

**MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS**

TO: NATIONAL WEATHER SERVICE (W/OS31)  
HYDROMETEOROLOGICAL INFO CENTER  
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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).

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

**Summary**

Flooding occurred during the month of February in our Hydrologic Service Area (HSA) due to backwater from ice jams and excessive runoff from rain and snowmelt. Backwater from ice jams caused minor flooding on the Muskegon River upstream from Evart and near Rogers Heights, the Looking Glass near Eagle, Maple River at Maple Rapids, and the Chippewa River near Mt. Pleasant. Excessive runoff from rain and snowmelt caused minor river flooding to occur on the Grand River at Comstock Park and Robinson Township, and the Rogue River near Rockford. Flooding of low lying areas adjacent to the rivers occurred during these events and no significant impacts to life or property were reported.

**Flood Conditions**

First mention of possible flooding was on Thursday, February 5<sup>th</sup>, when our Hazardous Weather Outlook and the Hydrology section of our Area Forecast Discussion mentioned the potential for flooding next week due to rain combined with snowmelt and the potential for ice jams. Due to significantly below normal temperatures in January, rivers in our HSA had above normal ice coverage and thickness in early February.

On Sunday, February 8<sup>th</sup>, the U.S. Coast Guard vessel Katmai Bay sliced through the ice at the mouth of the Grand River in Grand Haven, Michigan, in an effort to break up the ice jam that had formed during the flooding back in December. The tug’s job was to break up the ice in the channel to help prevent a backup of water in the river and bayous as was experienced following the December 2008 ice jam that caused an estimated \$2.9 million in damage in Ottawa County. Local officials were hoping to get the channel cleared out and free flowing before the next wave of rain, which was forecast for mid-week, moved into the area.

On Tuesday, February 10<sup>th</sup>, a flood watch was issued at 10:04 PM EST, with the headline...”Flooding possible on Wednesday and Wednesday night”. The flood watch talked about the potential for flooding due to an inch or more of rain forecast for Wednesday, combined with rapid snowmelt over saturated ground. Later on Tuesday,

river flood warnings driven by Quantitative Precipitation Forecasts (QPF of over an inch) were issued for the following rivers:

- Grand River at Comstock Park, Michigan
- Grand River at Jackson, Michigan
- Grand River at Eaton Rapids, Michigan
- Grand River at Robinson Township, Michigan
- Red Cedar River at East Lansing, Michigan
- Looking Glass River near Eagle, Michigan
- Thornapple River above Hastings, Michigan
- Thornapple River near Caledonia, Michigan
- Portage River near Vicksburg, Michigan

On Wednesday, February 11<sup>th</sup>, an areal flood warning for urban areas and small streams was issued for all 23 counties in our Hydrologic Service Area (HSA) when another round of heavy rain, of one to two inches, was forecast for Thursday. The warning also noted that an ice jam near the US31 Bridge was causing backwater flooding on the Grand River in Grand Haven, Michigan.

Late in the morning on Wednesday, river flood warnings (driven by QPF of over an inch and a half) were issued for the following rivers:

- Grand River at Lansing, Michigan
- Grand River at Ionia, Michigan
- Grand River at Lowell, Michigan
- Grand River at Ada, Michigan
- Grand River at Grand Rapids, Michigan
- Maple River at Maple Rapids, Michigan
- Rogue River below Rockford, Michigan
- Pere Marquette River near Scottville, Michigan
- Grand River at Comstock Park, Michigan (Category changed from minor to moderate flooding)
- Grand River at Robinson Township, Michigan (Category changed from minor to moderate flooding)

Wednesday afternoon, river flood advisories were issued for the following rivers:

- Red Cedar River above Williamston, Michigan
- White River above Whitehall, Michigan
- Muskegon River at Ewart, Michigan
- Chippewa River below Mt. Pleasant, Michigan

On Thursday, February 12<sup>th</sup>, the areal flood warning for urban and small streams was cancelled for all 23 counties in our HSA. The warning was cancelled because the flooding anticipated did not materialize when rainfall amounts observed (half to one inch) were only half of what was forecasted (one to two inches). The river flood advisory was upgraded to a river flood warning for the Chippewa River near Mt. Pleasant, Michigan. A river flood advisory was issued for the Kalamazoo River near New Richmond, Michigan. River flood warnings were cancelled for the following rivers due to updated forecasts (QPF less than expected) calling for the rivers to now crest below flood stage:

- Grand River at Jackson, Michigan (Downgraded to a river flood advisory)
- Grand River at Eaton Rapids, Michigan (Downgraded to a river flood advisory)

- Grand River at Ionia, Michigan (Downgraded to a river flood advisory)
- Grand River at Lowell, Michigan (Downgraded to a river flood advisory)
- Grand River at Ada, Michigan (Downgraded to a river flood advisory)
- Grand River at Grand Rapids, Michigan (Downgraded to a river flood advisory)
- Looking Glass River near Eagle, Michigan (Downgraded to a river flood advisory)

