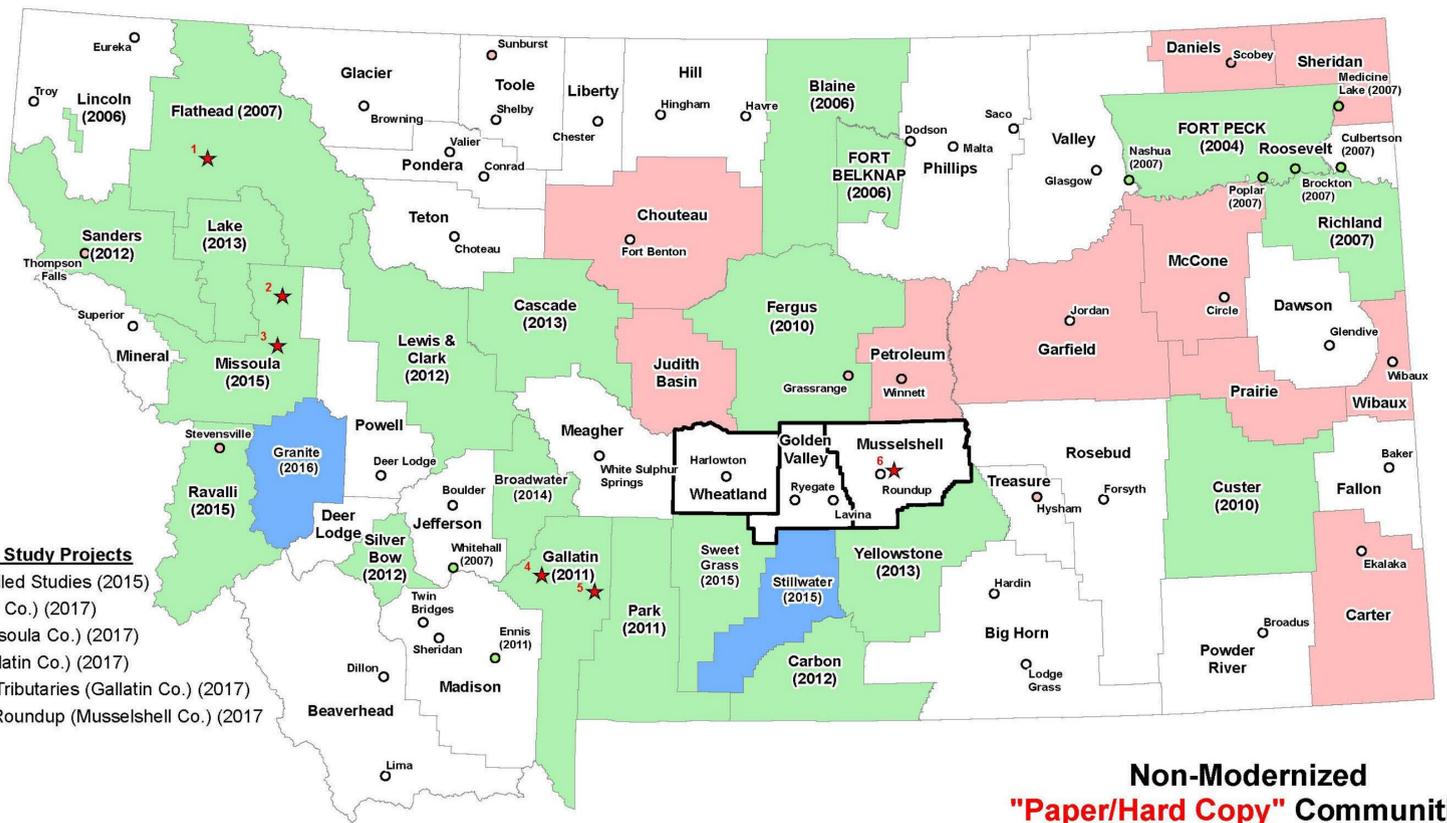


Floods can best be defined as the accumulation of too much water in too little time in a specific area. Types of floods that affect Montana include regional floods, flash floods, and ice-jam floods.

- ❖ Regional flooding occurs in river systems whose tributaries drain large geographic areas.
- ❖ Flash floods are local floods of great volume and short duration.
- ❖ Ice jam is an accumulation of ice in a river that restricts water flow and may cause backwater that floods low-lying areas upstream from the jam.

