

**MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS**

DATE:

July 19, 2011

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

SIGNATURE:

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**

Minor to moderate river flooding occurred in our Hydrologic Service Area (HSA) during the month of May. A total of nine forecast points on five rivers exceeded flood stage. Flash flooding occurred near the end of May in Clinton County and resulted in multiple roads being washed out.

**Flood Conditions****Saturday, April 30th**

The following rivers were still above flood stage at the end of April and carried over to early May:

- Grand River near Comstock Park, Michigan
- Grand River near Robinson Township, Michigan
- Maple River near Maple Rapids, Michigan
- Portage River near Vicksburg, Michigan
- Muskegon River at Evart, Michigan
- Muskegon River near Croton, Michigan

**Sunday, May 1<sup>st</sup>**

At 11:12 AM EDT a river flood warning was re-issued for the Grand River near Comstock Park, Michigan, when the updated forecast resulted in the crest increasing from minor to moderate flooding. The updated flood forecast called for the river to crest near 14.1 feet Sunday evening (14 feet triggers moderate flooding).

At 11:24 AM EDT a flood statement was issued for the following rivers:

- Grand River near Robinson Township, the updated flood forecast called for river to crest near 13.9 feet early Monday morning.
- Maple River near Maple Rapids, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.
- Portage River near Vicksburg, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.
- Muskegon River at Evart, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.

- Muskegon River near Croton, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.

At 9:31 PM EDT a flood statement was issued for the following rivers:

- Grand River near Comstock Park, Michigan, the river crested near 14.0 feet Sunday evening (2 feet above flood stage) and the updated flood forecast called for the river to begin a slow fall.
- Grand River near Robinson Township, flooding was occurring and the updated flood forecast called for river to crest near 14.1 feet early Monday morning.
- Maple River near Maple Rapids, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.
- Portage River near Vicksburg, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.
- Muskegon River at Evart, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.
- Muskegon River near Croton, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.

Monday, May 2<sup>nd</sup>

At 11:32 AM EDT a flood statement was issued for the following rivers:

- Portage River near Vicksburg, Michigan, the flood warning was canceled. The Portage River had fallen below flood stage and was forecast to continue to fall.
- Grand River near Comstock Park, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.
- Grand River near Robinson Township, flooding was occurring and the updated flood forecast called for river to crest near 13.5 feet Monday afternoon.
- Maple River near Maple Rapids, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.
- Muskegon River at Evart, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.
- Muskegon River near Croton, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.

At 4:12 PM EDT the flood warning for the Muskegon River at Evart, Michigan was canceled and downgraded to a river flood advisory. The river had fallen below flood stage and was forecast to continue to fall.

At 9:23 PM EDT a flood warning (should have been a flood statement) was issued for the following rivers:

- Grand River near Comstock Park, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.
- Grand River near Robinson Township, flooding was occurring and the updated flood forecast called for river to crest near 13.5 feet Tuesday morning.
- Maple River near Maple Rapids, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.
- Muskegon River near Croton, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.

### Tuesday, May 3<sup>rd</sup>

At 12:13 PM EDT a flood statement was issued for the following rivers:

- Maple River near Maple Rapids, Michigan, the flood warning was canceled. The Maple River had fallen below flood stage and was forecast to continue to fall.
- Muskegon River near Croton, Michigan, the flood warning was canceled. The Muskegon River had fallen below flood stage and was forecast to continue to fall.
- Grand River near Comstock Park, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.
- Grand River near Robinson Township, the river crested near 13.6 feet on Tuesday morning and the updated flood forecast called for river to begin a slow fall.

At 9:45 PM EDT a flood statement was issued for the following rivers:

- Grand River near Comstock Park, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.
- Grand River near Robinson Township, flooding was occurring and the updated flood forecast called for river to continue to fall.

### Wednesday, May 4<sup>th</sup>

At 11:08 AM EDT a flood statement was issued for the following rivers:

- Grand River near Comstock Park, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.
- Grand River near Robinson Township, flooding was occurring and the updated flood forecast called for river to continue to fall.

