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# Flood of May 2006 in New Hampshire

Open-File Report 2007–1122

U.S. Department of the Interior
U.S. Geological Survey

**Cover.** Photograph showing Cocheco River near Rochester, New Hampshire streamgage during the flood of May 2006.

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**U.S. Department of the Interior**
**U.S. Geological Survey**

**U.S. Department of the Interior**
DIRK KEMPTHORNE, Secretary

**U.S. Geological Survey**
Mark D. Myers, Director

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# Contents



## Figures

## Tables



## Conversion Factors and Datums

| Multiply | By | To obtain |
|---|---|---|
| | Length | |
| inch (in.) | 2.54 | centimeter (cm) |
| inch (in.) | 25.4 | millimeter (mm) |
| foot (ft) | 0.3048 | meter (m) |
| mile (mi) | 1.609 | kilometer (km) |
| | Area | |
| square mile ($mi^2$) | 2.590 | square kilometer ($km^2$) |
| | Flow rate | |
| cubic foot per second ($ft^3/s$) | 0.02832 | cubic meter per second ($m^3/s$) |

Horizontal coordinate information is referenced to the North American Datum of 1927 (NAD 27).

Vertical coordinate information is referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29) and North American Vertical Datum of 1988 (NAVD 88).

# Flood of May 2006 in New Hampshire

By Scott A. Olson

## Abstract

From May 13–17, 2006, central and southern New Hampshire experienced severe flooding caused by as much as 14 inches of rainfall in the region. As a result of the flood damage, a presidential disaster declaration was made on May 25, 2006, for seven counties—Rockingham, Hillsborough, Strafford, Merrimack, Belknap, Carroll, and Grafton. Following the flooding, the U.S. Geological Survey, in a cooperative investigation with the Federal Emergency Management Agency, determined the peak stages, peak discharges, and recurrence-interval estimates of the May 2006 flood at 65 streamgages in the counties where the disaster declaration was made. Data from flood-insurance studies published by the Federal Emergency Management Agency also were compiled for each streamgage location for comparison purposes.

The peak discharges during the May 2006 flood were the largest ever recorded at 14 long-term (more than 10 years of record) streamgages in New Hampshire. In addition, peak discharges equaled or exceeded a 100-year recurrence interval at 14 streamgages and equaled or exceeded a 50-year recurrence interval at 22 streamgages. The most severe flooding occurred in Rockingham, Strafford, Merrimack, and eastern and northern Hillsborough Counties.

## Introduction

Major flooding in central and southern New Hampshire from May 13–17, 2006, resulted in significant damage to public and personal property. Roads were damaged and numerous residential areas were evacuated for several days. As a result of the widespread damage caused by the flooding, President George W. Bush declared a disaster area in seven counties in New Hampshire on May 25, 2006. In response to this declaration, the U.S. Geological Survey (USGS), in cooperation with the Federal Emergency Management Agency (FEMA), measured or computed flood data at 65 streamgages within the disaster declaration area.

This report documents the flood of May of 2006 by presenting the flood data collected at the streamgages (48 active and 17 discontinued) in central and southern New Hampshire. The flood data include peak-stage data, peak-discharge data, flow-frequency curves, and estimates of flood recurrence intervals at each streamgage. In addition, data were compiled from FEMA flood-insurance studies for comparison purposes. The active streamgages included 37 operated by the USGS, 8 operated by the New Hampshire Department of Environmental Services (NHDES), 2 operated by the U.S. Army Corps of Engineers (USACE), and 1 operated privately. All 17 discontinued streamgages were those that had been operated by the USGS. A description of each streamgage location included in this investigation is listed in table 1 (in back of report). All data contained in this report should be considered provisional and, therefore, subject to revision.

### Description of Study Area

The New Hampshire counties declared in the disaster comprise a land area of 5,923 $mi^2$ in the northeastern United States. Land altitudes range from sea level along the coast to greater than 4,000 ft NAVD 88 in the north-central part of New Hampshire. The climate of New Hampshire is humid. Precipitation is distributed fairly evenly across the state and averages about 43 in. per year except in regions of high elevation, which can receive an additional 10 to 15 in. of precipitation annually. The statewide average precipitation for the month of May is approximately 3.75 in. (Northeast Regional Climate Center, 2006).

### Storm Characteristics

The storms of May 11–15, 2006, produced nearly 14 in. of rainfall in the coastal regions of New Hampshire (National Oceanic and Atmospheric Administration, 2006a) and up to 11 in. in the south-central part of the state (National Oceanic and Atmospheric Administration, 2006b). The rainfall began on May 11, 2006. As an on-shore flow developed, copious amounts of moisture were drawn in from the Atlantic Ocean. The rainfall continued for more than 100 hours with the heaviest rainfall occurring on May 13 and 14, 2006. The rainfall amounts decreased abruptly in the northern and western regions of the state (fig. 1). In addition to the precipitation amounts of May 11–15, 2006, being exceptional, the month of May 2006 was the second wettest May in New Hampshire on record (National Oceanic and Atmospheric Administration, 2006c) and the wettest in Concord, New

