

Report on Sandy River Watershed



Regional Forums

Forum Committee Members

Fenwick Fowler, Franklin County Commissioner

Amanda Simoneau, Franklin County EMA

Sara Bickford, Somerset County EMA

Lexi Daggett, Franklin County EMA

Jamie Sullivan, Franklin County

Marc Edwards, Forum Moderator



Acknowledgements

The purpose of the Sandy River Watershed regional forums was to provide a local perspective of where flooding happens, what has been done about it in the past, explore ideas for the future, and listen to citizen concerns. We talked with several institutions that have studied and reacted to Sandy River flooding for decades. More significantly, we got to know professionals in those institutions who shared their information and resources to make these forums possible. It is important to identify these people as they have a considerable amount of information that is significant as we move forward.

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Executive Summary

In 2023, there were several major flooding events across Western Maine. The floods on May 1st and December 18th impacted the Sandy River in Franklin and Somerset Counties, while other events were more dispersed (like the flooding in Jay). The impact of the floods was far-reaching, including damage to infrastructure, agricultural, and natural resources. On January 20, 2024 the Federal Emergency Management Agency (FEMA) granted a major disaster declaration for the storms that occurred between December 17-21, 2023¹. In the aftermath of the storms, many residents were left wondering, what next? How do we prepare for the next storm? The event exposed the vulnerability of older infrastructure and underscored the need for updated flood planning, infrastructure, and stronger municipal and county flood-response coordination. Several informal gatherings led to the formation of a committee which held five community forums to listen to citizens and discuss how to mitigate future impacts. This report provides background on the Sandy River, summarizes the outcomes of the community forums, and outlines next steps.

Introduction

On May 1st, 2023, the Sandy River reached Moderate Flood Stage. Seven months later, on December 18th, the Sandy River flooded again. This time it reached Major Flood Stage. Scientists predict that the northeast will be impacted with warmer winters, increasing rainfall, and more devastating flooding events because of climate change. As these predictions become reality, and Federal disaster programs experience funding cuts, the impacts on local communities are compounded. In the face of this situation, state, county, and local governments are beginning to discuss ways to mitigate the impact of weather events.

These storms caused significant damage and left a lasting impact. When the river flooded, it impacted eight communities along its 73-mile reach from Sandy River Plantation to Norridgewock. Some of the major impacts included:

- Washed-out bridges on state and local roads which caused an increase of traffic on secondary roads, longer commutes, and increased response time for emergency services.
- Flooding of low-lying areas like downtown Farmington along Main Street and US Route 2, which also interrupted traffic and damaged local businesses.
- Farmers lost valuable acreage to erosion and hay bales which were washed downstream or caught up in trees along the shore.
- Critical infrastructure, like drinking water supplies, were threatened as water levels neared the top of wellheads.

¹ <https://www.fema.gov/press-release/20240131/president-joseph-r-biden-jr-approves-major-disaster-declaration-maine>

Throughout 2024, Franklin and Somerset County Emergency Management Agencies (EMA) coordinated with FEMA to direct federal resources to impacted areas. FEMA reimbursed municipalities \$13 million for damage which occurred from the May 1st, 2023, and December 18th, 2023 flood events.

While local governments embarked on the bureaucratic process, area farmers who were severely affected by the flood began looking ahead. While they were faced with their own long road to recovery, they were also thinking about when the next flood might strike and what they could learn from this one. They were interested in long-term solutions. Local leaders, including Senator Russell Black (Senate District 5) and New Sharon farmer Gerry Provencher, began convening farmers to discuss future options. These informal gatherings included staff from the U.S. Department of Agriculture's Natural Resources Conservation Service (USDA NRCS), various state agencies, recreational interests, and conservation organizations. The informal group reached a quick consensus that there was a need to learn more about the Sandy River Watershed. They concluded that completing a geomorphic study of the watershed and updating flood maps was essential to understanding the risks that communities in the watershed are facing.

The group held a public forum in January 2025 to hear from geologist Dr. John Field on geomorphic studies and to listen to area residents about how the floods have impacted them. Over 50 people attended, including staff members of Maine's Congressional Delegation.

While the Congressional Delegation heard a variety of requests, they committed to working with FEMA to ensure that the flood maps for the Sandy River would be updated within a few years. Locally, Maine's Office of Community Affairs (MOCA) agreed to help make the geomorphic study happen using state, local, and non-governmental organization (NGO) resources. The event created a buzz which resonated through the community.

To take advantage of the communities' engagement, the Franklin County Commissioners directed Franklin County EMA to conduct a series of forums in four towns along the Sandy River that were affected by flooding in December 2023. Somerset County EMA was invited to participate to ensure that all towns in the watershed were represented.

The Forums

The forums were intended to be educational for both citizens and officials. County officials would hear how the flooding and changes to the river had impacted homeowners, farmers, businesses, municipalities, and other landowners in the watershed. Citizens would be given an opportunity to learn about the natural and cultural history of the Sandy River, future flooding, and an avenue to participate in planning for the future. Much of the discussion focused on the development of a geomorphological study of the Sandy River which could be instrumental in future planning. The study would help define

where and how to locate new development, where to install riverbank stabilization and flood mitigation projects, and how to improve infrastructure projects to be more resilient in the face of future flooding.

Locations

The forums were held in four communities and broadcast by Mount Blue TV:

1. January 31, 2025 – University of Maine - Farmington
2. June 9, 2025 - Masonic Lodge Legion, New Sharon
3. June 13, 2025 - Franklin Memorial Hospital, Farmington
4. June 16, 2025 - Foster Memorial Building, Strong
5. June 17, 2025 - Community Center, Phillips

Outreach & Attendance

To boost attendance at these forums, community outreach was done both online and in local gathering spaces. Facebook posts were made ahead of each event, flyers were put up in municipal buildings and local businesses, and local news outlets, including the *Sun Journal* and *Daily Bulldog*, publicized the forums. Word of mouth proved to be the most effective method for reaching the community.

In addition to the forums, an online survey was created to aid data collection at the forums. This survey also enabled residents who were unable to attend to submit their comments.

In total, about 100 citizens attended the forums. New Sharon and Phillips had the largest turnout. The survey collected 39 responses.

Agenda

Each forum began with an introduction, followed by a presentation on the geomorphology of rivers by geologist Dr. John Field, which was tailored to the Sandy River. More information on geomorphology can be found in Appendix J. Geomorphology.

Dr. Field's presentation was well-received and gave participants an understanding of the factors influencing the Sandy River. He discussed how looking at the river holistically can help in planning and preparing for both natural and human-caused changes. For instance, a localized solution to streambank erosion in one area may negatively impact streambank stabilization efforts just a few miles downstream.

Following Dr. Field's presentation, Deputy Director of Somerset County EMA gave a brief presentation to help guide participants on how to use the online survey. The survey allowed citizens to provide detailed information on how flooding has affected them, and to voice their concerns regarding future flooding and mitigation efforts. The survey was available for attendees to complete during the forum and a link was provided for anyone who was absent or wanted to submit comments after the forum ended.

The last portion of the forum was reserved for participants to voice their concerns. A summary of participant responses can be found in the following section.

Concerns of Forum Attendees

Forum attendees voiced several concerns related to past and future flooding as well as the resulting changes to the Sandy River. While homeowners were largely concerned about severe flood events, farmers and other large landowners were concerned not only about these severe events, but also about the smaller natural changes to the river over time which collectively have a negative impact on their land and productivity.

Concerns can be grouped into four categories: loss of property, damage to property, lack of communication, and planning. Overall, the sentiments seemed to boil down to “what can be done NOW!”