Late Thursday evening, river flood advisories were issued for the St. Joseph River at Burlington and the Muskegon River near Croton, Michigan. That evening the following river flood warnings were also cancelled:

- Grand River at Lansing, Michigan (Downgraded to a river flood advisory)
- Thornapple River near Caledonia, Michigan (Downgraded to a river flood advisory)

On Friday, February 13<sup>th</sup>, river flood warnings were cancelled for the following rivers:

- Chippewa River below Mt. Pleasant, Michigan
- Portage River near Vicksburg, Michigan
- Red Cedar River at East Lansing, Michigan
- Rogue River below Rockford, Michigan

Also on Friday, river flood advisories were cancelled for the following rivers:

- Grand River at Jackson, Michigan
- Grand River at Eaton Rapids, Michigan
- Grand River at Lowell, Michigan
- Grand River at Grand Rapids, Michigan
- Looking Glass River near Eagle, Michigan
- Thornapple River near Caledonia, Michigan
- St. Joseph River at Burlington, Michigan
- Muskegon River near Croton, Michigan

On Friday, a flood watch was issued for the Muskegon River upstream of Evert for the potential for flooding from ice jams. There was a concern that rising river levels would begin to break up the ice covered river and potentially form ice jams which could cause rapid fluctuations in river levels. River spotters in the area called to report that the ice in the area was making “loud cracking noises” and that water levels were rising in the area.

On Saturday, February 14<sup>th</sup>, a river flood warning was issued for the Muskegon River upstream of Evert for backwater flooding from an ice jam in Evert. Water was approaching several homes in the Jeffery subdivision located upstream of the ice jam.

Also on Saturday, the river flood warnings were cancelled for the following rivers:

- Thornapple River above Hastings, Michigan
- Pere Marquette River near Scottville, Michigan

On Sunday, February 15<sup>th</sup>, the river flood warning was downgraded to a flood advisory for the Muskegon River upstream of Evert, Michigan, when water began to work its way around the ice jam and levels receded back near bankfull.

On Monday, February 16<sup>th</sup>, the river flood warning was cancelled for the Maple River at Maple Rapids, Michigan, when the river fell below flood stage after the water began to work its way around the ice jam and levels continued to fall.

On Tuesday, February 17<sup>th</sup>, the flood advisory for the Muskegon River upstream of Ewart, Michigan, was cancelled when water levels fell back within banks and continued to fall. The river flood warning for the Grand River at Comstock Park, Michigan, was cancelled when the river fell back below flood stage.

On Wednesday, February 18<sup>th</sup>, the final river flood warning for this event was cancelled for the Grand River at Robinson Township when the river fell back below flood stage.

On Friday, February 20<sup>th</sup>, a flood warning was issued for the Muskegon River near Rogers Heights due to backwater flooding from an ice jam that formed above the reservoir for Rogers Dam. Water levels in the area were reported out of their banks and rising rapidly.

On Monday, February 23<sup>rd</sup>, the flood warning for the Muskegon River near Rogers Heights was cancelled when the ice jam broke up and river levels receded back within banks and continued to fall.

On Thursday, February 26<sup>th</sup>, one to two and a half inches of rain fell over southwest Lower Michigan and an areal flood advisory was issued for all 23 counties in our HSA. Minor flooding of several roads occurred in Ottawa and Kent counties.

On Friday, February 27<sup>th</sup>, the first Spring Flood and Water Resources Outlook was issued indicating a significantly higher chance of minor flooding across the Muskegon river basin and a slightly higher chance of minor flooding for the Chippewa and Pere Marquette rivers over the next 90 days. The flood potential for most basins in southwest lower Michigan over the next 90 days was near normal.

That morning, the areal flood advisory was cancelled for all 23 counties in our HSA and river flood warnings were issued for the following rivers:

- Grand River at Comstock Park, Michigan
- Rogue River below Rockford, Michigan

Also on Friday, river flood advisories were issued for the following rivers:

- Looking Glass River near Eagle, Michigan
- Maple River at Maple Rapids, Michigan
- Portage River near Vicksburg, Michigan

Late Friday evening the river flood warning for the Rogue River below Rockford, Michigan was cancelled when the updated river forecast called for the river to crest below flood stage.

On Saturday, February 28<sup>th</sup>, the river flood warning for the Grand River at Comstock Park was cancelled and downgraded to an advisory when the updated river forecast called for the river to crest below flood stage. Also on Saturday, the river flood advisory for the Looking Glass River near Eagle, Michigan was cancelled.

On Sunday, March 1<sup>st</sup>, the river flood advisory for the Maple River at Maple Rapids, Michigan, was cancelled and the flood advisory for the Portage River near Vicksburg, Michigan, expired.

