

**MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS**

DATE:  
September 7, 2010

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

SIGNATURE:  
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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**

A flash flood warning was issued on July 15<sup>th</sup>, for Calhoun, Ingham, and Jackson Counties. Local law enforcement officials reported flooded roadways across Calhoun County and water coming up to houses in Marshall, Michigan. On July 22<sup>nd</sup>, a flash flood warning was issued for Allegan, Barry, and Ottawa Counties. A portion of northbound Interstate 31 near Holland, Michigan, was shut down due to water over the road and Allegan County Dispatch reported a road washout at M-89 and 64<sup>th</sup> Street near Saugatuck, Michigan. Local law enforcement officials reported standing water of unknown depth at 58<sup>th</sup> and 136<sup>th</sup> South of Holland, Michigan and the 3700 block of Allegan Dam Road was washed out. A flash flood warning was issued on July 23<sup>rd</sup>, for Calhoun, Eaton, Ingham, Jackson, Barry and Kalamazoo Counties. A weather service employee reported that many intersections in Battle Creek, Michigan, were flooded and radar estimated rainfall amounts of almost 2 inches in the area occurred between 5 PM and 6 PM EDT.

A pipeline leak that occurred Monday, July 26, spilled an estimated one million gallons of oil into Talmadge Creek leading to the Kalamazoo River. A Disaster Declaration was issued for the oil spill by Michigan's Governor Jennifer Granholm. At the time of the spill, river levels on the Kalamazoo River were above bankfull but below flood stage. River flood advisories were in effect prior to the spill and remained in effect until the river fell back within its banks on July 30<sup>th</sup>. The Grand Rapids Weather Forecast Office provided on site weather support for this event and the North Central River Forecast Center provided travel time forecasts for specific points along the Kalamazoo River as well as daily river forecasts.

Urban and small stream flood advisories were issued for 20 out of 23 counties in our Hydrologic Service Area (HSA) during the month of July. Also in July, 4 forecast points exceeded bankfull stage and one forecast point exceeded flood stage. Minor flooding occurred along the Grand River near Jackson, Michigan, during the month of July.

## **Flood Conditions**

### **Thursday, July 1<sup>st</sup>**

At 6:19 AM EDT, the hazardous weather outlook mentioned the possibility of thunderstorms with heavy rainfall possible Sunday night through Wednesday as tropical moisture moves north from the gulf ahead of the next cold front.

At 2:46 PM EDT, the hydrology section of the areal forecast discussion mentioned that showers and storms were possible from late Sunday through mid week with heavy rain possible Monday through Tuesday night. Localized flooding was mentioned as a possibility as storms were forecast to fire along a slow moving cold front.

### **Wednesday, July 7<sup>th</sup>**

At 10:45 AM EDT, a flood advisory for urban and small streams was issued for Southern Mason County and Northern Oceana County until 445 PM EDT.

At 3:50 PM EDT, the flood advisory for urban and small streams was cancelled for Southern Mason County and Northern Oceana County when the localized flooding abated.

### **Tuesday, July 13<sup>th</sup>**

At 4:11 PM EDT, a flood advisory for urban and small streams was issued for Northwestern Allegan County and South Central Ottawa County until 8:15 PM EDT. Minor ponding of water on roads in Holland, Michigan, was reported.

At 8:13 PM EDT, the flood advisory for urban and small streams was allowed to expire for Northwestern Allegan County and South Central Ottawa County.

### **Thursday, July 15<sup>th</sup>**

At 4:34 PM EDT, a flood advisory was issued for Northwestern Calhoun and extreme Northwestern Jackson County until 10:30 PM EDT. The Battle Creek Emergency Operations Center reported minor street flooding occurring in the Battle Creek area.

At 5:00 PM EDT, a flash flood warning was issued for Calhoun, Ingham, and Jackson Counties until 11:00 PM EDT.

At 7:53 PM EDT, the flash flood warning remained in effect for Calhoun, Ingham, and Jackson Counties. Local law enforcement officials reported flooded roadways across Calhoun County and water coming up to houses in Marshall, Michigan.

At 906 PM EDT, the flash flood warning was cancelled for Ingham and Jackson Counties and remains in effect for Calhoun County.