At 10:42 PM EDT a flood statement was issued for the following rivers:

- Grand River near Robinson Township, the flood warning was canceled. The Grand River near Robinson Township had fallen below flood stage and was forecast to continue to fall.
- Grand River near Comstock Park, Michigan, flooding was occurring and the updated flood forecast called for the river to continue to fall.

### Thursday, May 5<sup>th</sup>

At 10:39 AM EDT the river flood warning for the Grand River near Comstock Park, Michigan was canceled and downgraded to a river flood advisory. The river had fallen below flood stage and was forecast to continue to fall.

### Wednesday, May 11<sup>th</sup>

At 11:06 AM EDT a flash flood warning was issued for northern Lake County effective until 5:00 PM EDT. Rainfall estimates from the radar indicated that 3 to 4 inches of rain had fallen across the warned area over the last two hours.

At 12:12 PM EDT a flash flood statement was issued for northern Lake County effective until 5:00 PM EDT. Storm spotters reported water over roads near Irons, Michigan.

At 2:25 PM EDT a flash flood statement was issued for northern Lake County effective until 5:00 PM EDT. Law enforcement reported no significant flooding in the warned area.

At 2:58 PM EDT a flash flood warning was issued for northern Osceola County effective until 9:00 PM EDT. Rainfall estimates from the radar indicated that 3 to 4 inches of rain had fallen across the warned area over the last several hours. Osceola Road Commission reported a road washout at 120<sup>th</sup> Avenue and 19 Mile Road.

At 4:26 PM EDT the flash flood warning for northern Lake County was canceled.

At 5:32 PM EDT the flash flood warning for northern Osceola County was canceled.

Local law enforcement reported no significant flooding occurred in the warned area. At 10:49 PM EDT a flash flood warning was issued for Mason County effective until 5:00 AM EDT Thursday. Rainfall estimates from the radar indicated that over an inch and a half of rain had fallen across the warned area in the past hour.

#### Thursday, May 12<sup>th</sup>

At 1:07 AM EDT a flash flood statement was issued for Mason County effective until 5:00 AM EDT. Rainfall estimates from radar indicated over 5 inches of rainfall fell over the warned area from the evening's thunderstorms. Local law enforcement reported water over roads in the vicinity of Ludington, Michigan and over Route 10 just east of Scottville, Michigan.

At 4:55 AM EDT the flash flood warning for Mason County was canceled.

#### Wednesday, May 25<sup>th</sup>

At 9:06 AM EDT a flood watch was issued for the 18 most southern counties in our HSA effective through Thursday evening.

At 10:26 AM EDT a flood warning was issued for the Portage River near Vicksburg, Michigan. The flood forecast called for the river to rise above flood stage Thursday morning and crest near 5.1 feet Thursday afternoon.

At 3:35 PM EDT the flood watch was updated for the 18 most southern counties in our HSA effective through Thursday evening. Rainfall estimates from radar had indicated that some areas had received over two inches of rainfall already, and more was on the way.

At 4:28 PM EDT a flood warning was issued for Jackson County effective until 4:30 PM EDT Thursday.

At 9:25 PM EDT the flood watch was updated for the 18 most southern counties in our HSA effective through Thursday evening. The forecast calls for the potential of up to four inches of rain over the watch area through Thursday evening.

At 9:40 PM EDT a flood statement was issued indicating that the flood warning for Jackson County was still in effect until 4:30 PM EDT Thursday.

At 10:08 PM EDT a flood statement was issued for the Portage River near Vicksburg, Michigan. The updated flood forecast called for the river to rise above flood stage early Thursday morning and crest near 5.2 feet Thursday afternoon.

#### Thursday, May 26<sup>th</sup>

At 1:21 AM EDT a flood statement was issued indicating that the flood warning for Jackson County was still in effect until 4:30 PM EDT Thursday.