Loss of Property

There were many concerns about loss of property including:

- Private land
- Homes and outbuildings
- Crops and cropland
- Public infrastructure
 - Roads, culverts, trails, etc.

Citizens were not only worried about severe flood events, but also losses that might occur due to the continual natural changes in the river.

The following is a quote from a forum participant on loss of property:

“For many years...the loss of [our] property due to erosion has always been a major concern. The tree barrier, including large oak trees, has all gone downstream. Over the years, different officials have allowed some erosion control efforts which have helped and others which have not. There are only a handful of trees which still border the river. It is sickening to walk the field and see the multiple feet of field which has fallen into the river. Help is needed!!”

Damage to Property

The concerns related to property damage mirrored those of property loss, with damage to roads and culverts. Of note is the concern surrounding municipal infrastructure such as the wastewater treatment plant in Farmington. There were also concerns about potential impact on aquifers and public water sources.

The following is a quote from a forum participant on property damage:

“The municipal wells for the Farmington Water Department are located here. Destruction or overtopping of the wellhead would cause boil orders at least and we could lose the wells altogether. This would have a severe financial impact with possible health consequences”

Lack of Communication/Coordination

Participants were clearly frustrated by a lack of communication related to flooding events and the response from all levels of government. There were concerns about the lack of forewarning to homeowners and local municipalities. Even local officials commented on a lack of communication between responsible agencies and organizations. Many in Phillips and Strong expressed frustration over the lack of response at all levels regarding what could be done in the moment to mitigate damage and loss. Fears of what will happen in future severe events were palpable.

The following is a quote from a forum participant on communications:

“Public information needs improvement, with disseminating [information] and education prior to these kinds of [flooding] events. Many have minimal knowledge on what to do to protect themselves.”

Planning for the Future

Building on the lack of communication, many expressed frustrations that they were bounced from agency to agency while seeking answers about planning and preparing for the next severe weather event. There is a sense that different agencies have competing priorities regarding the Sandy River. The example given was the seeming priority given to endangered Atlantic Salmon over humans in the watershed.

The following is a quote from a forum participant about infrastructure planning:

“[Maine] DOT has spent time laying riprap rubble to prevent erosion on the bank of Route 4, but the resizing and replacement of the culvert should be part of the next planned maintenance. The culvert needs to quadruple in size at least, big enough so it won't clog. The stream has moved sideways across its bed more than once as much as 50' since I have lived there, so in the last 10 years plus.”

Survey

The survey was designed to consolidate data in one place with marked locations that provide a clear picture of impacted areas across the watershed while capturing community voices. It offers a visualization of damages beyond what FEMA claims reflect. The goal of this survey was to maintain

ongoing data collection and ensure that the community's experiences and concerns are documented and heard.

Responses

The survey received 39 responses, Table 1 shows the different categories of citizens that responded. Responses mostly came from people who identified as homeowners while municipal officials also had many concerns. Respondents were able to select multiple categories.

Figure 1Error! Reference source not found. highlights the Sandy River, tributaries, and overall watershed. The red dots show the location of survey responses. Nearly all responses were from citizens in the watershed.

Table 1. Survey Responses

Category	Responses
Homeowner	21
Farmer	2
Business Owner	1
Landowner	11
Municipal Representative	14
Other	5

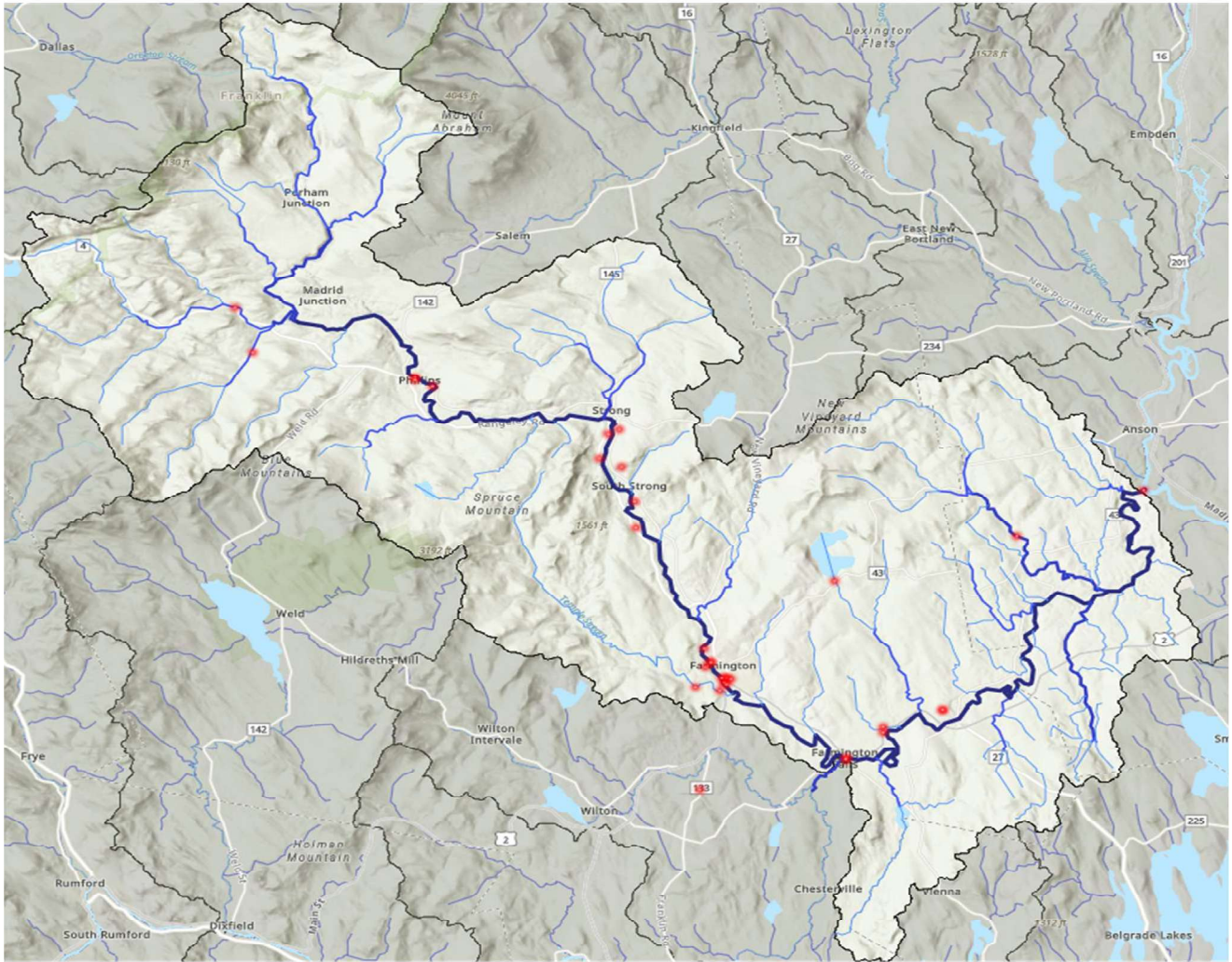


Figure 1. Map of survey responses.

Quotes from Survey Responses

The figures below are from select survey responses showing the location of the citizen's concern and a copy of their response. The location is depicted as a red dot circled in light blue.