At 10:30 PM EDT, the flood advisory was allowed to expire for Northwestern Calhoun and extreme Northwestern Jackson County.

At 10:33 PM EDT, the flash flood warning was cancelled for Calhoun County.

### **Monday, July 19<sup>th</sup>**

At 10:49 PM EDT, a flood watch was issued for Clare, Isabella, Mecosta, Osceola, Lake, Mason, Newaygo, and Oceana Counties through Tuesday morning.

### Tuesday, July 20<sup>th</sup>

At 4:10 AM EDT, the flood watch remained in effect for Clare, Isabella, Mecosta, Osceola, Lake, Mason, Newaygo, and Oceana Counties until 11 AM EDT.

At 5:37 AM EDT, the flood watch was cancelled for Clare, Isabella, Mecosta, Osceola, Lake, Mason, Newaygo, and Oceana Counties.

### Thursday, July 22<sup>nd</sup>

At 4:05 PM EDT, a flash flood watch was issued for portions of Lake, Mason, Muskegon, Newaygo, Oceana, Clare, Isabella, Mecosta, Montcalm, Osceola, Allegan, Kent, Ottawa, and Van Buren, Counties through Friday morning.

At 5:12 PM EDT, a flood advisory for urban and small streams was issued for Calhoun County and Eastern Kalamazoo County until 1:15 AM EDT, Friday.

At 5:56 PM EDT, a flood advisory for urban and small streams was issued for Jackson County until 11:45 PM EDT.

At 7:09 PM EDT, the flood advisory for urban and small streams remained in effect for Calhoun County and Eastern Kalamazoo County.

At 7:54 PM EDT, the flood advisory for urban and small streams remained in effect for Jackson County.

At 9:28 PM EDT, a flash flood warning was issued for Allegan, Barry, and Ottawa Counties until 9:30 AM EDT, Friday.

At 9:56 PM EDT, a flood advisory for urban and small streams was issued for Gratiot, Isabella, Mecosta, Montcalm, Clinton, Ionia, Kent, Ottawa, Muskegon, Newaygo, and Oceana Counties until 10:00 PM EDT, Friday.

At 10:38 PM EDT, the flash flood warning remained in effect for Allegan, Barry, and Ottawa Counties. A portion of northbound Interstate 31 near Holland, Michigan, was shut down due to water over the road.

At 10:57 PM EDT, a flood advisory for urban and small streams was issued for Calhoun, Jackson, Kalamazoo, and Van Buren Counties until 10:45 PM EDT, Friday.

At 11:59 PM EDT, the flash flood warning remained in effect for Allegan, Barry, and Ottawa Counties. Allegan County Dispatch reported a road washout at M-89 and 64<sup>th</sup> Street near Saugatuck, Michigan.

### Friday, July 23<sup>rd</sup>

At 1:06 AM EDT, the flood advisory for urban and small streams remained in effect for Calhoun, Jackson, Kalamazoo, and Van Buren Counties.

At 1:38 AM EDT, the flash flood warning remained in effect for Allegan, Barry, and Ottawa Counties. Local law enforcement officials reported standing water of unknown depth at 58<sup>th</sup> and 136<sup>th</sup> South of Holland, Michigan and the 3700 block of Allegan Dam Road was washed out.

At 1:41 AM EDT, the flood advisory for urban and small streams remained in effect for Gratiot, Isabella, Mecosta, Montcalm, Clinton, Ionia, Kent, Ottawa, Muskegon, Newaygo, and Oceana Counties.

At 4:26 AM EDT, the flash flood watch was cancelled for Lake, Mason, Muskegon, Newaygo, Oceana, Clare, Isabella, Mecosta, Montcalm, Osceola, Allegan, Kent, Ottawa, and Van Buren, Counties.

At 9:27 AM EDT, the flash flood warning was allowed to expire for Allegan, Barry, and Ottawa Counties.

At 11:45 AM EDT, the flood advisory for urban and small streams was cancelled for Gratiot, Isabella, Mecosta, Montcalm, Clinton, Ionia, Kent, Ottawa, Muskegon, Newaygo, and Oceana Counties.

At 12:38 PM EDT, a flash flood watch was issued for portions of Muskegon, Newaygo, Oceana, Gratiot, Isabella, Mecosta, Montcalm, Calhoun, Clinton, Eaton, Ingham, Ionia, Jackson, Allegan, Barry, Kalamazoo, Kent, Ottawa, and Van Buren Counties through Saturday afternoon.