At 3:52 AM EDT flood watch was updated for the 18 most southern counties in our HSA effective through Thursday evening. Moderate to heavy rain was in the forecast.

At 10:50 AM EDT a flood statement was issued for the Portage River near Vicksburg, Michigan. The updated flood forecast called for the river to rise above flood stage Thursday afternoon and crest near 5.1 feet Thursday evening.

At 11:05 AM EDT the flood warning for Jackson County was canceled. The flood warning was downgraded to a flood advisory.

At 11:36 AM EDT the flood watch was canceled for the 4 most northern counties in the watch area, but remained in effect until 8 PM that evening for the 14 most southern counties in our HSA. Rainfall was occurring across the watch area and river levels were rising.

At 3:40 PM EDT the flood watch was canceled for 10 of the 14 counties in our HSA and continues for Calhoun, Eaton, Ingham and Jackson Counties until 8 PM EDT that

evening.

At 6:19 PM EDT the flood watch was canceled for the 4 remaining counties in our HSA.

At 9:37 PM EDT a flood statement was issued for the Portage River near Vicksburg, Michigan. The updated flood forecast called for the river to rise above flood stage Thursday evening and crest near 5.1 feet early Friday morning.

#### Friday, May 27<sup>th</sup>

At 10:41 AM EDT a flood statement was issued for the Portage River near Vicksburg, Michigan. The river crested near 5.1 feet Friday morning and the updated flood forecast called for the river to begin a slow fall.

#### Saturday, May 28<sup>th</sup>

At 9:22 AM the river flood warning for the Portage River near Vicksburg, Michigan, was canceled when the river fell below flood stage and downgraded to a river flood advisory. The river flood advisory will remain in effect until the river falls back within its banks.

#### Sunday, May 29<sup>th</sup>

At 11:12 AM EDT a flood watch was issued for 12 most southern counties in our HSA effective until late tonight. Primary concern was additional heavy rain over already saturated ground.

At 2:38 PM EDT a flash flood warning was issued for Allegan and Van Buren Counties effective until 2:30 AM EDT Monday. Rainfall estimates from radar indicated that very heavy rain was falling over saturated ground, just upstream, a rain gage reported an inch of rain in 15 minutes.

At 3:12 PM EDT the flood watch remains in effect until 2 AM EDT Monday for the 12 most southern counties in our HSA.

At 4:23 PM EDT a flash flood statement was issued for Allegan and Van Buren Counties effective until 2:30 AM EDT Monday. Rainfall estimates from radar indicated over two inches of rainfall had fallen over the warned area over the past three hours.

At 5:50 PM EDT a flash flood warning was issued for northeastern Eaton, northern Ingham, southeastern Clinton, and southeastern Ionia Counties effective until midnight EDT Monday. A storm spotter reported 1.5 inches of rain in 15 minutes in Eaton County, with the rain moving over the city of Lansing, Michigan.

At 7:27 PM EDT a flash flood statement was issued indicating that the flash flood warning for southeastern Ionia County was canceled and the flash flood warning for northern Ingham, northeastern Eaton, and southeastern Clinton Counties was still in effect until Midnight EDT. Local law enforcement indicated that flash flooding had occurred in Clinton County with multiple roads washed out.

At 7:42 PM EDT the flash flood warning for Allegan and Van Buren Counties was canceled. No significant flooding was reported in the warned area.

At 7:55 PM EDT a river flood warning was issued for the Grand River near Comstock Park, Michigan. The flood forecast called for the river to rise above flood stage Sunday night and crest near 12.1 feet Monday afternoon.

At 10:28 PM EDT a river flood warning was issued for the Portage River near Vicksburg, Michigan. The flood forecast called for the river to rise above flood stage Sunday evening and crest near 5.2 feet Monday afternoon.

At 10:37 PM EDT the flood watch for the 12 most southern counties in our HSA was canceled.

At 11:14 PM EDT a flood statement was issued for the Grand River near Comstock Park.