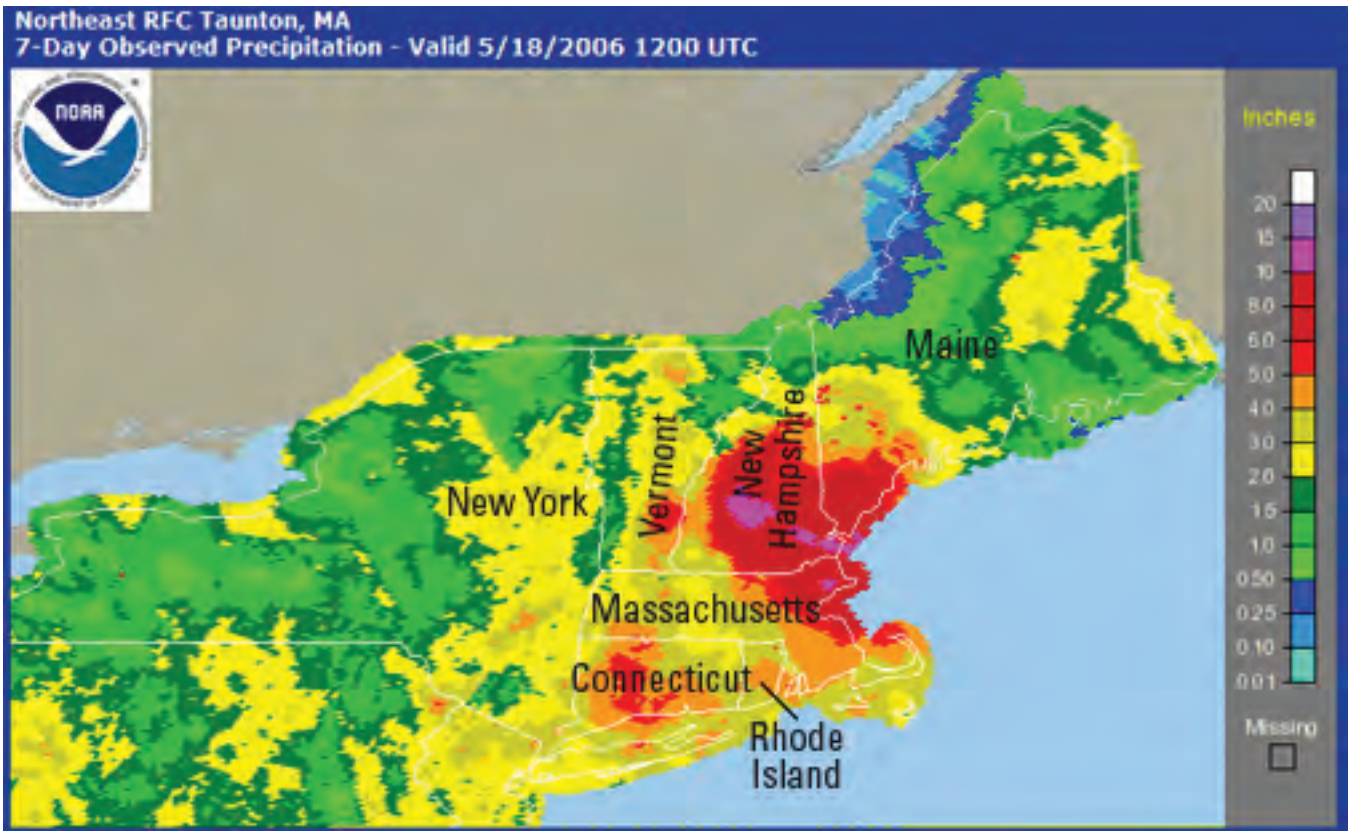


**Figure 1.** The 7-day precipitation totals ending on May 18, 2006, northeastern United States. (From Northeast River Forecast Center, 2006.)

Hampshire since 1868 (Erick Boehmler, Northeast River Forecast Center, written commun., November 3, 2006).

The amount of precipitation occurring May 11–15, 2006, was similar to the amount of precipitation that occurred October 20–22, 1996, when as much as 13 in. of precipitation fell across southeastern New Hampshire (National Oceanic and Atmospheric Administration, 1996). The October 1996 precipitation resulted in discharges that were the maximum for the period of record at several streamgages in southeastern New Hampshire. The peak discharge of October 21, 1996, remains the peak discharge of record at the Oyster River near Durham, New Hampshire, streamgage. The primary difference between the events of May 2006 and October 1996 was the wetter antecedent ground conditions in May of 2006 (National Oceanic and Atmospheric Administration, 2006b) resulting in greater discharges during May of 2006 at many streamgages.

## Peak-Stage Data

At active streamgages operated by the USGS, peak stages were retrieved directly from the stage data recorded at the streamgage, along with the precise date and time of the peak stage. At active streamgages not operated by the USGS, the peak stage with date and time was provided by the operator. All peak stage data from streamgages were rated excellent, which means that measurements are considered to be within 0.05 ft of the actual peak water surface.

At discontinued streamgages, USGS personnel identified and flagged the May 2006 high-water marks near the streamgage. The high-water marks typically consisted of debris lines, wash lines or mud lines left behind by the peak water elevation during the flood event. The flagged high-water marks were rated for accuracy. This accuracy rating is subjective and is based upon the type of high-water mark and the abundance of other confirming marks in the immediate vicinity (Benson and Dalrymple, 1967). The accuracy of the marks are defined as follows: A high-water mark having (1) an excellent rating is thought to be within 0.05 ft of the actual water surface, (2) a good rating is expected to have been within 0.1 ft, (3) a fair rating is within 0.2 ft, and (4) a poor rating may be greater then 0.2 ft from the true peak water surface.

The high-water marks at the discontinued streamgages were then referenced to the datum of the streamgage using closed level-loop surveying techniques. The streamgage datum is the local base elevation that was used in developing the stage-discharge relation when the streamgage was active. As the high-water marks were referenced to the streamgage datum, the marks represented the peak stages of the flood-

ing at the discontinued streamgage. The estimated date of the peak stages at discontinued streamgages was estimated from observations by residents living near the streamgage or from peak-stage hydrographs from active streamgages in the same or adjacent watersheds.

If a FEMA flood-insurance study containing flood-water elevations was available for the location of the discontinued or active streamgage, the peak stage at the streamgage was referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29) and the North American Vertical Datum of 1988 (NAVD 88) using closed level-loop surveying techniques. Referencing the peak stage to NGVD 29 and NAVD 88 allows the high-water mark to be compared to the existing FEMA flood-insurance study data at the streamgage location. Other selected streamgages also were referenced to NGVD 29 and NAVD 88 regardless of the availability of a flood-insurance study at the streamgage location. The peak-stage data for all sites included in this investigation are shown in table 2 (in back of report). The location of each streamgage is shown, by county, in figures 2A–2G (in back of report).

## Peak-Discharge Data

Peak discharges for most streamgages were determined by applying the peak stage to the most current stage-discharge relation developed for the streamgage. At discontinued streamgages there is the possibility that the stage-discharge relation has changed during the years that the site has been inactive. Each of the discontinued streamgages, however, is at a site having a stable channel or control, and the most recent stage-discharge relation available for the site will provide reasonable results.

There were four exceptions to using the stage-discharge relation for determining the peak discharge of the May 2006 flood:

1. At 12 streamgages (table 2, footnote b), the current stage-discharge relation was undeveloped for the unusually large peak stage. In such cases, the stage-discharge relation was graphically extended to the peak stage using the trend of the upper end of the stage-discharge relation. The error introduced to the peak-discharge value is unknown when extending the stage-discharge relation without manually measured discharges.