Updated May 11, 2015

Montana Status of Floodplain Mapping Inventory



Current Risk Map/PMR Study Projects

1. Flathead Co. - 7 Detailed Studies (2015)
2. Swan River (Missoula Co.) (2017)
3. Clearwater River (Missoula Co.) (2017)
4. W. Gallatin River (Gallatin Co.) (2017)
5. Bozeman Creek and Tributaries (Gallatin Co.) (2017)
6. Musselshell River at Roundup (Musselshell Co.) (2017)



Modernized "DFIRM" Communities

- | | |
|---|---|
| Completed ("Year" Effective) | In Progress (Scheduled "Year" Effective) |
| <ul style="list-style-type: none"> 18 - Countywide 2 - Reservations 1 - Partial Countywide (Lincoln Co./Libby) 7 - City/Town ONLY | <ul style="list-style-type: none"> 2 Countywide 6 New Enhanced RiskMap or PMR Study Projects (see list at Left) |

Non-Modernized "Paper/Hard Copy" Communities

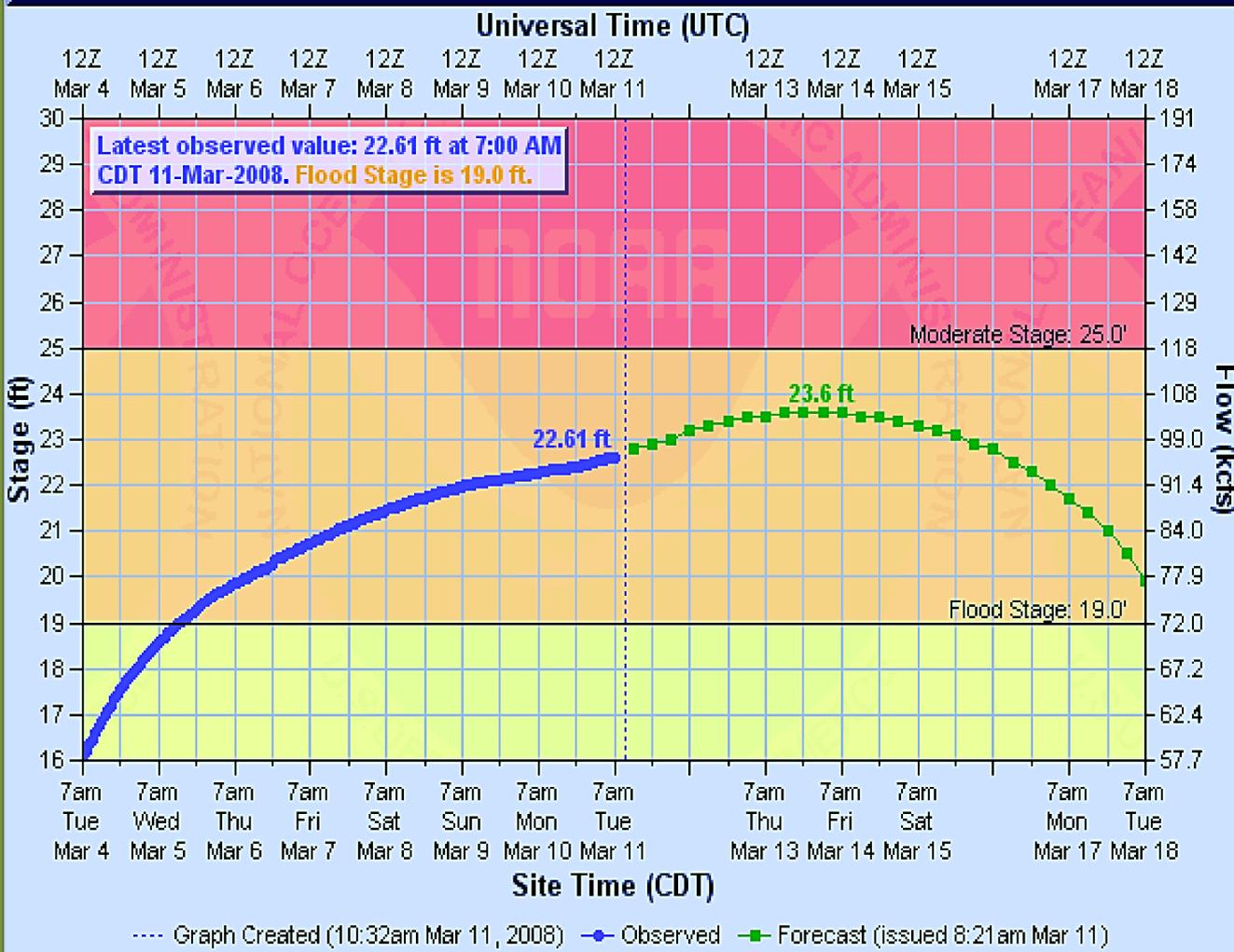
- | | |
|--|--|
| NFIP Participating Community | Digitized Mapping Available (Non-Regulatory) |
| <ul style="list-style-type: none"> 25 Counties 37 Municipalities | <ul style="list-style-type: none"> Digitized Mapping Available (Non-Regulatory) |
| Non-Participating or Suspended Community | |
| <ul style="list-style-type: none"> 10 Counties 8 Municipalities | |