At 2:40 PM EDT, the flood advisory for urban and small streams was cancelled for Calhoun, Jackson, Kalamazoo, and Van Buren Counties.

At 3:50 PM EDT, the flash flood watch remained in effect for portions of Muskegon, Newaygo, Oceana, Gratiot, Isabella, Mecosta, Montcalm, Calhoun, Clinton, Eaton, Ingham, Ionia, Jackson, Allegan, Barry, Kalamazoo, Kent, Ottawa, and Van Buren Counties through Saturday afternoon.

At 5:09 PM EDT, a flood advisory for urban and small streams was issued for Northern Calhoun and Northern Kalamazoo Counties until 11:00 PM EDT.

At 5:37 PM EDT, a flash flood warning was issued for all or portions of Calhoun, Eaton, Ingham, Jackson, Barry, and Kalamazoo Counties until 2:30 AM EDT, Saturday.

At 6:20 PM EDT, the a flash flood warning remained in effect for all or portions of Calhoun, Eaton, Ingham, Jackson, Barry, and Kalamazoo Counties. A weather service employee reported that many intersections in Battle Creek, Michigan, were flooded. Radar estimated rainfall amounts of almost 2 inches in the area occurred between 5 PM and 6 PM EDT.

At 8:27 PM EDT, the flood advisory for urban and small streams was cancelled for Northern Calhoun and Northern Kalamazoo Counties. Portions of the advisory area were replaced by an earlier flash flood warning.

At 8:55 PM EDT, the flash flood warning was cancelled for Barry, Eaton, and Ingham Counties and remained in effect for Calhoun, Kalamazoo, and Jackson Counties.

At 10:31 PM EDT, the flash flood watch remained in effect for portions of Muskegon, Newaygo, Oceana, Gratiot, Isabella, Mecosta, Montcalm, Calhoun, Clinton, Eaton, Ingham, Ionia, Jackson, Allegan, Barry, Kalamazoo, Kent, Ottawa, and Van Buren Counties through Saturday afternoon.

At 10:40 PM EDT, the flash flood warning was cancelled for Calhoun, Kalamazoo, and Jackson Counties.

At 11:13 PM EDT, a river flood advisory was issued for the following rivers:

- Kalamazoo River at Marshall, Michigan
- Kalamazoo River at Comstock, Michigan
- Kalamazoo River near New Richmond, Michigan
- Portage River near Vicksburg, Michigan
- St Joseph River at Burlington, Michigan

Saturday, July 24<sup>th</sup>

At 3:52 AM EDT, the flash flood watch remained in effect for portions of Muskegon, Newaygo, Oceana, Gratiot, Isabella, Mecosta, Montcalm, Calhoun, Clinton, Eaton, Ingham, Ionia, Jackson, Allegan, Barry, Kalamazoo, Kent, Ottawa, and Van Buren Counties through Saturday afternoon.

At 9:37 AM EDT, a flood advisory for urban and small streams was issued for Calhoun, Jackson, Kalamazoo, and Van Buren Counties until 9:30 PM EDT, Saturday.

At 12:00 PM EDT, the river flood advisory continued for the following rivers:

- Kalamazoo River at Marshall, Michigan
- Kalamazoo River at Comstock, Michigan
- Kalamazoo River near New Richmond, Michigan
- Portage River near Vicksburg, Michigan
- St Joseph River at Burlington, Michigan

At 12:09 PM EDT, the flash flood watch remained in effect for portions of Muskegon, Newaygo, Oceana, Gratiot, Isabella, Mecosta, Montcalm, Calhoun, Clinton, Eaton, Ingham, Ionia, Jackson, Allegan, Barry, Kalamazoo, Kent, Ottawa, and Van Buren Counties until 4 PM EDT this afternoon.

At 1:45 PM EDT, the flood advisory for urban and small streams was cancelled for Calhoun, Jackson, Kalamazoo, and Van Buren Counties.