2. At three streamgages (table 2, footnote d), backwater from hydraulic conditions in the channel downstream of the streamgage prevented the use of the stage-discharge relation to determine the peak discharge from the peak stage. The peak discharges at these streamgages are unknown. All three of these streamgages had been discontinued.

3. At active streamgage 01100561, Spicket River near Methuen, MA (table 2, footnote n), there was a variable backwater condition during the May 2006 flooding. At the time of this publication, a peak discharge had not been computed; however, a discharge measurement of 2,260 $ft^3/s$ was made at a stage of 11.91 ft. The peak stage of the May 2006 flood was 12.15 ft.

4. At discontinued streamgage 01091000, South Branch Piscataquog River near Goffstown, NH (table 2, footnote l), the gage house and datum reference marks were destroyed during the construction of a new bridge prior to the May 2006 flood. Because the reference marks were destroyed, it was not possible to tie the high-water marks flagged at the site to the streamgage datum. Without high-water marks tied to the streamgage datum, the stage-discharge relation for the streamgage could not be used. The bridge, however, provided sufficient river constriction, and enough high-water marks were available upstream and downstream of the bridge to allow a discharge estimate to be made at the bridge using indirect techniques (Matthai, 1967). At this site, the high-water marks downstream of the bridge, the bridge opening, and channel and floodplain cross sections upstream and downstream of the bridge were surveyed and input into the U.S. Army Corps of Engineers (2006a) HEC-RAS program. Discharges were iteratively selected and input into the HEC-RAS program so that the resulting water-surface elevation output from the program matched the high-water marks surveyed upstream of the bridge. This hydraulic model calibrated to the high-water marks resulted in a discharge of 7,180 $ft^3/s$.

At 14 long-term (more than 10 years of record) streamgages, the peak discharge from the May 2006 flood was the maximum discharge for the period of record. These 14 streamgages are listed in table 2 with discharges with footnote “c” and include 2 streamgages with very long periods of record—Lamprey River near Newmarket (active since 1934) and Warner River at Davisville (period of record from 1940 to 1978 and 1999 to the present). The peak-discharge data for all sites included in this investigation are given in table 2.

## Flow-Frequency Analyses of the May 2006 Flooding

Flow-frequency curves were determined for all 65 streamgages included in this investigation. For 37 of the 65 streamgages, the guidelines in Bulletin 17B (U.S. Interagency Advisory Committee on Water Data, 1982) were used to determine flow-frequency curves. Bulletin 17B recommends the use of a log-Pearson Type III distribution for estimating flow frequency and provides procedures for weighting station skews, historical peaks, and detecting and treating outliers and trends. Software developed by the USGS to analyze peak-flow frequency (PeakFQ) was used for these computations (U.S. Geological Survey, 2006a). The peak-flow data used as input to the PeakFQ program were retrieved from the National Water Information System (U.S. Geological Survey, 2006b). When computing the flow-frequency curves, if peak

discharges at a streamgage were affected by regulation, the station skew—without weighting from the generalized skew as described in Bulletin 17B—was used for computing the frequency curve. If the May 2006 peak discharge was the annual peak for the 2006 water year, it was added to the peak-flow data prior to computing the frequency curves.

For 11 of the 65 streamgages, flood-control structures operated by the USACE are present in the basin. Flow-frequency data for 8 of these 11 streamgages were obtained from frequency curves developed by the USACE and published in FEMA flood-insurance studies (table 3, in back of report; footnote a). At 3 of the 11 streamgages, the flow-frequency curve published in the FEMA flood-insurance study was not developed by the USACE, and the flow-frequency curve was re-computed for this study following the Bulletin 17B guidelines and incorporating peak-flow data since the flood-control structures were constructed.

At 16 of the 65 streamgages in this investigation, the record length was insufficient—less than 10 years—for a flow-frequency analysis. (Bulletin 17B recommends at least 10 years.) At these sites, the flow-frequency curves were computed using the regression equations for estimating flow frequency developed by LeBlanc (1978). The resulting frequency curves were not adjusted for urbanization or regulation.

At one site, station 01080000, Lake Winnipesaukee at Weirs Beach, only stage data are available. The frequency data for this site were obtained from the flood-insurance study for the city of Laconia (Federal Emergency Management Agency, 1980a).

Results of the flow-frequency analyses are shown in table 3. The recurrence interval of the May 2006 peak flow at each streamgage was determined using the frequency analysis results. Peak discharge equaled or exceeded a 50-year flood at 22 streamgages; 20 of these were located in Rockingham, Merrimack, Strafford or northern and eastern Hillsborough Counties (fig. 3). Peak discharge equaled or exceeded a 100-year flood at 14 streamgages:

1. North River above NH125, near Lee;
2. Lamprey River near Newmarket;
3. Exeter River at Haigh Road, near Brentwood;
4. Dudley Brook near Exeter;
5. Mill Brook near NH108, at Stratham;
6. Winnicut River at Greenland, near Portsmouth;
7. Berrys Brook at Sagamore Road, near Portsmouth;
8. Little River at Woodland Road, near Hampton;
9. Poorfarm Brook near Gilford;
10. Warner River at Davisville;
11. Soucook River near Concord;
12. Soucook River at Pembroke Road, near Concord;
13. South Branch Piscataquog River near Goffstown; and
14. Merrimack River near Goffs Falls, below Manchester.

## Comparison of the May 2006 Flood Data to Flood-Insurance Studies

FEMA flood-insurance studies provide communities with discharges and water-surface-elevation profiles for the 10-, 50-, 100-, and 500-year floods for many water courses around which development has or is expected to occur. These data are used for planning purposes and for setting flood-insurance rates for structures within communities participating in the National Flood-Insurance Program. For streamgage locations included within a flood-insurance study, discharges and peak water-surface elevations (stage) were compiled from the appropriate study and are given in table 4 (in back of report). Discharges were obtained from the Summary of Discharges table for the reach that incorporated the streamgage location, and the peak water-surface elevations were extracted from the water-surface-elevation profiles. In cases where the streamgage location was not identified on the water-surface-elevation profiles, interpretation of the streamgage location was required.

