

Flood Lines

New Hampshire Floodplain Management Program
Spring 2026

Flood Awareness Week starts this year by remembering the 2006 Mother's Day flood. Many New Hampshire residents recall that wet and rainy May weekend when a low-pressure system crawled up from the Ohio River Valley bringing onshore winds and heavy rain for multiple days. A total of 14 inches of rain would drop across central and southern New Hampshire, triggering historic and catastrophic flooding prompting a presidential disaster declaration a week later.

Twenty years later, how unusual was this flooding? What did we learn? How do we prepare for the next one?

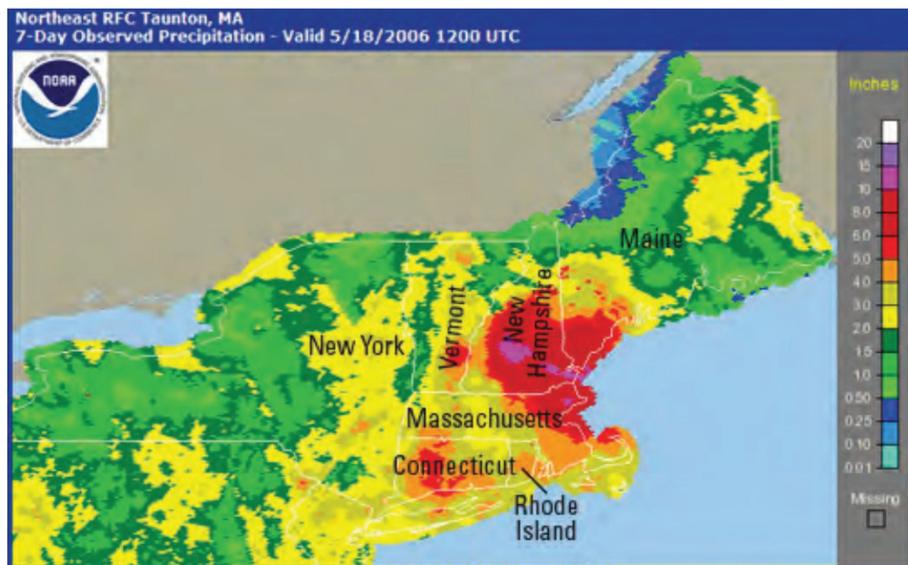


Figure 1. The 7-day precipitation totals ending on May 18, 2006, northeastern United States. (From Northeast River Forecast Center, 2006.)

New Hampshire has a long history of maritime and riverine industry along the Merrimack River Valley and the Seacoast. Much of New Hampshire's population today is concentrated in these areas, leaving these communities especially vulnerable to flooding. During the 2006 Mother's Day flood, Goffstown reported 82 damaged structures, while other communities dealt with damaged bridges and overtopping dams. A presidential disaster declaration was made on May 25, 2006, with FEMA assistance totaling nearly \$9 million for individual assistance and over \$14 million in public assistance. Years later, damage from flooding continues. Since 2011, Merrimack County has weathered 19 declared disasters, the second highest in the country behind Washington County, Vermont, which has experienced 22.

AT A GLANCE

REBUILD
BY
DESIGN

STATES WITH HIGHEST DISASTER DECLARATIONS

STATE	# OF DISASTERS
CALIFORNIA*	39
OKLAHOMA*	30
TENNESSEE	30
IOWA*	26
ALASKA	25
MISSISSIPPI	25
VERMONT	25
KENTUCKY	23
NEW YORK	23
WASHINGTON*	23

COUNTIES WITH HIGHEST DISASTER DECLARATIONS

COUNTY	# OF DISASTERS
WASHINGTON, VT	22
MERRIMACK, NH	19
LAMOILLE, VT	17
FRANKLIN, KY	16
JOHNSON, KY	16
ESSEX, VT	16
ORLEANS, VT	16
CLAY, KY	15
LAWRENCE, KY	15
LEE, KY	15

