelled.

At 12:16 PM EST the flood warning for the Muskegon River near Rogers Heights continued due to flooding behind an ice jam. Mecosta County Emergency Management reported over 60 homes impacted by the flooding with ice piles 6 to 10 feet high in the area of the jam.

At 2:41 PM EST the river flood warning for the Muskegon River near Croton, Michigan was cancelled when the river fell below flood stage.

The ice jam flooding along the Muskegon River near Rogers Heights continued into February, 2013.

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The following rivers exceeded bankfull during the month of January:

- Sycamore Creek near Holt, Michigan (3 days above bankfull)
- Thornapple River near Hastings, Michigan (1 day above bankfull)
- Muskegon River near Croton, Michigan (3 days above bankfull)
- Grand River at Lowell, Michigan (1 day above bankfull)
- Grand River at Ionia, Michigan (3 days above bankfull)
- Looking Glass River near Eagle, Michigan (1 day above bankfull)
- Maple River near Maple Rapids, Michigan (2 days above bankfull)
- Chippewa River near Mt Pleasant, Michigan (2 days above bankfull)
- Pere Marquette River near Scottville, Michigan (3 days above bankfull)
- White River near Whitehall, Michigan (2 days above bankfull)

**Flood Stage Report**

Two rivers in Southwest Lower Michigan exceeded flood stage during the month of January.

The Muskegon River near Croton, Michigan, with a flood stage of 9 feet, rose above flood stage around 12:30 PM EST on January 30<sup>th</sup>, crested at 9.88 feet at 6:00 PM EST on January 30<sup>th</sup>, and fell back below flood stage around 12:00 PM EST on January 31<sup>st</sup>.

The White River near Whitehall, Michigan, with a flood stage of 6 feet, rose above flood stage around 6:30 PM EST on January 30<sup>th</sup>, crested at 6.61 feet at 8:45 PM EST on January 31<sup>st</sup>, and fell back below flood stage around 10:30 AM EST on February 1<sup>st</sup>.

**River Conditions**

A significant rain and snowmelt event near the end of January resulted in river levels across the HSA being significantly above normal at 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	354
Whitehall	White	558
Ewart	Muskegon	296
Mt Pleasant	Chippewa	465
Lansing	Grand	400
Grand Rapids	Grand	357
East Lansing	Red Cedar	651
Hastings	Thornapple	428
Battle Creek	Battle Creek	258
Battle Creek	Kalamazoo	272

### **General Hydrologic Information**

A cold snap, followed by a significant warm up and rain event at the end of January, resulted in significant ice jam flooding on the Muskegon and Grand Rivers near the end of the month.

January 2013 had above normal temperatures and precipitation for our HSA. Snowfall for January was near to below normal.

January precipitation totals at Grand Rapids, Lansing, and Muskegon, Michigan, were 4.01, 3.44, and 5.48 inches, respectively (Figure 1). Precipitation totals for the month at these three sites were 1.92 inches above normal at Grand Rapids, 1.79 inches above normal at Lansing, and 3.45 inches above normal at Muskegon, Michigan (Figure 2). Yearly precipitation totals were 1.92 inches above normal for Grand Rapids, 1.79 inches above normal for Lansing, and 3.45 inches above normal for Muskegon, Michigan. Record rainfall and temperatures were set in Muskegon, Michigan on January 30<sup>th</sup>. On January 30<sup>th</sup>, Muskegon recorded 2.48 inches of precipitation and a maximum temperature of 59 degrees Fahrenheit.

Snowfall totals for the month of January were near to below normal and ranged from 17 inches at Grand Rapids, 5.9 inches at Lansing and 31.4 inches at Muskegon, Michigan.

Frost depths across the HSA ranged from 2 to 5 inches.

Temperatures for the month of January were above normal at Grand Rapids, Lansing, and Muskegon, Michigan, with average monthly departures of +3.6, +3.3 and +3.5 degrees Fahrenheit, respectively.

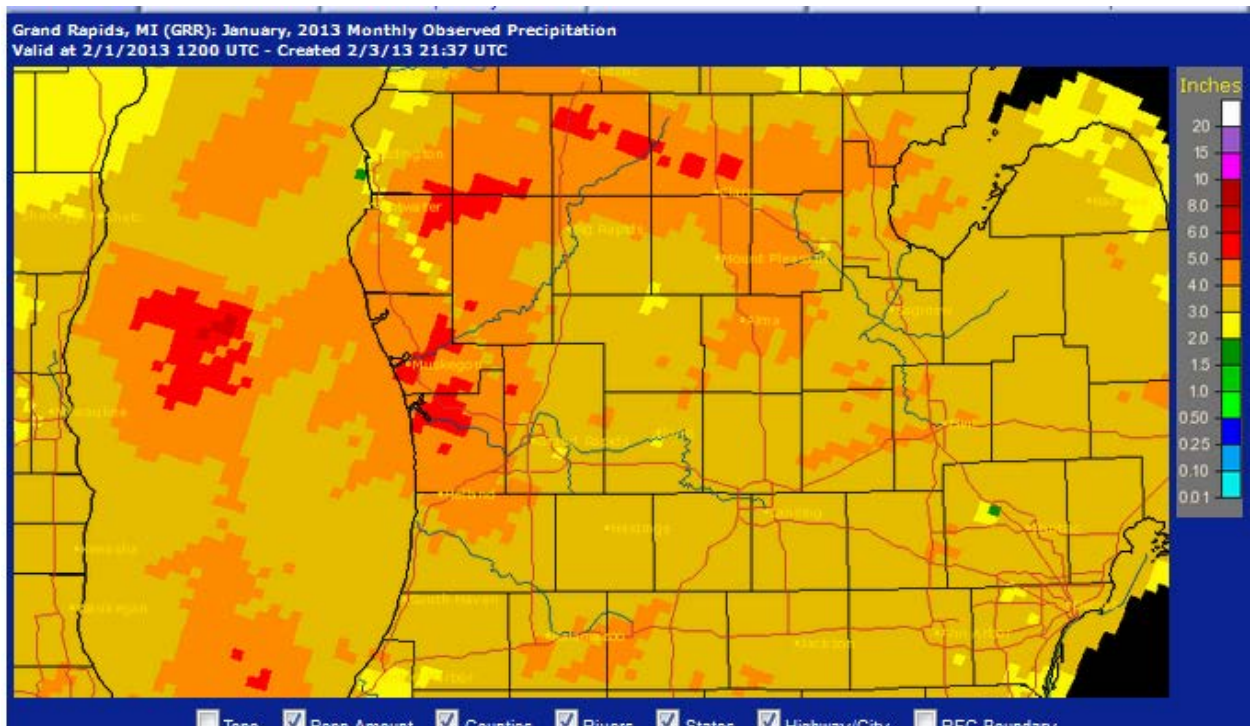


Figure 1. January 2013 Monthly Precipitation Totals