The compiled flood-insurance study data are shown along with the peak stage and peak discharge for the May 2006 flood in table 4. The flow-frequency data obtained from the flood-insurance studies (table 4) often differ from the flow-frequency data determined for this investigation (table 3), because the methods used for determining the frequency curves and the availability of data for developing the frequency curves may be different.

In addition, the data in table 4 indicates that the water-surface-elevation profiles for some communities may need to be updated. For instance, at streamgage 01091500, Piscataquog River near Goffstown, the peak discharge in May 2006 was 10,100 $ft^3/s$. The recurrence interval for this discharge, as reported in the Goffstown flood-insurance study (Federal Emergency Management Agency, 1978b) is between 50 and 100 years. One would expect the peak stage in May 2006 to fall between the 50- and 100-year water-surface-elevation profiles at this location; however, the peak stage for the May 2006 flood was 187.20 ft NGVD 29, which is greater than the 100-year water-surface-elevation reported in the Goffstown flood-insurance study. There are 14 streamgage sites at which the observed peak discharge of the May 2006 flood is bracketed by different recurrence intervals than the recurrence intervals that bracket the observed stage or water-surface elevation (table 4). These discrepancies could be due to changes to the river channel, changes in land use, or changes to other physical data used in the hydraulic modeling performed for the study.

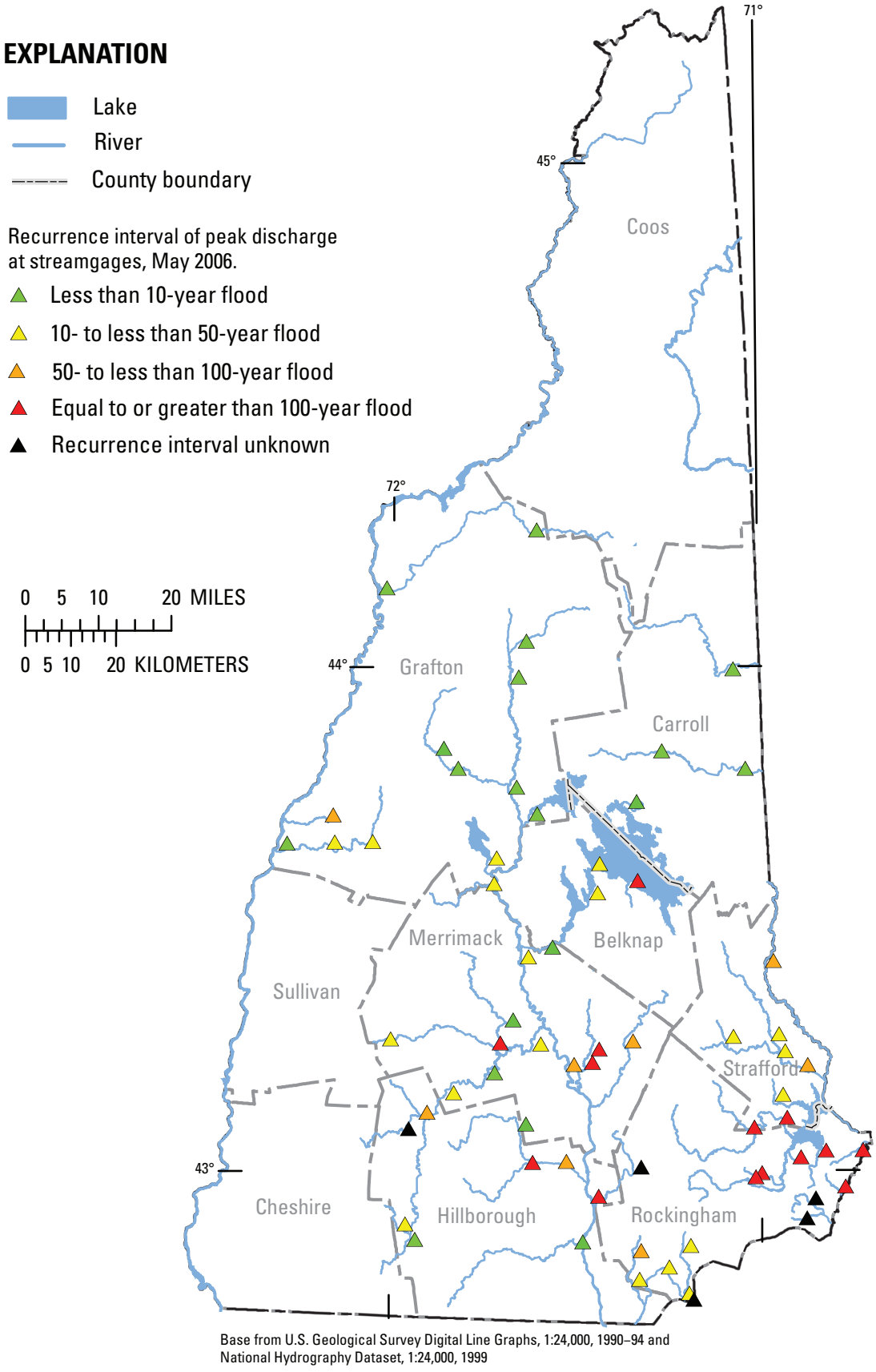


**Figure 3.** Recurrence intervals of the May 2006 flood at streamgages in Hillsborough, Rockingham, Merrimack, Belknap, Strafford, Grafton, and Carroll Counties in central and southern New Hampshire.

## Summary

From May 13–17, 2006, central and southern New Hampshire experienced severe flooding caused by as much as 14 in. of rainfall in the region, and seven counties were declared a disaster area. The U.S. Geological Survey, in a cooperative investigation with the Federal Emergency Management Agency (FEMA), measured or computed flood data at 65 streamgages in the disaster area. These data include peak stages, peak discharges, and recurrence interval estimates for the May 2006 flooding and data compiled from FEMA flood-insurance studies for comparison purposes.

At 14 long-term (more than 10 years of record) streamgages, the peak discharge in May 2006 was the maximum discharge for the period of record. These streamgages include the Lamprey River near Newmarket (active since 1934), and Warner River at Davisville, (period of record from 1940 to 1978 and 1999 to the present). At the Merrimack River at Goffs Falls in Manchester, NH, the May 2006 peak discharge of 74,700 $ft^3/s$ was exceeded only by the historical floods of 1936 and 1938. Peak discharges equaled or exceeded a 100-year recurrence interval at 14 streamgages and equaled or exceeded a 50-year recurrence interval at 22 streamgages. The most severe flooding was in Rockingham, Strafford, Merrimack, and eastern and northern Hillsborough Counties.