METHODOLOGY

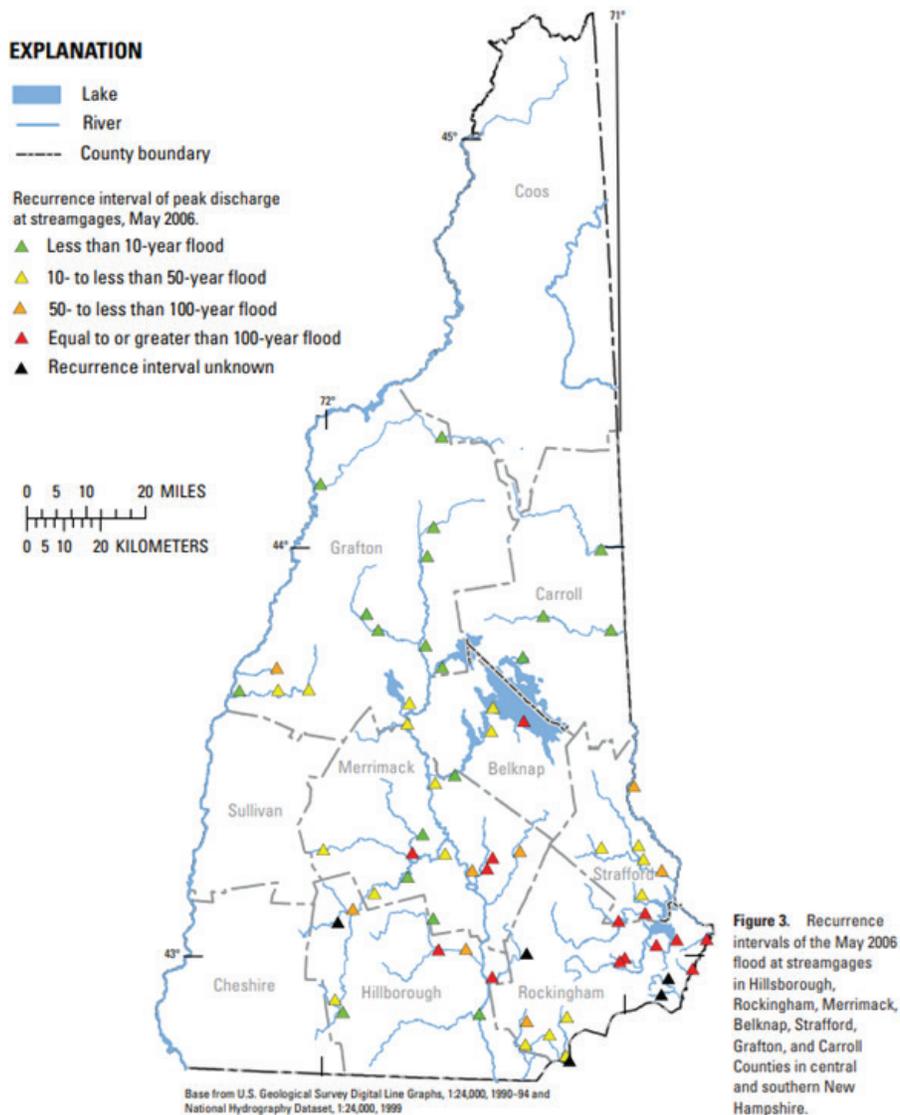
Disaster declarations for climate events (2011-2024) from iParametrics; geographic boundaries from U.S. Census TIGER/Line Shapefiles (2023); congressional representation boundaries from USDOT BTS (2024); population data from U.S. Census ACS (2018-2022, 5-Year Estimate). Congressional districts were assigned to counties using spatial analysis, with a minimum 5% area overlap threshold between county and district boundaries.

* In instances where tribal land is affected, federal disaster declarations may count the same event twice.

How did the 2006 Mother’s Day flood compare to other floods in New Hampshire? The state’s flooding records date back to the early 1900s, with the first recorded flood in 1927. Historical records show that between four and seven inches of rain fell on already saturated ground in Claremont, causing the Connecticut River to rise dramatically. Floodwater reached approximately 20 feet, establishing what remains the flood of record along the Connecticut River in New Hampshire.

In 1936 and again in 1938 New Hampshire experienced significant rain events that dropped over 10 inches of precipitation, causing widespread flooding along the Connecticut, Pemigewasset, Merrimack, and Piscataqua Rivers.

The US Geologic Survey reported that the May 2006 flood was similar to the October 1996 flood in terms of total precipitation. The key difference was ground conditions were more saturated leading to the May 2006 flood. The map below shows the stream gages across the state during the May 2006 flood. At 14 of these gages along the Merrimack River Valley and Seacoast, discharge rates equaled or exceeded the 1 percent chance annual flood level (previously known as the 100-year flood). This verification underscores the need for floodplain regulations designed to account for the 1 percent annual chance flood.



Flooding in New Hampshire has historically been dominated by springtime snowmelt driven floods. Since 1996, however, there has been a distinct change in this pattern. In general, New Hampshire experiences cold season – snowmelt driven floods, and warm season – extreme precipitation driven floods. In the past, variations in precipitation in the warm season did not significantly change the seasonality and variability of flooding. Since 1996, there has been little change in the frequency and intensity of cold season flooding across inland areas, while warm season flooding has become more frequent and intense. This has led to an increase in susceptibility to changes in extreme precipitation for inland areas across New Hampshire. With this change in flooding seasonality comes a change in the behavior of flooding in these areas.



Since 1968 FEMA has established development guidelines for areas within the 1 percent annual chance floodplain through the National Flood Insurance Program (NFIP). Communities choosing to participate in the program must establish regulations to ensure safe flood-informed development within these areas. These regulations are in place to ensure that when a flood like the 2006 Mother's Day flood occurs, injuries and infrastructure damage are as low as possible. Additionally, residents within participating communities are eligible to purchase flood insurance through NFIP, often for generally lower premiums than private insurers. Communities that adopt standards exceeding the minimum regulations may also be able to participate in the Community Rating System, which rewards stronger floodplain management practices with discounted NFIP premiums for residents. As well as participating in NFIP, New Hampshire has the Silver Jackets, an interagency team dedicated to improving flood resilience across the state. It was established in 2011 as the Pre- and Post-Incident Response and Recovery Team before the nationwide Silver Jackets program was created in 2015.

The New Hampshire Silver Jackets is a partnership of state and federal agencies involved in the management, development, and protection of floodplains. Members include include the New Hampshire Department of Safety Division of Homeland Security and Emergency Management, Department of Transportation, Department of Environmental Services, Department of Business and Economic Affairs, Department of Natural and Cultural Resources, Fish and Game, Natural Resources Conservation Service, White Mountain National Forest, Army Corps of Engineers, National Weather Service, and Federal Emergency Management Agency.



St. Paul's School, Concord (left)



Lamprey River, Raymond (right)



Milton Dam (left)



Suncook River (right)