The updated flood forecast called for the river to rise above flood stage Sunday evening and crest near 12.3 feet by Wednesday evening.

At 11:27 PM EDT the flash flood warning for northern Ingham, northeastern Eaton, and southeastern Clinton Counties was canceled.

At 11:36 PM EDT a river flood warning was issued for the Looking Glass River near Eagle, Michigan. The flood forecast called for the river to rise above flood stage by early Monday morning and crest near 7.2 feet Monday afternoon.

#### Monday, May 30<sup>th</sup>

At 12:31 PM EDT a river flood warning was issued for the Thornapple River above Hastings, Michigan. The flood forecast called for the river to rise above flood stage by Tuesday morning and crest near 7.1 feet by Tuesday afternoon.

At 12:36 PM EDT a flood statement was issued for the following rivers:

- Looking Glass River near Eagle, Michigan, the river flood warning was canceled when the river fell below flood stage and was downgraded to a river flood advisory. The river flood advisory will remain in effect until the river falls back within its banks.
- Grand River near Comstock Park, Michigan, flooding was occurring and the updated flood forecast called for the river to crest near 12.6 feet Wednesday morning.
- Portage River near Vicksburg, Michigan, flooding was occurring and the updated flood forecast called for the river to crest near 5.2 feet Monday afternoon.

At 9:19 PM EDT a flood statement was issued for the following rivers:

- Grand River near Comstock Park, Michigan, flooding was occurring and the updated flood forecast called for the river to begin a slow fall and fall below flood stage by Thursday evening.
- Portage River near Vicksburg, Michigan, flooding was occurring and the updated flood forecast called for the river to begin a slow fall and fall below flood stage by Wednesday morning.
- Thornapple River above Hastings, Michigan, the updated flood forecast called for the river to rise above flood stage Tuesday afternoon and crest near 7.1 feet Wednesday morning.

#### Tuesday, May 31<sup>st</sup>

At 10:44 AM EDT a flood statement was issued for the following rivers:

- Grand River near Comstock Park, Michigan, flooding was occurring and the updated flood forecast called for the river to crest near 12.4 feet early Wednesday morning.
- Portage River near Vicksburg, Michigan, flooding was occurring and the updated flood forecast called for the river to begin a slow fall and fall below flood stage by Wednesday afternoon.
- Thornapple River above Hastings, Michigan, the updated flood forecast called for the river to rise above flood stage Tuesday afternoon and crest near 7.1 feet Wednesday morning.

At 10:54 PM EDT a flood statement was issued for the following rivers:

- Thornapple River above Hastings was canceled when the river fell below flood stage and was downgraded to a river flood advisory.
- Grand River near Comstock Park, Michigan, flooding was occurring and the updated flood forecast called for the river to crest near 12.4 feet early Wednesday

morning.

- Portage River near Vicksburg, Michigan, flooding was occurring and the updated flood forecast called for the river to begin a slow fall and fall below flood stage by Thursday morning.

The following rivers were still above flood stage at the end of May:

- Grand River near Comstock Park, Michigan
- Portage River near Vicksburg, Michigan.

The following rivers exceeded bankfull during the month of May:

- Pere Marquette River near Scottville, Michigan (2 days above bankfull)
- Chippewa River near Mt. Pleasant, Michigan (2 days above bankfull)
- Pine River at Alma, Michigan (1 day above bankfull)
- Muskegon River near Evart, Michigan (5 days above bankfull)
- Muskegon River near Croton, Michigan (3 days above bankfull)
- Red Cedar River near Williamston, Michigan (1 day above bankfull)
- Sycamore Creek near Holt, Michigan (21 days above bankfull)
- Red Cedar River near East Lansing, Michigan (6 days above bankfull)
- Looking Glass River near Eagle, Michigan (24 days above bankfull)
- Flat River near Smyrna, Michigan (3 days above bankfull)
- Maple River near Maple Rapids, Michigan (25 days above bankfull)
- Thornapple River near Hastings, Michigan (12 days above bankfull)
- Thornapple River near Caledonia, Michigan (3 days above bankfull)
- Grand River at Jackson, Michigan (3 days above bankfull)
- Grand River at Eaton Rapids, Michigan (3 days above bankfull)
- Grand River at Lansing, Michigan (2 days above bankfull)
- Grand River near Portland, Michigan (1 day above bankfull)
- Grand River at Ionia, Michigan (26 days above bankfull)
- Grand River near Lowell, Michigan (15 days above bankfull)
- Grand River near Ada, Michigan (3 days above bankfull)
- Grand River at Comstock Park, Michigan (10 days above bankfull)
- Grand River at Grand Rapids, Michigan (9 days above bankfull)
- Grand River near Robinson Township, Michigan (4 days above bankfull)
- Portage River near Vicksburg, Michigan (19 days above bankfull)
- St. Joseph River near Burlington, Michigan (14 days above bankfull)
- Kalamazoo River near Marshall, Michigan (5 days above bankfull)
- Kalamazoo River at Comstock, Michigan (4 days above bankfull)
- Kalamazoo River near New Richmond, Michigan (6 days above bankfull)

## **Flood Stage Report**

Five rivers in Southwest Lower Michigan exceeded minor flood stage during the month of May.

The following river forecast points were a continuation from flooding in April:

The Muskegon River near Croton, Michigan, with a flood stage of 9.0 feet, rose above flood stage at 7:45 AM EDT on April 27<sup>th</sup>, crested at 10.64 feet at 9:15 AM EDT on April 29<sup>th</sup>, and fell back below flood stage at 5:45 AM EDT on May 3<sup>rd</sup>.

The Portage River near Vicksburg, Michigan, with a flood stage of 5.0 feet, rose above flood stage around 11 AM EDT on April 29<sup>th</sup>, crested at 5.16 feet at around 7 AM EDT on April 29<sup>th</sup>, and fell back below flood stage around 2 AM EDT on May 2<sup>nd</sup>.

The Grand River at Comstock Park, Michigan, with at flood stage of 12.0 feet, rose above flood stage around 9 AM EDT on April 28<sup>th</sup>, crested at 14.0 feet at 7:18 PM EDT on May 1<sup>st</sup>, and fell back below flood stage around 8 AM EDT on May 5<sup>th</sup>.

The Muskegon River near Ewart, Michigan, with a flood stage of 12.0 feet, rose above flood stage around 1:45 PM EDT on April 28<sup>th</sup>, crested at 12.96 feet at 4:15 AM on April 30<sup>th</sup>, and fell back below flood stage at 10:00 AM EDT on May 2<sup>nd</sup>.

The Grand River near Robinson Township, Michigan, with a flood stage of 13.3 feet, rose above flood stage around 7:18 AM EDT on April 29<sup>th</sup>, crested at 13.6 feet around 7:05 AM EDT on May 3<sup>rd</sup>, and fell back below flood stage around 10:25 AM EDT on May 4<sup>th</sup>.

The Maple River near Maple Rapids, Michigan, with a flood stage of 9.0 feet, rose above flood stage at 11:00 AM EDT on April 28<sup>th</sup>, crested at 9.37 feet at 12:30 PM on April 29<sup>th</sup>, and fell back below flood stage at 1:30 AM EDT on May 3<sup>rd</sup>.

The following river forecast points flooded in the later part of May:

The Portage River near Vicksburg, Michigan, with a flood stage of 5.0 feet, rose above flood stage around 2 AM EDT on May 27<sup>th</sup>, crested at 5.18 feet at around 7 AM EDT on May 30<sup>th</sup>, and fell back below flood stage around 11 AM EDT on June 3<sup>rd</sup>.