## Acknowledgments

The author would like to thank Steve Doyon from NHDES for providing peak-stage and peak-discharge data from the streamgages that NHDES operates. Thanks also go to Curtis Crow, Kerrie Hartshorn and other staff from the New Hampshire Department of Transportation's (NHDOT) Survey Unit for providing elevation control point data and setting temporary elevation reference marks near select streamgages. Finally, the author would like to express appreciation to USGS staff: Kenneth Toppin, Chandlee Keirstead, Heather Sirotnak, Jeffrey Grey, Robert Flynn, Glenn Berwick, Richard Kiah, and Sanborn Ward—who assisted with collection and analysis of the data in this report, and Gregory Stewart and Robert Flynn—who provided technical reviews of this investigation.

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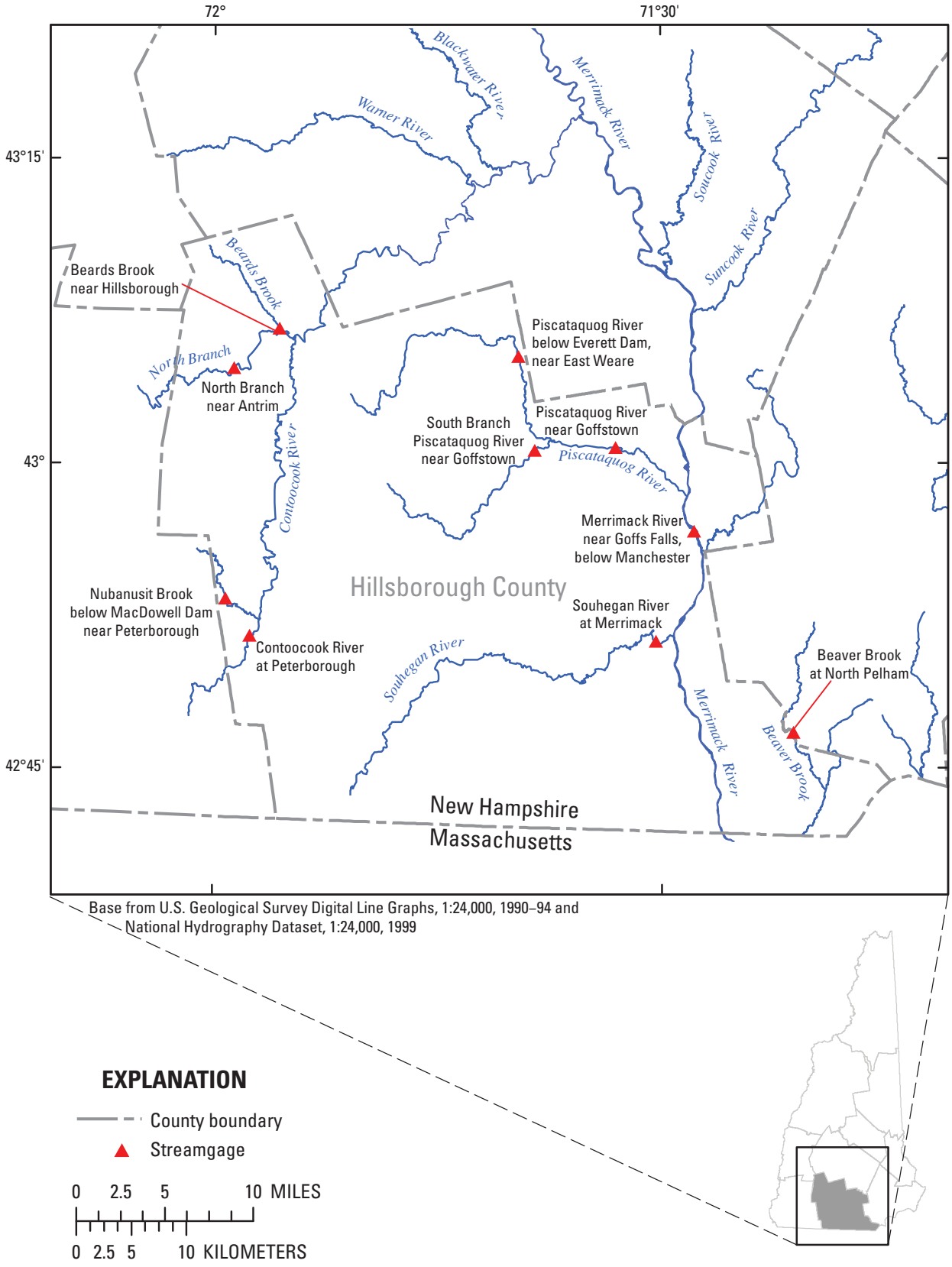


**Figure 2A.** Location of streamgages having peak stage and discharge data for the May 2006 flooding in Hillsborough County, New Hampshire.