MONTANA STRONG

BUILDING MONTANA'S DISASTER RESILIENCE TOGETHER

Flood

Wabash River at Southern Railway Bridge in Mount Carmel



National Weather Service provides an Advanced Hydrologic Prediction Service (AHPS) that provides valuable forecast information around the state:

www.weather.gov/ahps

- ❖ Forecast stage at flood forecast points
- ❖ Most co-located at USGS gages

MONTANA STRONG

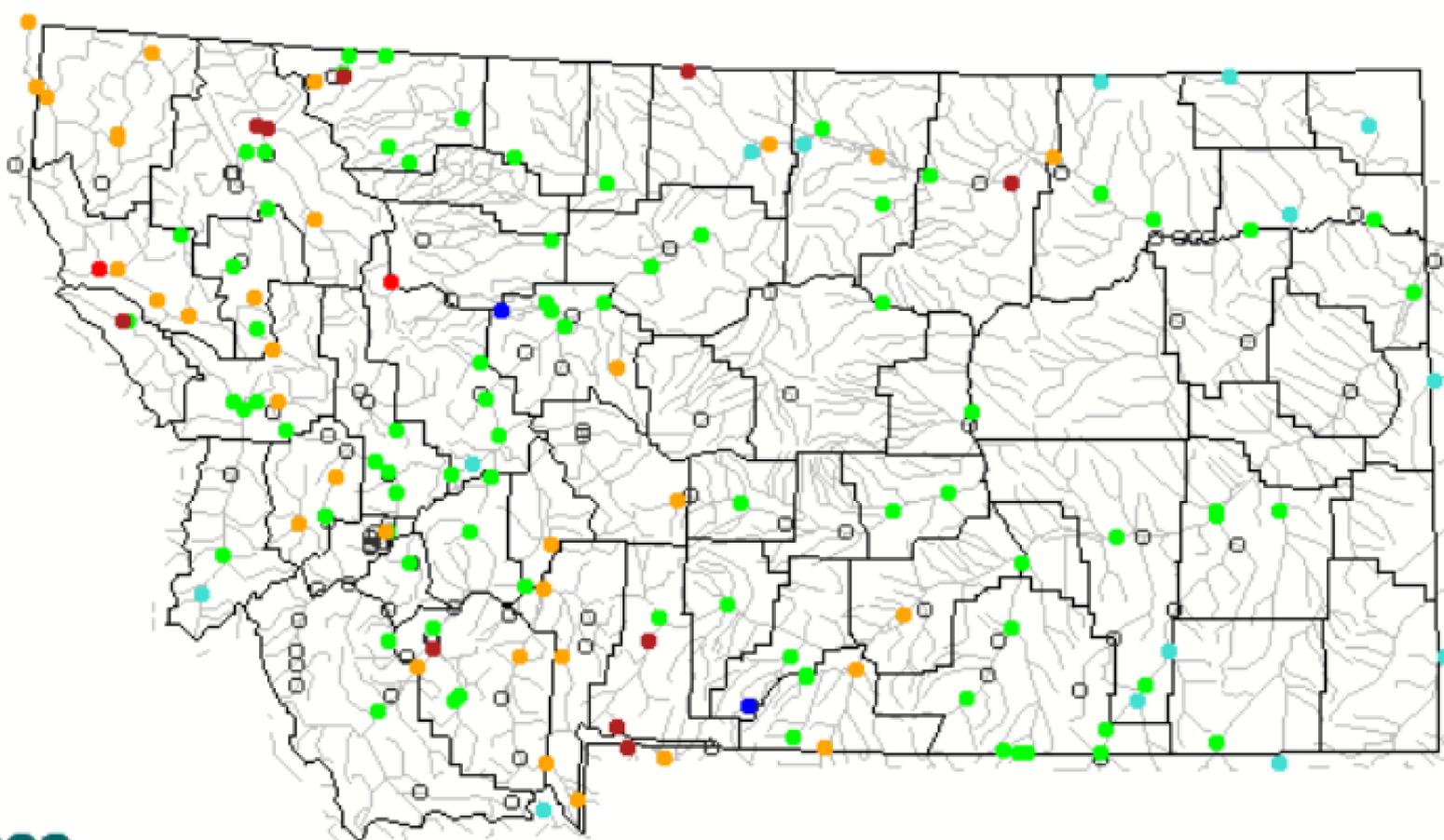
BUILDING MONTANA'S DISASTER RESILIENCE TOGETHER

Flood

Map of real-time streamflow compared to historical streamflow for the day of the year (Montana)

Montana or Water-Resources Regions

Thursday, September 10, 2015 17:00ET



Choose a data retrieval option and select a location on the map

List of all stations Single station Nearest stations Peak flow

Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

The colored dots on this map depict streamflow conditions as a percentile, which is computed from the period of record for the current day of the year. Only stations with at least 30 years of record are used.