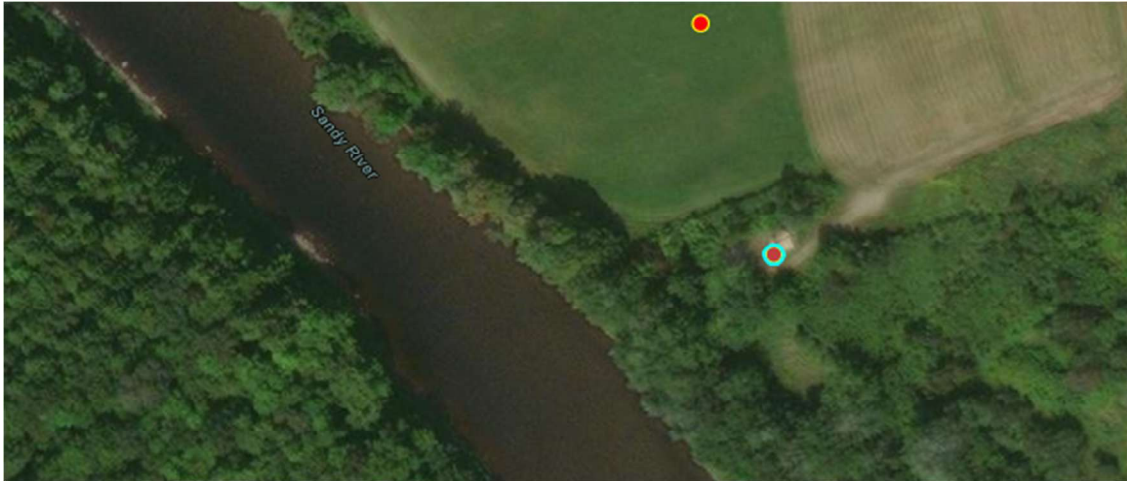


Figure 2. "The municipal wells for the Farmington Water Department are located here. Destruction or overtopping of the wellhead would cause boil orders at least and we could lose the wells altogether. This would have a severe financial impact with possible health consequences."

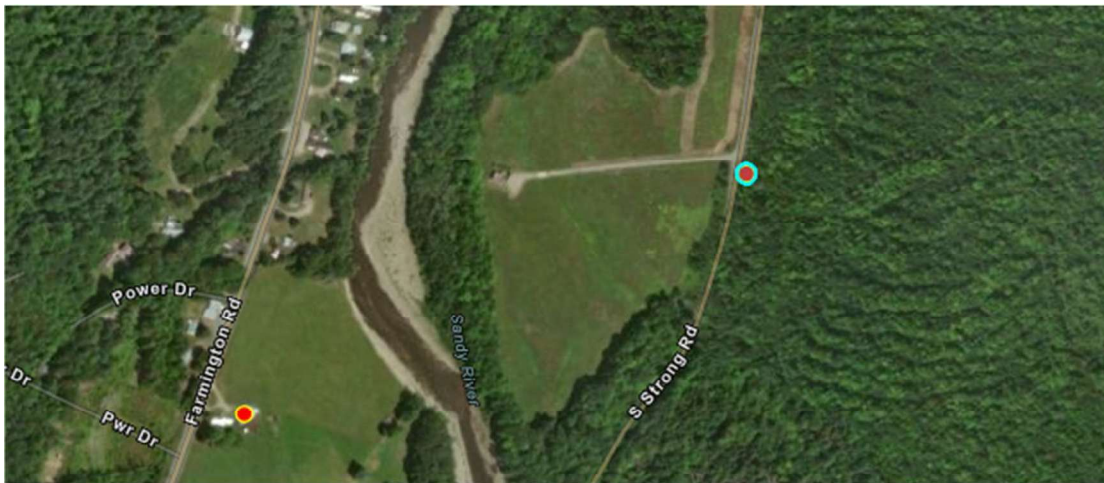


Figure 3. "With the two floodings that we had in May and December 2023 this area was flooded and unusable for emergency vehicles or any other vehicle. Making it unable to get through to Farmington."

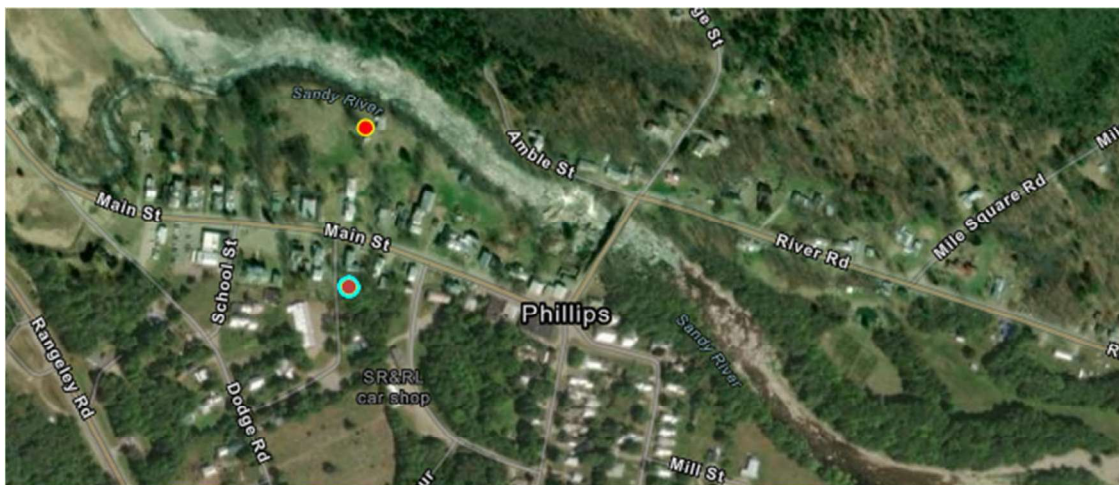


Figure 4. "Flood waters at this location rose to 2' inside of bldg. Some contents were lost; electric hand tools, etc. This location is currently a woodworking shop. The structure is well-known locally as the "The Cider Mill," from its historic past."

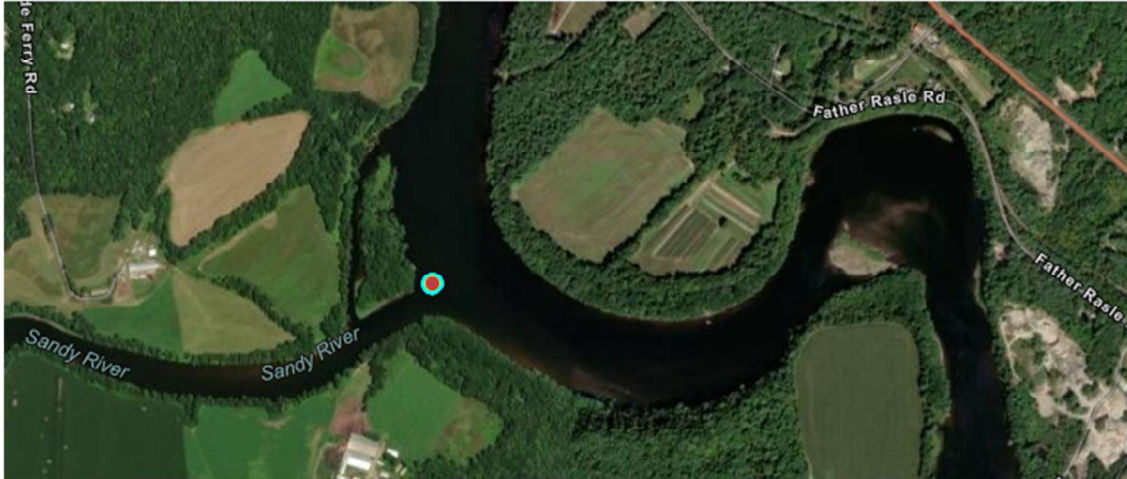


Figure 5. "My concern is 100% life safety and property preservation. This includes the ability of my firefighters, the ambulance crews & their apparatus being able to reach any part of Norridgewock and Mercer, at any time 24x7x365, without zero advance notice."