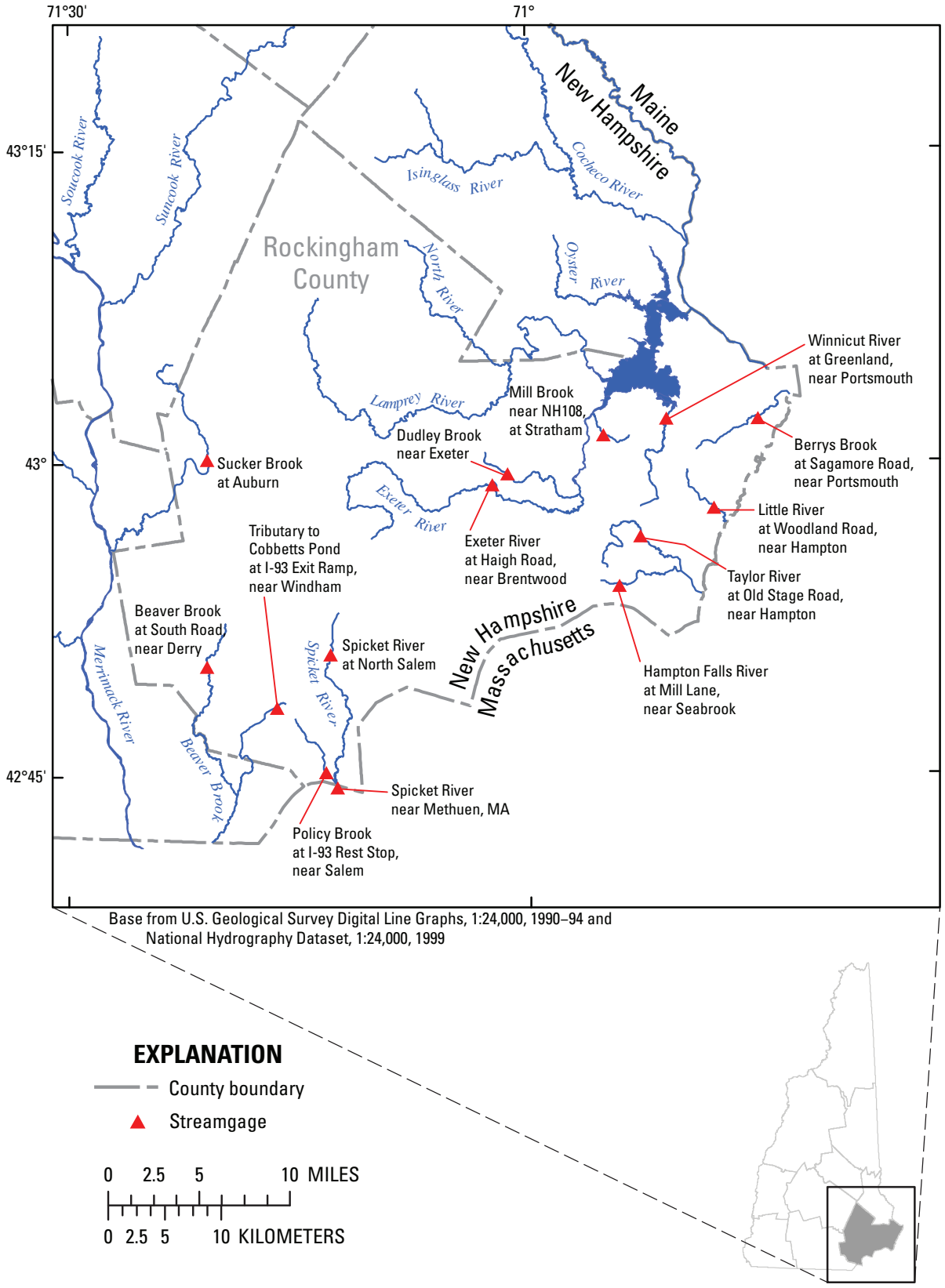


**Figure 2B.** Location of streamgages having peak stage and discharge data for the May 2006 flooding in Rockingham County, New Hampshire.

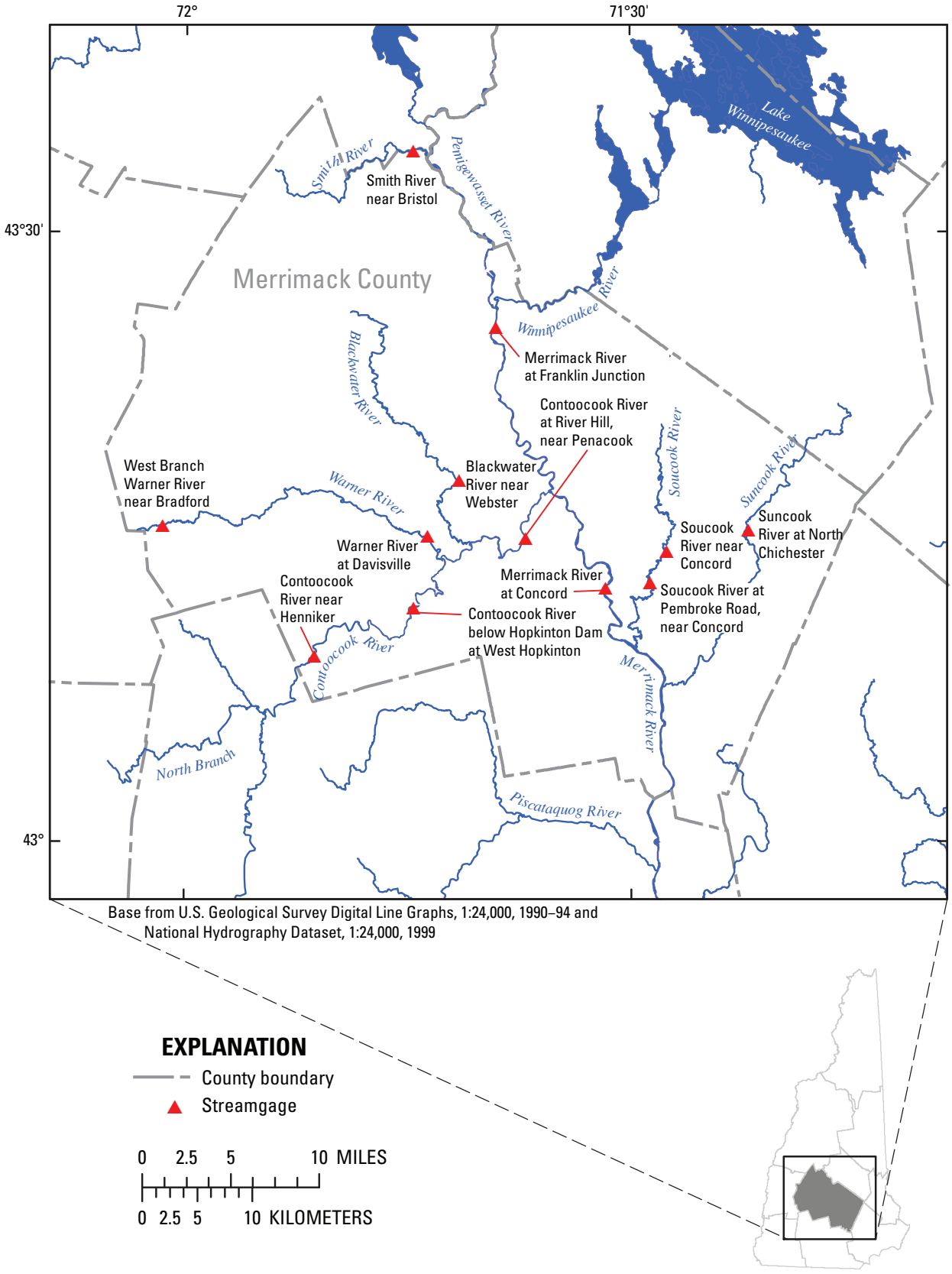


**Figure 2C.** Location of streamgages having peak stage and discharge data for the May 2006 flooding in Merrimack County, New Hampshire.