At 4:00 PM EDT, the flash flood watch was allowed to expire for portions of Muskegon, Newaygo, Oceana, Gratiot, Isabella, Mecosta, Montcalm, Calhoun, Clinton, Eaton, Ingham, Ionia, Jackson, Allegan, Barry, Kalamazoo, Kent, Ottawa, and Van Buren Counties

At 9:45 PM EDT, the river flood advisory continued for the following rivers:

- Kalamazoo River at Marshall, Michigan
- Kalamazoo River at Comstock, Michigan
- Kalamazoo River near New Richmond, Michigan
- Portage River near Vicksburg, Michigan
- St Joseph River at Burlington, Michigan

### Sunday, July 25<sup>th</sup>

At 7:57 AM EDT, a river flood warning was issued for the Grand River at Jackson, Michigan.

At 8:48 AM EDT, a flood advisory for urban and small streams was issued for Calhoun and Jackson Counties until 2:45 PM EDT.

At 10:40 AM EDT, a river flood advisory was issued for the Grand River at Jackson, Michigan and continued for the following rivers:

- Kalamazoo River at Marshall, Michigan
- Kalamazoo River at Comstock, Michigan
- Kalamazoo River near New Richmond, Michigan
- Portage River near Vicksburg, Michigan
- St Joseph River at Burlington, Michigan

At 10:43 AM EDT, the river flood warning for the Grand River at Jackson, Michigan, was cancelled and downgraded to a river flood advisory.

At 2:47 PM EDT, a flood advisory for urban and small streams was issued for Calhoun and Jackson Counties until 2:45 AM EDT, Monday. Minor flooding was still reported to be occurring.

At 5:12 PM EDT, the river flood advisory for the Grand River at Jackson was cancelled.

At 9:12 PM EDT, the flood advisory for urban and small streams remained in effect for Calhoun and Jackson Counties until 2:45 AM EDT, Monday. Minor flooding was reported in Jackson County.

At 9:59 PM EDT, a river flood advisory continued for the following rivers:

- Kalamazoo River at Marshall, Michigan
- Kalamazoo River at Comstock, Michigan
- Kalamazoo River near New Richmond, Michigan
- Portage River near Vicksburg, Michigan
- St Joseph River at Burlington, Michigan

### Monday, July 26<sup>th</sup>

A pipeline leak spilled an estimated one million gallons of oil in Talmadge Creek which flows into the Kalamazoo River. The Grand Rapids Weather Forecast Office begins providing specific hydrologic forecasts and weather support for this incident. This support continues for the rest of the month of July, and at the time of this report was still ongoing.

At 8:42 AM EDT, the flood advisory for urban and small streams was cancelled for Calhoun and Jackson Counties.

At 10:30 AM EDT, the river flood advisory for the Portage River near Vicksburg was cancelled and continued for the following rivers:

- Kalamazoo River at Marshall, Michigan
- Kalamazoo River at Comstock, Michigan
- Kalamazoo River near New Richmond, Michigan
- St Joseph River at Burlington, Michigan

At 9:37 PM EDT, the river flood advisory continued for the following rivers:

- Kalamazoo River at Marshall, Michigan
- Kalamazoo River at Comstock, Michigan
- Kalamazoo River near New Richmond, Michigan
- St Joseph River at Burlington, Michigan

Tuesday, July 27<sup>th</sup>

At 9:45 AM EDT, the river flood advisory continued for the following rivers:

- Kalamazoo River at Marshall, Michigan
- Kalamazoo River at Comstock, Michigan
- Kalamazoo River near New Richmond, Michigan
- St Joseph River at Burlington, Michigan

At 8:39 PM EDT, the river flood advisory continued for the following rivers:

- Kalamazoo River at Marshall, Michigan
- Kalamazoo River at Comstock, Michigan
- Kalamazoo River near New Richmond, Michigan
- St Joseph River at Burlington, Michigan

Wednesday, July 28<sup>th</sup>

At 8:56 AM EDT, the river flood advisory continued for the following rivers:

- Kalamazoo River at Marshall, Michigan
- Kalamazoo River at Comstock, Michigan
- Kalamazoo River near New Richmond, Michigan
- St Joseph River at Burlington, Michigan

At 1:28 PM EDT, a flood advisory for urban and small streams was issued for Calhoun, Eaton, Ingham, Jackson, Barry, Kalamazoo, and Van Buren Counties until 7:30 PM EDT. Flooding over several roads was reported near Charlotte in Eaton County.