Conclusion

After reviewing notes from the forums and survey responses, it was clear that the concerns surrounding the Sandy River must be tackled using a holistic approach, they cannot be solved by small mitigation projects scattered across the watershed. Planning and mitigation efforts need to take the entire watershed into account. Local municipalities and government agencies need to approach the Sandy River as a regional watershed and begin thinking about working with, not against, the natural systems, river dynamics, and floodplains.

Action Items

The following are the action Items that were taken away following the forums:

- A. Fund a geomorphic study and update flood maps.
 - a. More information will increase the understanding of what is happening in the watershed and how to become more resilient in response. FEMA flood hazard boundaries in the watershed date as far back as 1976 with some areas still unmapped. This demonstrates the need for updated and accurate information to better inform decision making.
 - b. Senator Russell Black introduced L.D. 758 a "Resolve, to Update Flood Mapping in the Sandy River Watershed to Federal Emergency Management Agency Standards" in February 2025, it was passed in May 2025. See Appendix G. for bill text.
- B. Identify and fund critical infrastructure upgrades and shortcomings.
 - a. Examples: replacing undersized culverts on critical roads, performing hazard assessments for drinking water supplies, and studying EMS response areas during flood events.
- C. Establish emergency communication plan and educate the public.
 - a. Citizens and businesses need to know where to go to find the most up-to-date and accurate information before, during, and after emergency events. Critical information includes road closures, information on recovery, and impending storm information.

Encourage citizens to subscribe to the free USGS WaterAlert system to stay in touch with river conditions and be prepared for the next flood. More information on this can be found in Appendix E.

River Gages - **Flood impact descriptions were updated after the historic flooding levels seen in December 2023. Refer to Appendix F. NOAA Memorandum for more information*

- b. Using the Gages.
- D. Continue listening to the community and their needs.
 - a. More voices will help ensure that efforts are being focused in the appropriate areas.

Appendix

A. Survey

The forums have passed, but the survey is still open for anyone affected by recent or ongoing flooding in the Sandy River Valley—including homeowners, farmers, business owners, municipalities, and other landowners. Your input will help us better understand the real impacts on people and property and guide future planning and mitigation efforts.

Access the Survey using this URL or scan the QR code.

<https://arcg.is/1T1vv51>



Figure 6. QR Code to complete survey

B. Maps

If you are interested in learning more about flood mapping or river hydrology, check out these resources:

- FEMA Flood Map Service Center
 - “The FEMA Flood Map Service Center (MSC) is the official public source for flood hazard information produced in support of the National Flood Insurance Program (NFIP). Use the MSC to find your official flood map, access a range of other flood hazard products, and take advantage of tools for better understanding flood risk.”²
 - <https://msc.fema.gov/portal/home>
- USGS National Water Dashboard
 - “This viewer shows... real time water data collected at the U.S. Geological Survey (USGS) observation stations in context with weather-related data from other public sources.”³
 - [Map centered on Farmington, ME](#)
 - <https://dashboard.waterdata.usgs.gov/app/nwd/en/>
- USGS Flood Event Viewer
 - The USGS identified and tagged 355 High Water Marks after the December 2023 flood. You can see a map and pictures of these marks at the link below.
 - <https://apps.usgs.gov/fev/event/2023-december-east-coast-cyclone>

² <https://msc.fema.gov/portal/home>

³ <https://dashboard.waterdata.usgs.gov/app/nwd/en/>

C. Forum Recordings

Mt. Blue Public Television broadcast and recorded all of the public forums, including the meeting that sparked the idea for the forums. Recording of the forums can be seen by following the links below.

- 1/31/2025 Flood Risk Agriculture and Rivers Coexisting Meeting
 - <https://vimeo.com/1052353345>
- 6/9/2025 New Sharon
 - <https://vimeo.com/1097904818>
- 6/13/2025 Farmington
 - <https://vimeo.com/1098018478>
- 6/16/2025 Strong
 - <https://vimeo.com/1114014158>
- 6/17/2025 Phillips
 - <https://vimeo.com/1138112835>

D. Sandy River Background

Hydrology and Geography

The Sandy River originates in the Sandy River Ponds in Sandy River Plantation and meanders for approximately 73.3 miles before joining the Kennebec River in Norridgewock⁴. As the river makes its way towards the confluence with the Kennebec River in Norridgewock, it flows through several western Maine communities and runs parallel to portions of Maine Route 4 and U.S. Route 2. The watershed is largely forested and hosts the majority of Franklin County's agricultural productivity. At the confluence of the Sandy and the Kennebec Rivers, the Sandy drains 514 square miles⁵.

Because the river is situated within Maine's mountainous western region, it receives rapid and concentrated runoff during heavy rainfall events. The Sandy River is considered "hydraulically flashy," meaning it responds dramatically to precipitation, with water levels rising and falling at a rapid pace.⁶

Historic Flood Events

According to a document by Dr. Thomas Eastler (Ph. D. Geology) in 1989, the Sandy River has managed "...about one newsworthy flood in Franklin County every 2 years." This takes into consideration records dating back to 1785, although most data come from the era of stream gage readings: 1928-Present. Eastler notes that "...most damaging floods on the Sandy have usually been associated with heavy rainfall that occurred during the winter or early spring months. As a result of numerous ice jams, most

⁴ U.S. Geological Survey. National Hydrography Dataset high-resolution flowline data.

⁵ Environmental Geology Along the Sandy River, Farmington, Maine, UNH 1989

⁶ https://www.maine.gov/dacf/flood/docs/maineriverbasin/maineriverbasinreport_chap4.pdf

of these floods reached artificially high stage levels with respect to the actual runoff recorded. Thus, although flooding is usually a rain driven phenomenon, this has usually not been the case on the Sandy River.” The exception to this observation is the April flood in 1987 which is still one of the most severe floods in the Sandy’s history. Finally, Eastler proposes that in the late 1980s the Sandy had begun to transition from a “rural hydrograph situation” to a more “urban hydrograph situation,” changing the equilibrium of the river. He concluded this was a result of increased clearcutting deep in the watershed along with increased development (paving and building).⁵ While it is not a given that this analysis stands today, it offers a look into the dynamic nature of river systems and the impact of development. Whether or not you believe development in the watershed is a factor in the increased flooding events, it is certainly the driver of residents’ response to the events.

Current Flood Events (2023)

In May 2023, the Sandy River experienced one of its most severe floods in recent memory. A 24-hour storm dropped roughly 5 inches of rain across central and western Maine, causing rapid rises in river levels. At the USGS river gage near Madrid (information on gages in Appendix E. River Gages), the river rose from 5 to 10 feet, while downstream near Mercer it peaked at 14.5 feet.

Several months later on December 18, 2023, the Sandy River faced another, more severe, flood. A slow-moving storm with 50–60 mph winds dropped 4–8 inches of rain, while snowmelt from the surrounding mountains contributed an additional 3.5–4.5 inches (Figure 7).