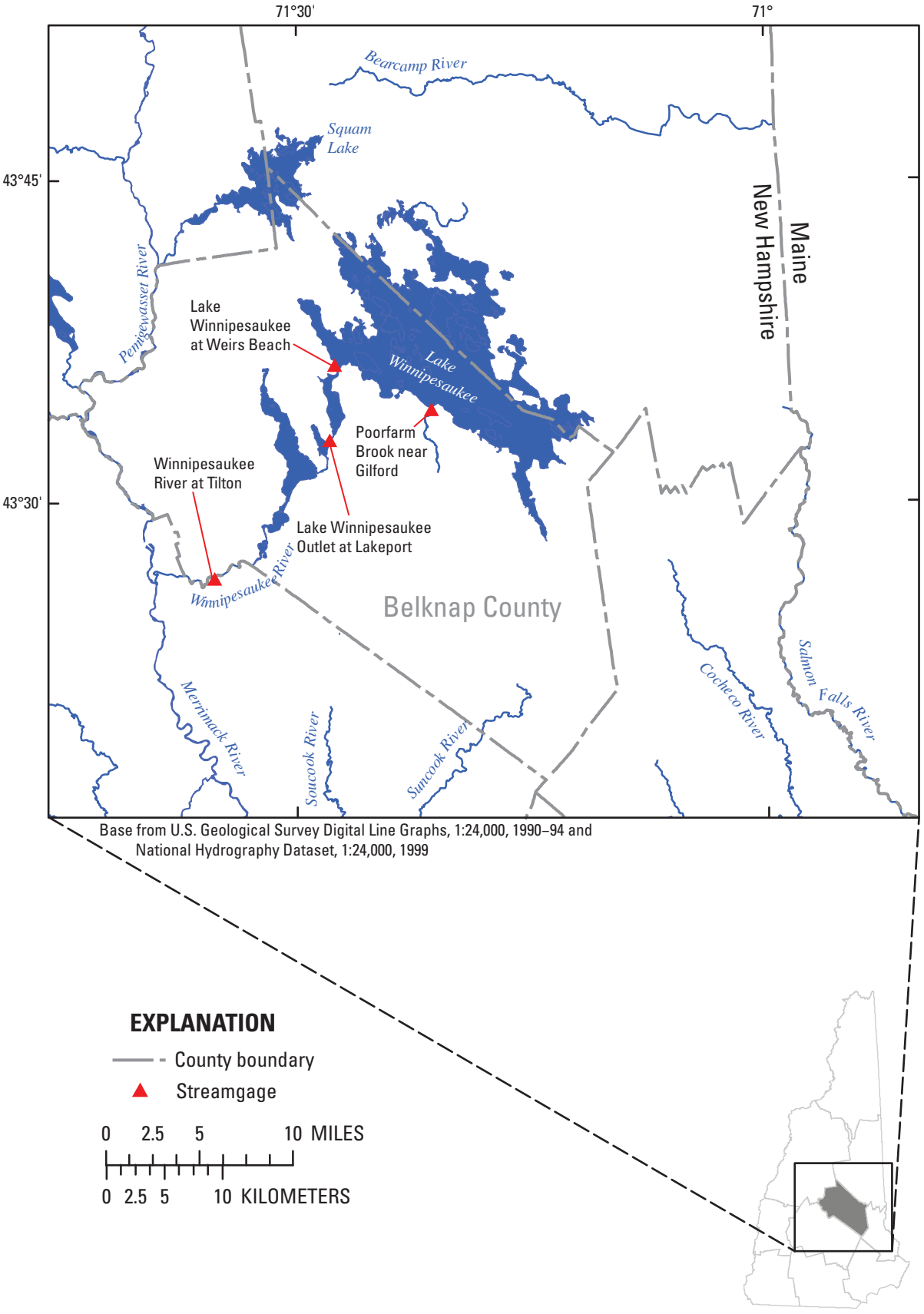


**Figure 2D.** Location of streamgages having peak stage and discharge data for the May 2006 flooding in Belknap County, New Hampshire.