The Grand River at Comstock Park, Michigan, with at flood stage of 12.0 feet, rose above flood stage around 2 AM EDT on May 30<sup>th</sup>, crested at 12.58 feet at 7:15 AM EDT on June 1<sup>st</sup>, and fell back below flood stage around 11 AM EDT on June 3<sup>rd</sup>.

The Looking Glass River near Eagle, Michigan, with a flood stage of 7.0 feet, rose above flood stage around 10:30 PM on May 29<sup>th</sup>, crested at 7.09 feet at Midnight on May 29<sup>th</sup>, and fell back below flood stage around 2:15 AM on May 30<sup>th</sup>.



## **River Conditions**

River levels in our HSA by the end of May were near normal in our Northern river basins to significantly above normal in our Central to Southern river basins. 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	106
Whitehall	White	113
Ewart	Muskegon	108
Alma	Pine	178
Lansing	Grand	652
Grand Rapids	Grand	471
East Lansing	Red Cedar	843
Hastings	Thornapple	1045
Battle Creek	Battle Creek	777
Battle Creek	Kalamazoo	434

## **General Hydrologic Information**

May 2011 had above normal temperatures for the entire HSA, and above normal precipitation for most of our HSA with the exception of our more northern river basins, the Muskegon, White, and Pere Marquette River Basins, which had below normal precipitation (Figure 1).

May precipitation totals at Grand Rapids, Lansing, and Muskegon, Michigan, were 4.54, 6.81, and 2.54 inches, respectively (Figure 2). Precipitation totals for the month at these three sites were 1.19 inches above normal at Grand Rapids, 4.10 inches above normal at Lansing, and 0.41 of an inch below normal at Muskegon, Michigan (Figure 1). Yearly precipitation totals were 7.02 inches above normal for Grand Rapids, 7.01 inches above normal for Lansing, and 4.64 inches above normal for Muskegon, Michigan.

Temperatures for the month of May were above normal at Grand Rapids, Lansing, and Muskegon, Michigan, with average monthly departures of +1.9, +2.0 and +3.0 degrees Fahrenheit, respectively.