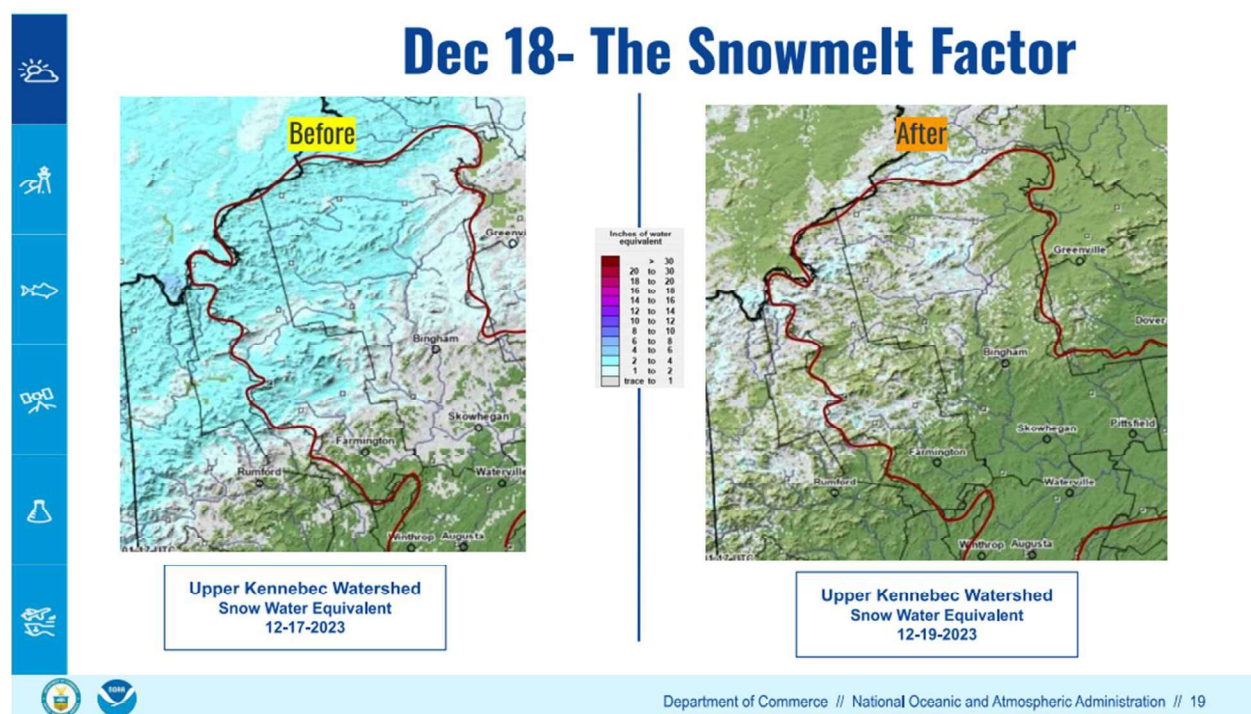


Figure 7. This slide, from a NOAA presentation, depicts snow cover before and after the storm; an indicator of how much snow contributed to the flooding.

At the USGS gage near Mercer, the river surged from around 5 feet to 17 feet, while upstream at Madrid it rose from 5 to 10 feet. Officials noted that the December flooding was extreme for inland Maine rivers, disrupting emergency services and holiday travel and highlighting the vulnerability of older infrastructure. During the storms heaviest accumulation US Rt. 2, and State Routes 4 and 27 were shut down due to flooded roadways. A Facebook post from the Farmington Fire page highlights the impact:

“Alert to Farmington area citizens and travelers, Due to rising flood waters, access to Farmington is now blocked. Citizens are to avoid attempts to travel east-west or north-south thru town. waters are estimated to continue to rise thru the night, not subsiding until later on Tuesday afternoon.”

While back-to-back severe storms like this can take a toll on affected communities, those in the Sandy River Watershed had a different take on it. Many first responders noted that they learned so much during and after the May flood, that it prepared them for the more severe December storm.

E. River Gages

River gages (often called stream gages) are sensors installed along rivers and streams to measure water levels and other flow-related data such as discharge (the volume of water moving past a point over time). These stations can collect data continuously and transmit it to databases where it is made freely available online in near-real time. The USGS operates one of the world’s largest coordinated river monitoring systems made up of more than 11,000 gages across the United States. The data serves a wide range of users - from federal and state planners to emergency managers and recreational users - and helps support decisions that affect public safety, infrastructure, the environment, and the economy.⁷

The USGS stream gage network is funded through a combination of federal appropriations and partnerships with state, local, tribal, and other agencies. USGS appropriations alone cover less than one-third of the total cost of operating the network. The rest is provided by about 1,500 partner organizations, which include other federal agencies, state environmental and natural resource departments, watershed groups, and municipal utilities. These cooperative agreements allow the network to be much larger and more geographically comprehensive than it could be with federal funding alone.⁸ In Maine, Brookfield Renewable (dam operator), MaineDOT, and Maine Emergency Management Agency (MEMA) are examples of some cooperators who contribute funds to stream gages.

⁷ <https://www.usgs.gov/mission-areas/water-resources/science/streamgaging-basics>

⁸ <https://www.usgs.gov/mission-areas/water-resources/science/usgs-national-streamgaging-network>

Stages

One way to discuss river levels in relation to flooding is to use gage height, or stages. According to the USGS, “gage height is the distance (or height) of the stream (or lake) water surface above the gage... reference point.” The reference point is uniquely selected for each gage site, usually at the lowest anticipated depth of a stream or river, it is not necessarily the same as the depth of the water.⁹ For any given river, different categories are established by the stage at which they occur. These categories are:

1. Action Stage: Action is taken for possible high water. Water may cause minor impacts and be a nuisance to people near the stream. Local governments or agencies may take actions to reduce property damage and danger to life.
2. Minor Flood Stage: Some property flooding and public threat may occur. Roadways, trails, park land, and private property near the stream may become flooded.
3. Moderate Flood Stage: Flooding of structures and main roadways may occur. Residences and numerous roadways near the stream may become flooded. Evacuations may be necessary. Disruptions to daily life.
4. Major Flood Stage: Extensive flooding of structures, main roadways, and other critical infrastructure may occur. Schools, hospitals, police stations, fire stations, residences, businesses, and roadways may become flooded. Evacuations may be necessary. Significant disruptions to daily life.¹⁰

These definitions provide context to what was seen around the Sandy River watershed during the flood events, as shown in Figures 8-11. Comparing the flood stages of the Sandy River on December 18, you will see that at both the Madrid and Mercer gage stations, the river was above Major Flood Stage, as compared to the early May 2023 flood event which only reached Moderate Flood Stage at the Mercer gage station.