The gray circles indicate other stations that were not ranked in percentiles either because they have fewer than 30 years of record or because they report parameters other than streamflow. Some stations, for example, measure stage only.

This hyperlink is inactive:

<http://waterdata.usgs.gov/mt/nwis/rt>



Kalispell 1964



Montana Floods

People are drawn to water. Homes, cities, and businesses are often established near water bodies. These developments can be vulnerable to floods. Floods are part of Montana's history. Notable flood events occurred in 1880, 1948, 1964, 1997, and most recently 2011. In 2011, 46 Montana counties were affected.

Damages across the state were over \$60 million.



Sanders County 1997

Roundup 2011



MONTANA STRONG

BUILDING MONTANA'S DISASTER RESILIENCE TOGETHER

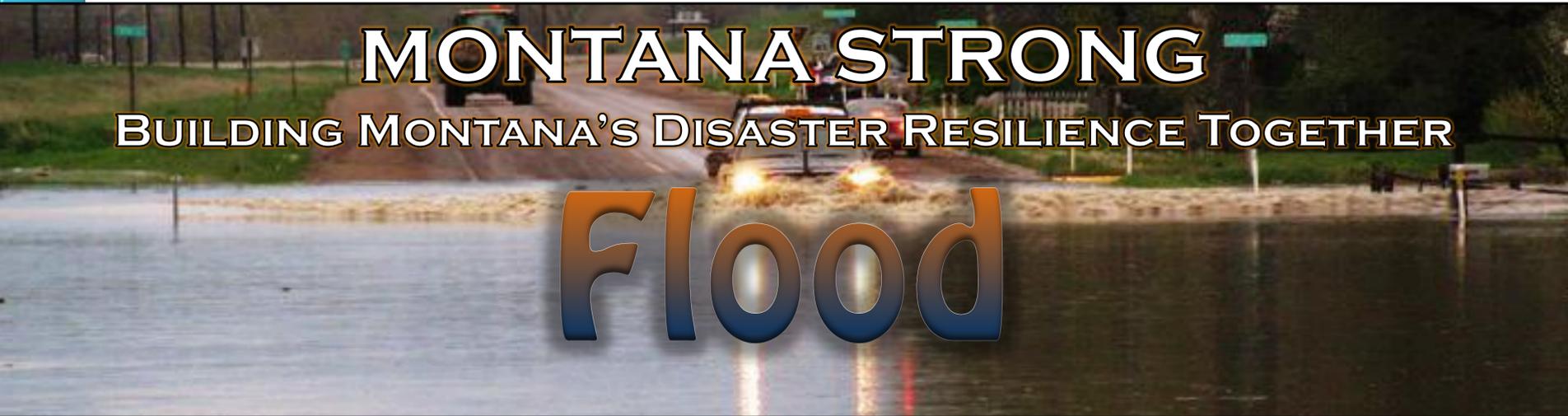
Flood

Every year, many lives are lost or put at risk from flooding. In every state and territory, floods destroy property costing billions of dollars annually.