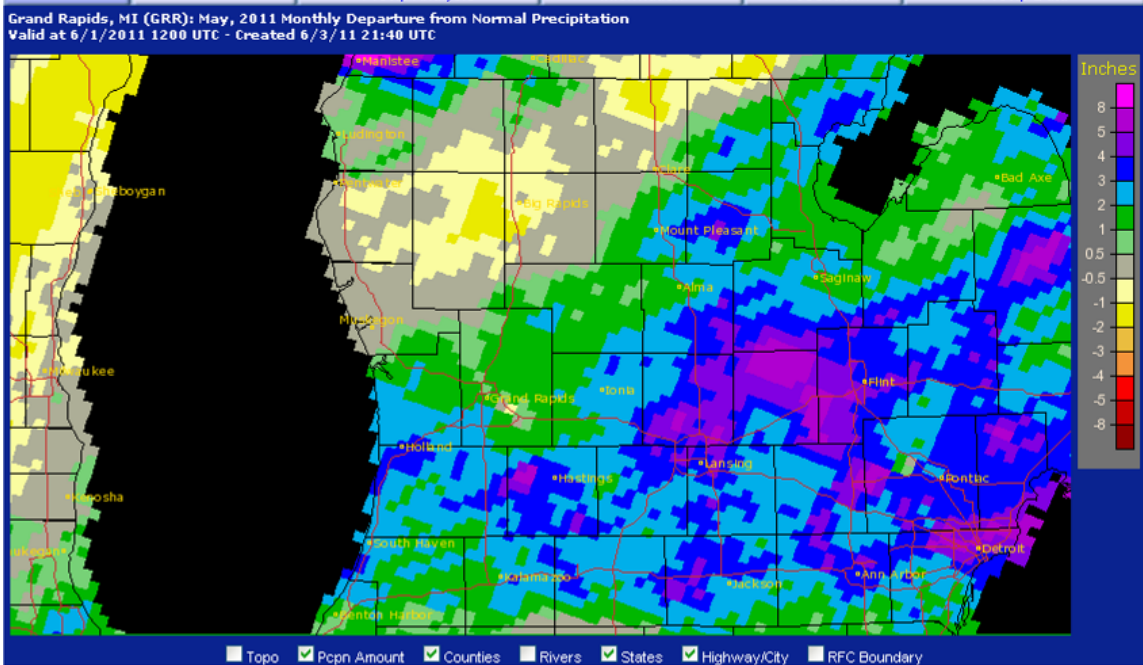


Figure 1. May 2011 Monthly Departure from Normal Rainfall Totals

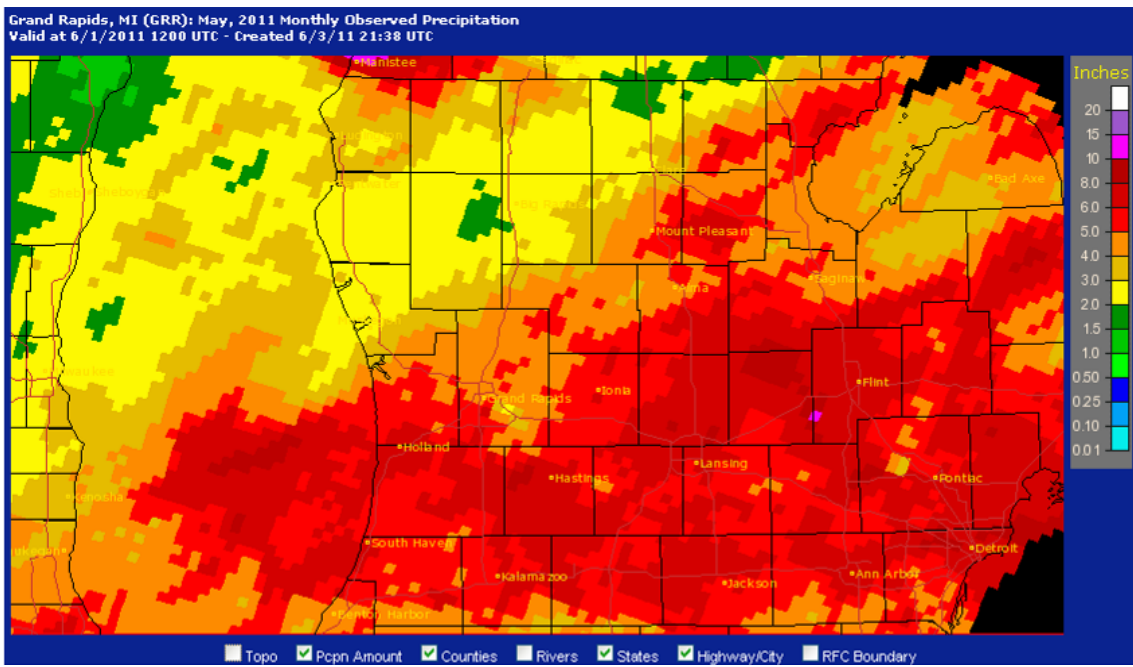


Figure 2. May 2011 Monthly Rainfall Totals

**Hydrologic Products issued this month:**

- 10 Flood Watches (ARBFFAGRR)
- 5 Flash Flood Warnings (ARBFFWGRR)
- 10 Flash Flood Statements (ARBFFSGRR)
- 7 River Flood Warnings (ARBFLWGRR)
- 20 River Flood Statements (ARBFLSGRR)
- 79 River Flood Advisories (ARBFLSGRR)
- 1 Areal Flood Warning (ARBFLWGRR)
- 3 Areal Flood Statements (ARBFLSGRR)
- 65 Hydrologic Statements (ARBRVSGRR)
- 1 Probabilistic Hydrologic Outlook (ARBESFGRR)
- 31 Hydrologic Summaries (ARBRVAGRR)
- 31 Daily River and Lake Summaries (ARBRVDGRR)