⁹ https://waterdata.usgs.gov/blog/gage_height/

¹⁰ https://www.weather.gov/lot/hydrology_definitions

May 1st, 2023 River Gage Height

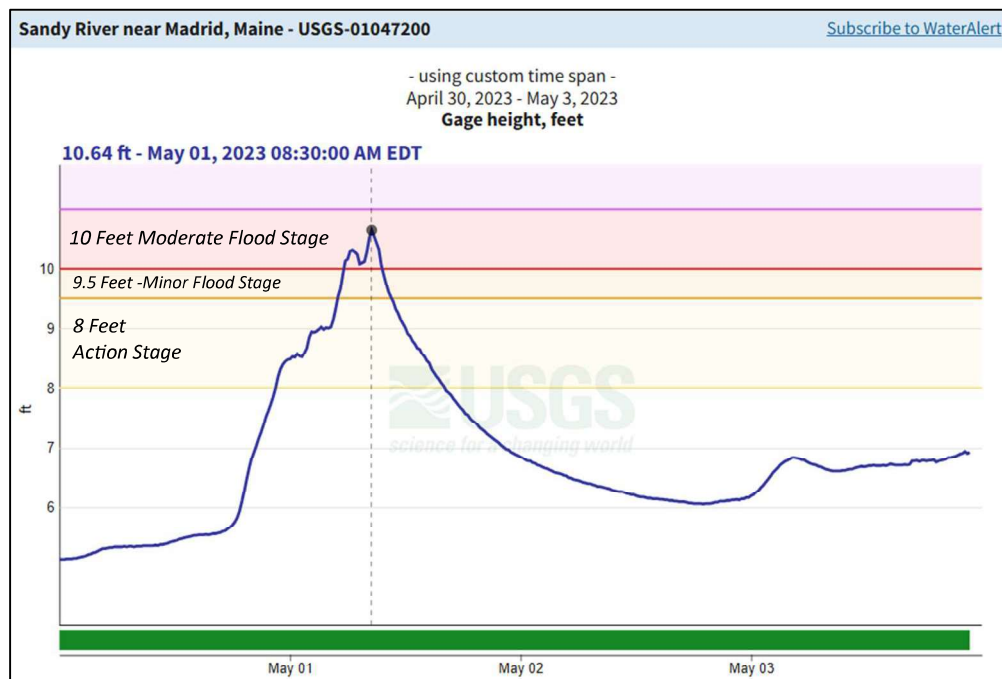


Figure 8. Madrid River Gage Peaks, April 30-May 3, 2023

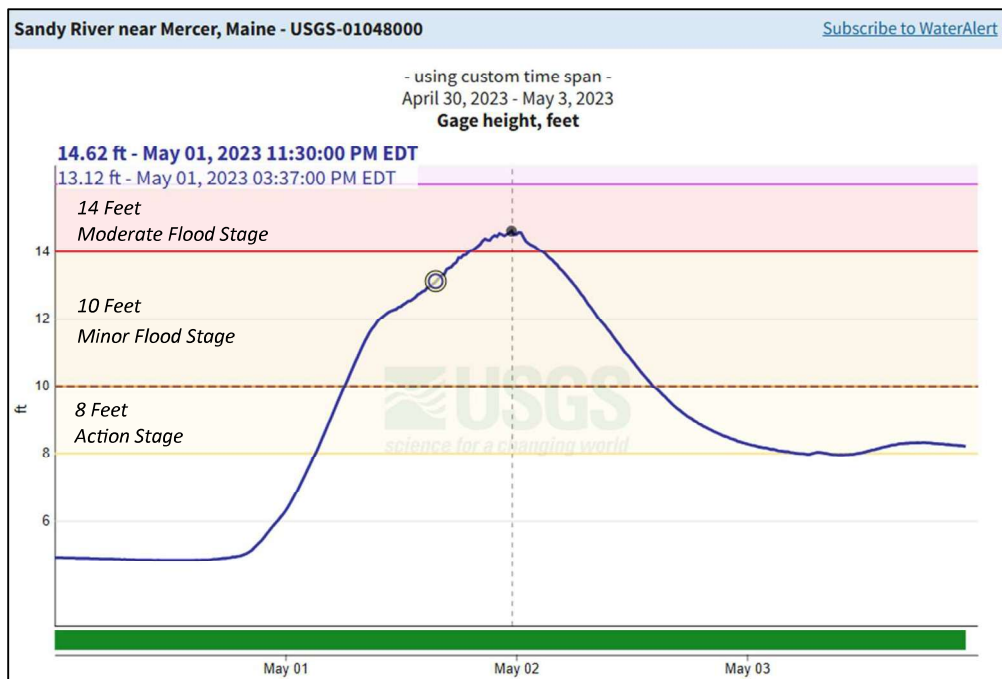


Figure 9. Mercer River Gage Peaks, April 30-May 3, 2023

December 18th, 2023 River Gage Height

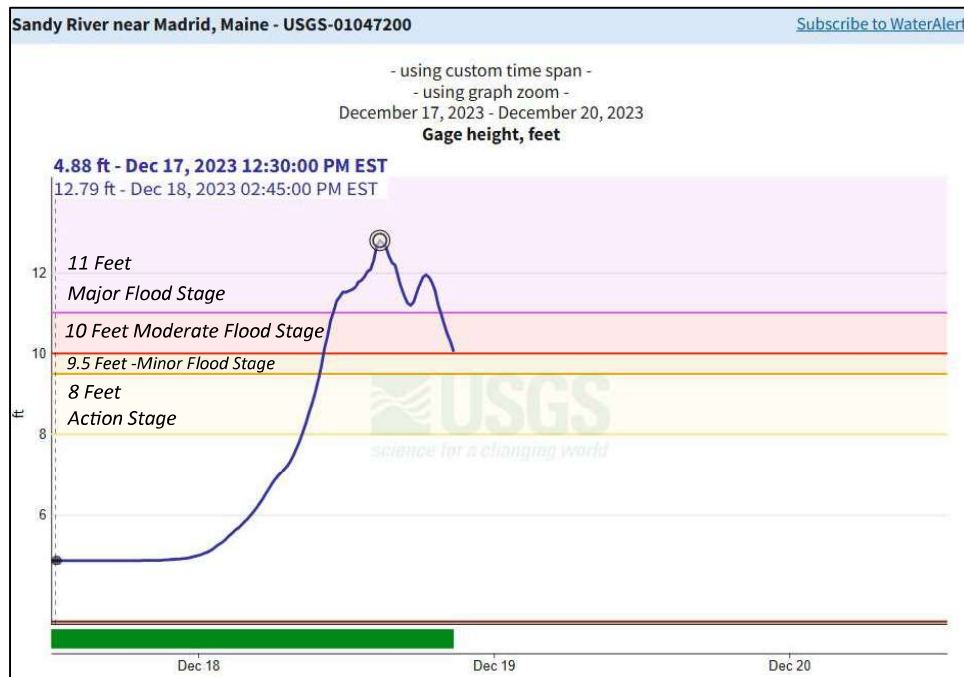


Figure 10. Madrid River Gage Peaks, December 17-20, 2023

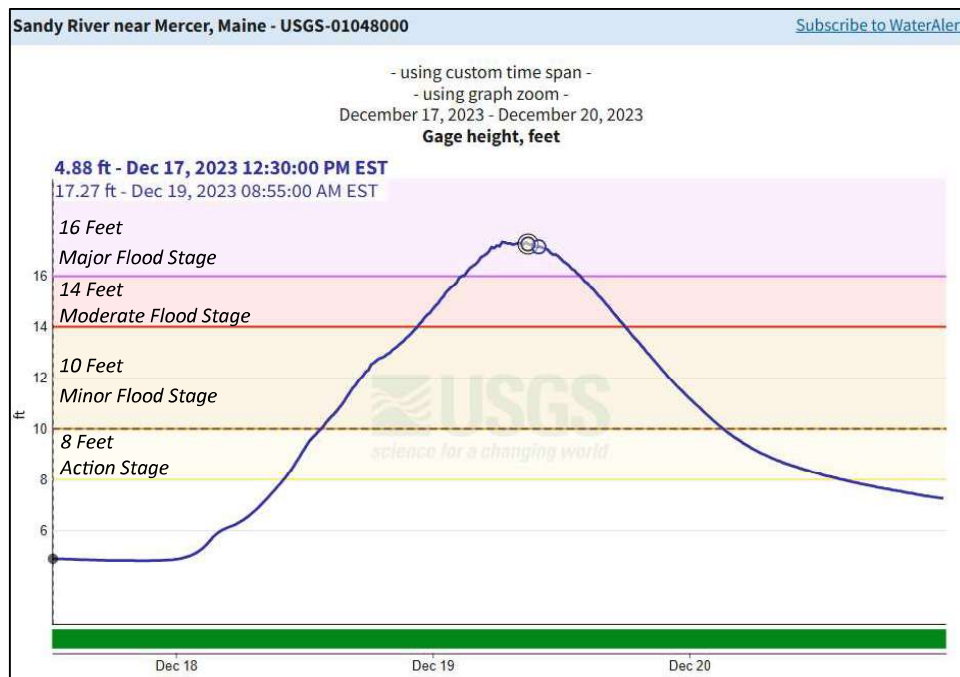


Figure 11. Mercer River Gage, December 17-20, 2023

Madrid

Information about the river gage near Madrid, Maine:

- Link to gage: [Sandy River near Madrid, Maine - USGS-01047200](https://waterdata.usgs.gov/monitoring-location/USGS-01047200)
 - URL: <https://waterdata.usgs.gov/monitoring-location/USGS-01047200>
- Watershed size at gage: 25.1 square miles
- Elevation: 915 ft
- Operated in cooperation with Maine Department of Transportation (MDOT)

Table 2. Madrid gage height and associated impacts.