- 1. Flash floods mainly occur in the eastern United States.** FACT: Flash floods have and can occur in all 50 states, including Alaska and Hawaii.
- 2. Flash floods occur only along flowing streams.** FACT: Flash floods can occur in dry creek beds and urban areas where no streams are present.
- 3. Larger vehicles, such as SUVs and pickups, are safe to drive through flood waters.** FACT: Two feet of rushing water can carry away most vehicles, including SUVs and pickups.
- 4. Homeowners insurance policies cover flooding.** FACT: Unfortunately, many homeowners do not find out until it is too late that their policies do not cover flooding. Contact your insurance company or agent about flood insurance.
- 5. Flood insurance is not available.** FACT: Flood insurance is available to all owners of insurable property in a community participating in the National Flood Insurance Program (NFIP)

WHEN IT IS NOT FLOODING: MAKE A FLOOD PLAN

1. **KNOW YOUR FLOOD RISK** – find a flood plain map of your area.
2. **BUY FLOOD INSURANCE** - there is a 30-day waiting period from date of purchase.
3. **GET CONNECT** – Stay tuned to your phone alerts and Red Cross “Emergency!” app, TV, or radio for weather updates, emergency instructions, or evacuation orders. Have a plan and contact list for important family, friends, social networks, key organizations and businesses.
4. **KNOW WHERE TO GO** – and how to get there should you need to get to higher ground, the highest level of a building, or to evacuate. Familiarize yourself with local emergency plans.
5. **BUILD A KIT** – make or restock your emergency preparedness kit, including a flashlight, batteries, cash, and first aid supplies.



Protecting your property

AGAINST FLOODING

Step 1

If your area could flood, check the news and weather regularly for updates.
www.Environment-Agency.gov.uk has flood warnings by area.

Step 2

Consider working with tenants to move valuable items upstairs.

Step 3

In flood-vulnerable areas, it can be worth fitting sockets and fuse boxes higher in the building.

Step 4

Check pointing and apply sealant to exterior walls.

Step 5

Fitting “non-return” valves on pipes can prevent water backing up during a flood.

Step 6

Position sandbags around the bottom of doors and low windows.

Step 7

Ventilation bricks should be sealed with special covers.

Step 8

Most of all, make sure your tenants are aware of the risk, and know what to do if it happens.

1. Bring in outdoor furniture and move important indoor items to the highest possible floor. This will help protect them from flood damage.
2. Disconnect electrical appliances and do not touch electrical equipment if you are wet or standing in water. You could be electrocuted.
3. If instructed, turn off your gas and electricity at the main switch or valve. This helps prevent fires and explosions.

Flood Safety Action Guide

Floods are a common occurrence across the United States. Because they're common, it's easy to forget that they can be extremely dangerous. Sometimes floods occur slowly, and other times they come out of nowhere. Keep your family safe by being prepared.

BEFORE

Build an emergency kit that contains some essential items like drinking water, non-perishable food, a battery-operated or hand crank radio, and a flashlight. More details can be found at <http://www.ready.gov/build-a-kit>.



If you live in a floodplain area, consider purchasing flood insurance to protect your investment in your home. You can find resources to help you determine what kind of flood insurance you might need at <http://www.floodsmart.gov/floodsmart/>.

Make a family communications plan to make sure that you and your loved ones are able to stay connected in the event that you're not together when the flood hits. A plan template can be found at <http://www.ready.gov/make-a-plan>.



DURING



Turn off your utilities at the main switches. Don't touch any electrical devices if you're wet or standing in water.

Don't walk through moving water. Moving water only six inches deep is enough to knock you down and cause an injury.

Listen to your radio or television to keep updated on local emergency information.

Pay close attention to flash flood warnings. If there's any risk of a flash flood where you are, head immediately to higher ground. Don't wait.

HIGH
WATER

AFTER

Continue to monitor your radio or TV for information and advice.

Avoid contact with floodwaters as much as possible. They may contain raw sewage, gasoline, and oil.

Continue to avoid moving water, and stay away from damaged areas unless you've been asked to help.

If you are interested in flood insurance, Ameriprise Auto & Home Insurance Agency can help you get a quote through one of our flood insurance partners.¹