At 3:43 PM EDT, the flood advisory for urban and small streams was cancelled for Calhoun, Eaton, Ingham, Jackson, Barry, Kalamazoo, and Van Buren Counties.

At 9:21 PM EDT, the river flood advisory was cancelled for the Kalamazoo River at Comstock, Michigan, and continued for the following rivers:

- Kalamazoo River at Marshall, Michigan
- Kalamazoo River near New Richmond, Michigan
- St Joseph River at Burlington, Michigan

Thursday, July 29<sup>th</sup>

At 9:11 AM EDT, the river flood advisory continued for the following rivers:

- Kalamazoo River at Marshall, Michigan
- Kalamazoo River near New Richmond, Michigan
- St Joseph River at Burlington, Michigan

At 9:13 PM EDT, the river flood advisory was cancelled for the Kalamazoo River near New Richmond, Michigan, and continued for the following rivers:

- Kalamazoo River at Marshall, Michigan
- St Joseph River at Burlington, Michigan

Friday, July 30<sup>th</sup>

At 7:01 AM EDT, the river flood advisory was cancelled for the Kalamazoo River at Marshall, Michigan.

At 9:09 AM EDT, the river flood advisory continued for the St. Joseph River at Burlington, Michigan.

At 9:15 PM EDT, the river flood advisory continued for the St. Joseph River at Burlington, Michigan.

### Saturday, July 31<sup>st</sup>

At 9:14 AM EDT, the river flood advisory continued for the St. Joseph River at Burlington, Michigan.

### **Flood Stage Report**

Only one river exceeded flood stage during the month of July.

The Grand River at Jackson, Michigan, with a flood stage of 14.0 feet, rose above flood stage around 5:15 AM EDT on July 25<sup>th</sup>, crested at 14.17 feet at 6:00 AM EDT on July 25<sup>th</sup>, and fell back below flood stage around 7:45 AM EDT on July 25<sup>th</sup>.

The following rivers exceeded bankfull during the month of July:

- St Joseph River at Burlington, Michigan
- Kalamazoo River near New Richmond, Michigan
- Kalamazoo River near Marshall, Michigan
- Kalamazoo River at Comstock, Michigan

### **River Conditions**

River levels by the end of July were near to above normal across 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>
Scottville	Pere Marquette	100
Whitehall	White	100
Evert	Muskegon	164
Mt. Pleasant	Chippewa	105
Lansing	Grand	333
Grand Rapids	Grand	133
East Lansing	Red Cedar	160
Hastings	Thornapple	132
Battle Creek	Battle Creek	285
New Richmond	Kalamazoo	280



## **General Hydrologic Information**

July 2010 was much warmer than normal and except for an area near Lansing, Michigan, wetter than normal.

July precipitation totals at Grand Rapids, Lansing, and Muskegon, Michigan were 4.66, 2.00, and 3.52 inches, respectively. Precipitation totals for the month at these three sites were 1.10 inches above normal at Grand Rapids, 0.68 of an inch below normal at Lansing, and 1.20 inches above normal at Muskegon, Michigan. Yearly precipitation totals were 3.91 inches above normal for Grand Rapids, 1.57 of an inch below normal for Lansing, and 0.26 of an inch above normal for Muskegon, Michigan.

Temperatures for the month of July were significantly above normal at Grand Rapids, Lansing, and Muskegon, Michigan, with average monthly departures of +4.1, +4.3 and +5.1 degrees Fahrenheit, respectively. It was the second warmest July on record for Muskegon, Michigan.

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

- 11 Flood Watches (ARBFFAGRR)
- 3 Flash Flood Warnings (ABRFFWGRR)
- 10 Flash Flood Statements (ARBFFSGRR)
- 1 River Flood Warning (ARBFLWGRR)
- 2 River Flood Statements (ARBFLSGRR)
- 24 Areal Flood Advisories (ARBFLSGRR)
- 19 River Flood Advisories (ARBFLSGRR)
- 9 Hydrologic Statements (ARBRVSGRR)
- 1 Probabilistic Hydrologic Outlook (ARBESFGRR)
- 31 Hydrologic Summaries (ARBRVAGRR)
- 31 Daily River and Lake Summaries (ARBRVDGRR)