River Stage (ft)	Flood Impact Description*
12.79	Flood comparable to December 2023. Considerable flood damage to numerous buildings and roads throughout the upper Sandy River.
11.0	Major flooding occurs. Widespread severe flooding in Phillips, Avon, Madrid, and Strong. Route 4 inundated, cutting off access in and out of the area.
10.0	Moderate flooding occurs. Water reaches Route 4 between Strong and Farmington by the locally referred to Devil's Elbow. Water up to homes in Phillips.
9.5	Bridge Street in Phillips flooded.
9.0	Water up to River Road in Madrid.

**Flood impact descriptions were updated after the historic flooding levels seen in December 2023. Refer to Appendix F. NOAA Memorandum for more information*

Mercer

Information about the river gage near Mercer, Maine.

- Link to gage: [Sandy River near Mercer, Maine - USGS-01048000](https://waterdata.usgs.gov/monitoring-location/USGS-01048000)
 - URL: <https://waterdata.usgs.gov/monitoring-location/USGS-01048000>
- Watershed size at gage: 516 square miles
- Elevation: 196 ft
- Operated in cooperation with Maine Emergency Management Agency (MEMA)

Table 3. Mercer gage height and associated impacts.

River Stage (ft)	Flood Impact Description*
19.0	Approaching levels seen during the historical 1987 flood. Significant property damage between Farmington and New Sharon. Hundreds of acres of farmland flooded in Mercer and Starks.
18.0	Route 2 bridge in New Sharon flooded. Starks Road to Glen Harris Road flooded in New Sharon.
17.0	Level comparable with December 2023. Dozens of properties between Farmington and New Sharon flooded. Access in and out of the region limited due to flooded bridges. Floodwaters several feet deep in Farmington along Main Street and Front Street.
16.0	Major flooding occurs. Flooding impacts homes and businesses from Farmington Falls to Norridgewock. Main Street in Farmington flooded up to 4 feet deep.
15.0	Starks Road in New Sharon flooded. Water enters businesses on Main Street in Farmington.
14.0	Moderate flooding occurs. Businesses inundated along Main Street in Farmington south of the University. Floodwaters encroach on homes along East Sandy River Road in Mercer.
13.0	Floodwaters encroach on properties along Front Street and Main Street in Farmington. Extensive flooding of recreational fields occurs. Flood extent along East Sandy River Road in Mercer cuts off access to multiple homes.
12.0	Flooding of Prescott Field and Hippach Field in Farmington, and low-land pasture flooding downstream.
10.0	Minor flooding occurs on George Thomas Road in New Sharon. Floodwaters can encroach on low-lying portions of West and East Sandy River Road in Mercer due to culverts backing up under certain conditions. Locals are advised to find alternate routes.
8.0	River is at bankfull in low-lying areas; some erosion may occur.

*Flood impact descriptions were updated after the historic flooding levels seen in December 2023. Refer to Appendix F. NOAA Memorandum for more information

Using the Gages

Data from the river gages is available around the clock for anyone to view. Citizens can use this information during storms to help make decisions. For example, you live on East Sandy River Road in Mercer, you know that after the river rises so much that it overcomes the road and you can no longer access your home. Looking at Table 2 above, you realize that this happens when the gage is at 12 feet. You can use this information to inform decision making during storms. If you are leaving work and it has been raining all day, you can check the gage and see how high the river is, if it is over 12 feet, you might

opt to go to a family member's house, rather than try to go home and put yourself at risk by driving through moving water.

The USGS offers an alert service where you can receive notifications via email or text message for changes in water conditions based on thresholds that you choose. Find more details here:

<https://accounts.waterdata.usgs.gov/wateralert/>

In the example above, the homeowner on the East Sandy River Road might set up an alert to receive a text message when the river reaches 10ft. They know when they get that text that they need to leave work if they want to get home before the water overcomes the road.

F. NOAA Memorandum

Following the 2023 floods, the National Oceanic and Atmospheric Administration (NOAA) sent Franklin County EMA a memo on changes to the River Warning Service. See the memo below.



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Weather Service
1 Weather Lane
PO Box 1208
Gray, ME 04039-1208

Date: September 6, 2024

MEMORANDUM FOR: Franklin County
THROUGH: Amanda Simoneau, Emergency Management Director

FROM: Hendricus Lulofs, Meteorologist-in-Charge
National Weather Service Gray, ME

THROUGH: Sarah Jamison, Senior Service Hydrologist
National Weather Service Gray, ME

SUBJECT: Notification of River Warning Service Changes

Recent flood events across Franklin County have highlighted a need for expanded and improved river flood warning services. The floods of 2023 highlighted the need to adjust flood stages for both the Sandy and Carrabassett Rivers. Currently river forecasts and warnings are provided by the NWS for USGS river gages at North Anson and Mercer. The proposed flood stage changes and impact statements can be found in the attachments. Please share these findings with local officials and interested parties within the communities that could provide helpful feedback. We would appreciate any feedback you have no later than October 1, after which time the NWS will move forward with the proposal and implement the changes. Looking forward, the NWS would like to continue to work with Franklin County and local officials on ways to improve flood awareness and improve services.

Please review and share these findings found in Attachments A and B with local officials and interested parties within the affected communities. If you have any concerns or questions please submit them no later than October 1, after which time the NWS will move forward with the proposal and implement the changes. River forecast services can be found by visiting www.weather.gov/gyx and selecting "Rivers and Lakes". Looking forward, the NWS would like to continue to work with Franklin County and local officials on ways to improve flood awareness and improve services.

For your reference, minor flooding represents the point in which flood waters are a threat to life and property, often associated with inundated roads or encroachment on properties. Moderate flooding is considered the stage at which multiple properties are inundated and/or numerous roads are flooded resulting in disruptions to community accessibility. Major flood stage is considered the point where flood waters cause major property damage and/or extreme threat to life.

Sarah Jamison
Senior Service Hydrologist
National Weather Service Gray, Maine
C (207) 312-0432
Sarah.jamison@noaa.gov



Attachment A: Sandy River at Mercer

NWS ID: MERM1

Reach: Expanded from Norridgewock to Farmington Maine

Proposed Change: Expanded area upstream and adjusted all flood categories respectively

<u>NWS Flood Category</u>	<u>Current</u>	<u>Proposed</u>
Major	17	16
Moderate	15	14
Minor	12	10
Action	10	8

<u>Stage (ft)</u>	<u>Impacts</u>
19	Hundreds of acres of farmland flooded in Mercer and Starks.
18	Route 2 bridge in New Sharon flooded. Starks Road to Glen Harris Road flooded in New Sharon.
17	Floodwaters several feet deep in Farmington along Main Street and Front Street.
16	Major flooding occurs. Flooding impacts homes and businesses from Farmington Falls to Norridgewock.
15	Starks Road in New Sharon flooded. Water enters even protected buildings on Main Street in Farmington.
14	Moderate flooding occurs. Businesses inundated along Main Street in Farmington south of the University.
13	Flood waters encroach on properties along Front Street and Main Street in Farmington. Extensive flooding of recreational fields.
12	Flooding of Prescott Field and Hippach Field in Farmington, and low land pasture flooding downstream.
10	Minor flooding occurs on George Thomas Road in New Sharon.
8	The river is at bankfull in low lying areas, some erosion may occur.