On Monday, March 2<sup>nd</sup>, the river flood advisory for the Grand River at Comstock Park, Michigan, was cancelled and ended the flood events that started in February.

### **Flood Stage Report**

The Grand River at Comstock Park, Michigan, with a flood stage of 12 feet, went above flood stage on February 13<sup>th</sup>, at 11:25 AM EST, crested at 12.98 feet at 08:51 AM EST on February 15<sup>th</sup>, and fell back below flood stage on February 17<sup>th</sup>, at 11:17 PM EST

The Grand River in Robinson Township, Michigan, with a flood stage of 13.3 feet, went above flood stage on February 15<sup>th</sup>, at 10:00 PM EST, crested at 13.40 feet at 09:09 AM EST on February 16<sup>th</sup>, and fell back below flood stage on February 17<sup>th</sup>, at 08:47 AM EST.

The Looking Glass River near Eagle, Michigan, with a flood stage of 7 feet, went above flood stage on February 10<sup>th</sup>, at 07:00 PM EST, crested at 7.45 feet at 07:45 AM EST on February 10<sup>th</sup>, and fell back below flood stage of February 10<sup>th</sup>, at 09:00 PM EST. Ice jams impacted stage levels and resulted in significant and rapid fluctuations in river levels in the area.

The Maple River near Maple Rapids, Michigan, with a flood stage of 9 feet, went above flood stage on February 13<sup>th</sup>, at 02:30 PM EST, crested at 9.10 feet at 12:30 PM EST on February 14<sup>th</sup>, and fell back below flood stage on February 15<sup>th</sup>, at 08:30 PM EST. Ice jams impacted stage levels and resulted in significant and rapid fluctuations in river levels in the area.

The Rogue River near Rockford, Michigan, with a flood stage of 8 feet, went above flood stage on February 13<sup>th</sup>, at 01:00 AM EST, crested at 8.08 feet at 04:30 AM EST on February 13<sup>th</sup>, and fell back below flood stage on February 13<sup>th</sup>, at 08:00 AM EST.

The Chippewa River near Mt. Pleasant, Michigan, with a flood stage of 8 feet, went above flood stage on February 11<sup>th</sup>, at 11:45 PM EST, crested at 9.86 feet at 02:30 PM EST on February 12<sup>th</sup>, and fell back below flood stage on February 12<sup>th</sup>, at 07:30 PM EST. Ice jams impacted stage levels and resulted in significant and rapid fluctuations in river levels in the area.

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

### **River Conditions**

River levels by the end of February were still above normal for our HSA. Significant ice had built up on Area Rivers in early February. Ice coverage and ice thickness on rivers significantly decreased throughout the month. By the end of February the main channels of most rivers were ice free. Ice jams occurred and caused backwater flooding on the Muskegon, Looking Glass, Maple, and Chippewa Rivers.

## **General Hydrologic Information**

February 2009 will be remembered for being a relatively mild and wet month.

February precipitation totals at Grand Rapids, Lansing, and Muskegon, Michigan, were 3.31, 2.32, and 4.05 inches, respectively. Precipitation totals for the month at these three sites were 1.77 inches above normal at Grand Rapids, 0.87 of an inch above normal at Lansing, and 2.47 inches above normal at Muskegon, Michigan. Snowfall totals for the month at Grand Rapids, Lansing, and Muskegon were 10.0 (-2.2), 9.5 (-1.1), and 22.7 (+4.4) inches, respectively. Snow depth during the month of February reached a high of 10 inches at Grand Rapids, 9 inches at Lansing, and 12 inches at Muskegon. All the snow had melted by the end of February at Grand Rapids, Lansing, and Muskegon, Michigan. The frost depths across the HSA were typically less than 6 inches.

The daily mean temperature for the month was warmer than average across Southwest Lower Michigan. Temperatures for the month of February were above normal at Grand Rapids, Lansing, and Muskegon, with average monthly departures of +2.8, +2.9 and +1.7 degrees Fahrenheit, respectively.

## **Hydrologic Products issued this month:**

- 5 ..... River Flood Watches (ARBFFAGRR)
- 5 ..... Areal Flood Watches (ARBFFAGRR)
- 6 ..... River Flood Warnings (ARBFLWGRR)
- 22 .... River Flood Statements (ARBFLSGRR)
- 3 ..... Areal Flood Warnings (ARBFLWGRR)
- 7 ..... Areal Flood Statements (ARBFLSGRR)
- 11 .... River Flood Advisories (ARBFLSGRR)
- 6 ..... Areal Flood Advisories (ARBFLSGRR)
- 49 .... Hydrologic Statements (ARBRVSGRR)
- 28 .... Hydrologic Summaries (ARBRVAGRR)
- 2 ..... Hydrologic Outlooks (ARBESFGRR)