Attachment B: Carrabassett River at North Anson

NWS ID: NANM1

Reach: Carrabassett Valley, Kingfield, New Portland, North Anson.

Proposed Change: Lower moderate flood stage and major flood stage. Expand impacts north to Carrabassett Valley and Kingfield, though confidence is lower the further away from the gage one goes.

<u>NWS Flood Category</u>	<u>Current (ft)</u>	<u>Proposed (ft)</u>
Major	25	22
Moderate	20	18
Minor	15	15
Action	13	13

<u>Stage (ft)</u>	<u>Impacts</u>
26.5	Impacts similar to that in the flood of record on April 1 1987 and that of December 2023. Avoid travel between Carrabassett Valley and North Anson.
23.0	Infrastructure and property damage along the Carrabassett River between Carrabassett Valley to North Anson. Flood waters into first floors of homes in Kingfield. Access in and out of the New Portland up to Carrabassett Valley area is significantly limited. Route 27, 16, and 146 flooded.
22.0	Major flooding occurs. Flooding comparable to that in May 2023. Properties along Island Road flooded in Kingfield. Major disruptions to travel in and out of the Carrabassett Valley region with the likely closure of Route 27. Significant flooding in North Anson if coinciding high flows are occurring along the Kennebec River.
21.0	Route 27 flooded in Carrabassett Valley near the S curve and also in Kingfield near the Department of Transportation lot north of town.
20.5	Flood comparable to that after Irene in 2011. Route 16 flooded in Embden floods south of Katie Crotch Road.
18.0	Moderate flooding occurs. Route 16 flooded in Anson near the Bailey Farm Windmill. Route 146 flooded in New Portland. Island Road in Kingfield flooded.
17.0	Water encroaching on Route 16 in Anson near the Bailey Farm Windmill and on Route 146 in New Portland.
16.0	In Kingfield, floodwaters can cut off Island Road given coinciding high flows on the West Branch of the Carrabassett River.
15.0	Minor flooding occurs. Katie Crotch Road begins to flood in Embden.
13.0	River nearing bankfull in New Portland and Embden.

APPROVED

MAY 30, 2025

BY GOVERNOR

CHAPTER

42

RESOLVES

STATE OF MAINE

IN THE YEAR OF OUR LORD

TWO THOUSAND TWENTY-FIVE

S.P. 291 - L.D. 758

Resolve, to Conduct a Study to Update Flood Hazard Data in the Sandy River Watershed

Sec. 1. Department of Agriculture, Conservation and Forestry, Maine Geological Survey to conduct Sandy River watershed geomorphic study.

Resolved: That, in coordination with the United States Department of Homeland Security, Federal Emergency Management Agency; the Department of Transportation; the Department of Environmental Protection; the Department of Inland Fisheries and Wildlife; the Maine Office of Community Affairs; the Department of Defense, Veterans and Emergency Management, Maine Emergency Management Agency; and other relevant state agencies, the Department of Agriculture, Conservation and Forestry, Bureau of Resource Information and Land Use Planning, Division of Geology, Natural Areas and Coastal Resources, Maine Geological Survey shall contract for a geomorphic study within the Sandy River watershed to update flood hazard data within the watershed. The study must include an assessment of river movement, erosion and sedimentation and the impacts of those factors on flood risk and river health. The study must also provide individuals who reside within the Sandy River watershed and individuals who reside within the watershed of similar river systems with information about flood risks and options to manage those risks. The Department of Agriculture, Conservation and Forestry, in collaboration with relevant state agencies, shall seek funding to support the costs of the study.

H. Photos

Below are some photos from the storms.



Figure 12. May 2023, Facebook Post by Geneva Asselin showing flooding on Route 143/43 Sandy River rd.

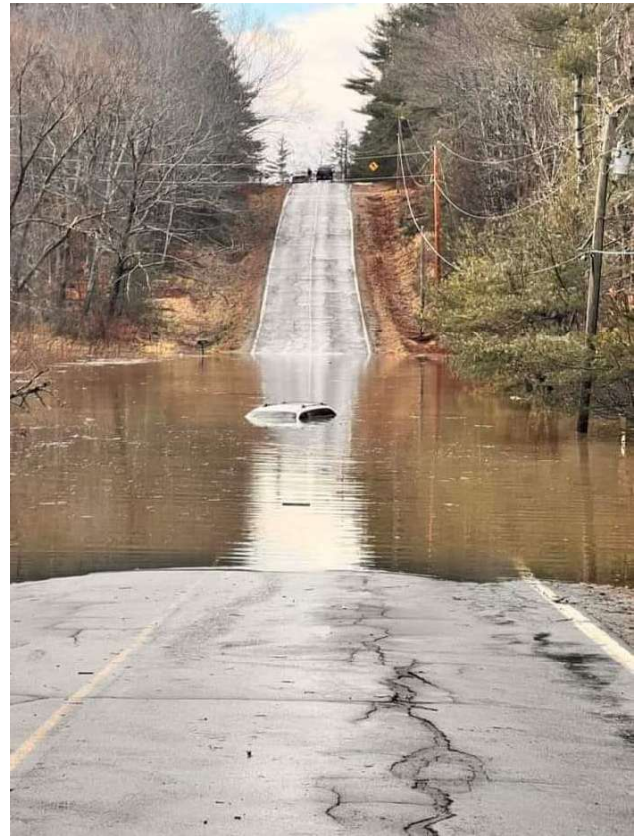


Figure 13. December 2023 Facebook post by Katie Hoskins showing Route 134 between New Sharon and Starks.



Figure 14. May 2023, Main Street Farmington. Photo credit Matt Billian.



Figure 15. December 2023, Farmington Falls bridge. Photo credit to Matt Billian.

I. Dr. John Field, Background

Dr. Field received his Ph.D. with concentrations in fluvial geomorphology and hydrology. During eight years as a university professor, he received excellence in teaching awards from the Geological Society of America and Western Washington University. His research on flood hazards and habitat issues in Arizona, Washington State, and New England has been published in numerous scientific publications and presented at professional meetings throughout the United States and Canada. Dr. Field's thorough knowledge of the scientific literature and wealth of practical experience in watersheds around the world provides a sound basis for identifying sensible solutions to watershed problems. His presentations can be found on Mount Blue TV's recordings of the forums.

J. Geomorphology

The United States Geologic Service defines fluvial geomorphology: An understanding of river- and stream-channel geomorphic responses to various human-caused and natural disturbances is important for effective management, conservation, and rehabilitation of rivers and streams to accommodate multiple, often conflicting, needs. Channel changes may have implications for the protection of property and structures, water supply, navigation, and habitat. The channel-bank erosion that accompanies natural channel migration on a flood plain represents a constant threat to property and structures located in or near the channel. Various human-caused and natural disturbances introduce additional instability to which rivers and streams adjust. Human-caused disturbances include reservoirs, channelization, in-channel sand and gravel extraction, and urbanization. A common natural disturbance is a flood. Possible geomorphic responses of a channel to disturbances include channel-bed degradation (erosion), channel-bed aggradation (deposition of material), channel widening, and channel straightening. These adjustments represent the channel's attempt to establish a new approximate equilibrium condition.¹¹

¹¹ <https://www.usgs.gov/centers/central-plains-water-science-center/science/fluvial-geomorphology>