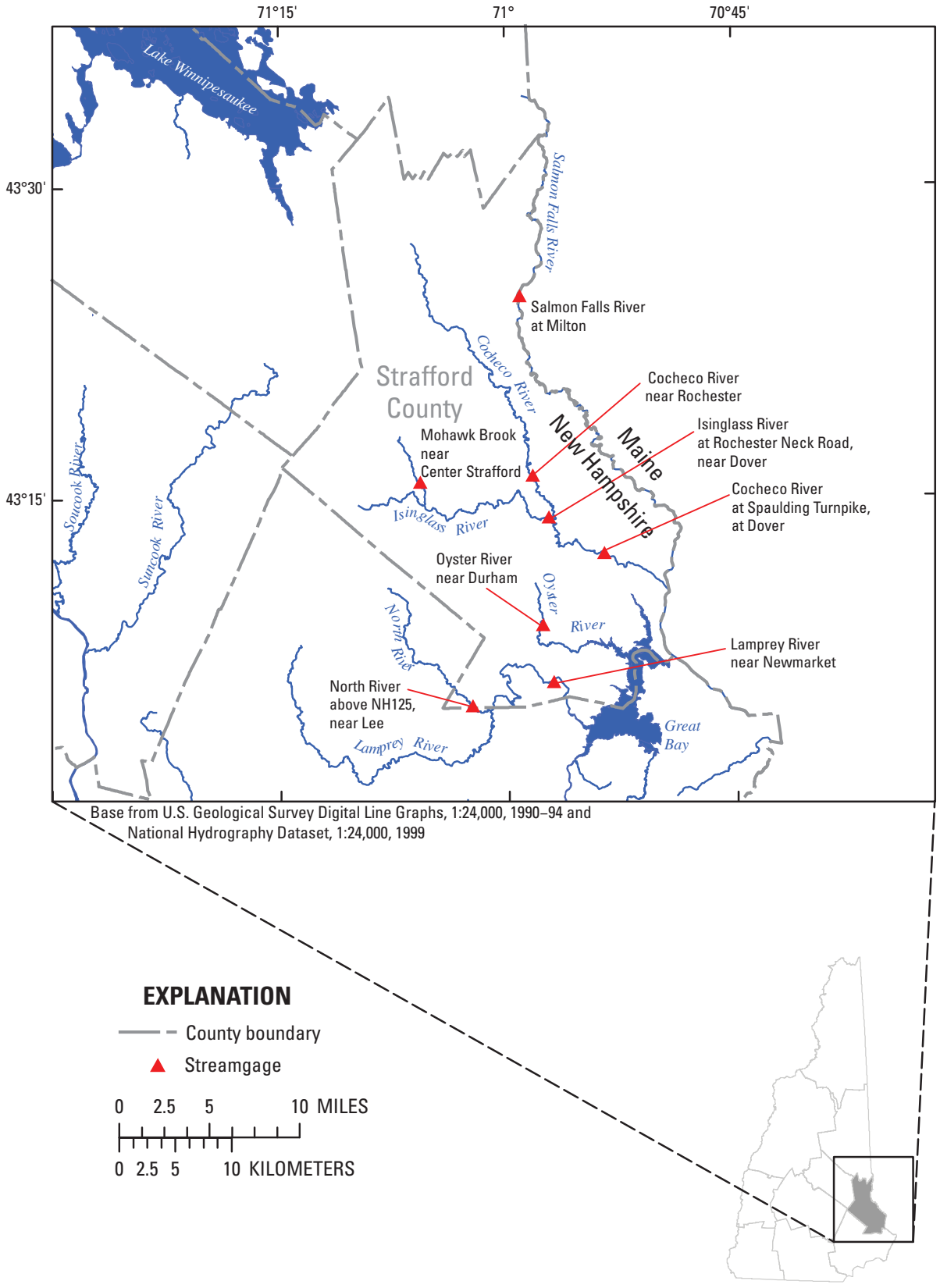


**Figure 2E.** Location of streamgages having peak stage and discharge data for the May 2006 flooding in Strafford County, New Hampshire.

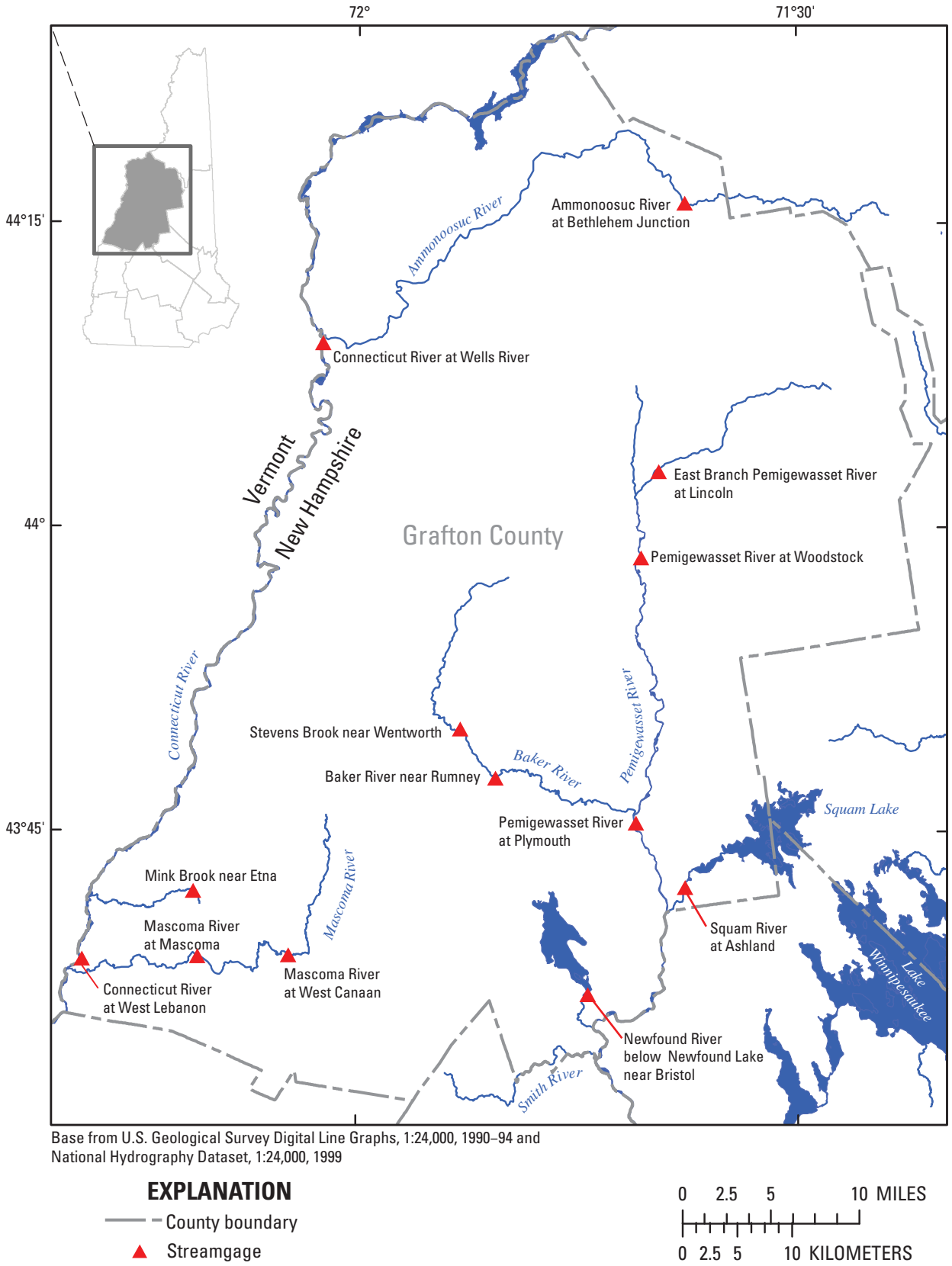


**Figure 2F.** Location of streamgages having peak stage and discharge data for the May 2006 flooding in Grafton County, New Hampshire.

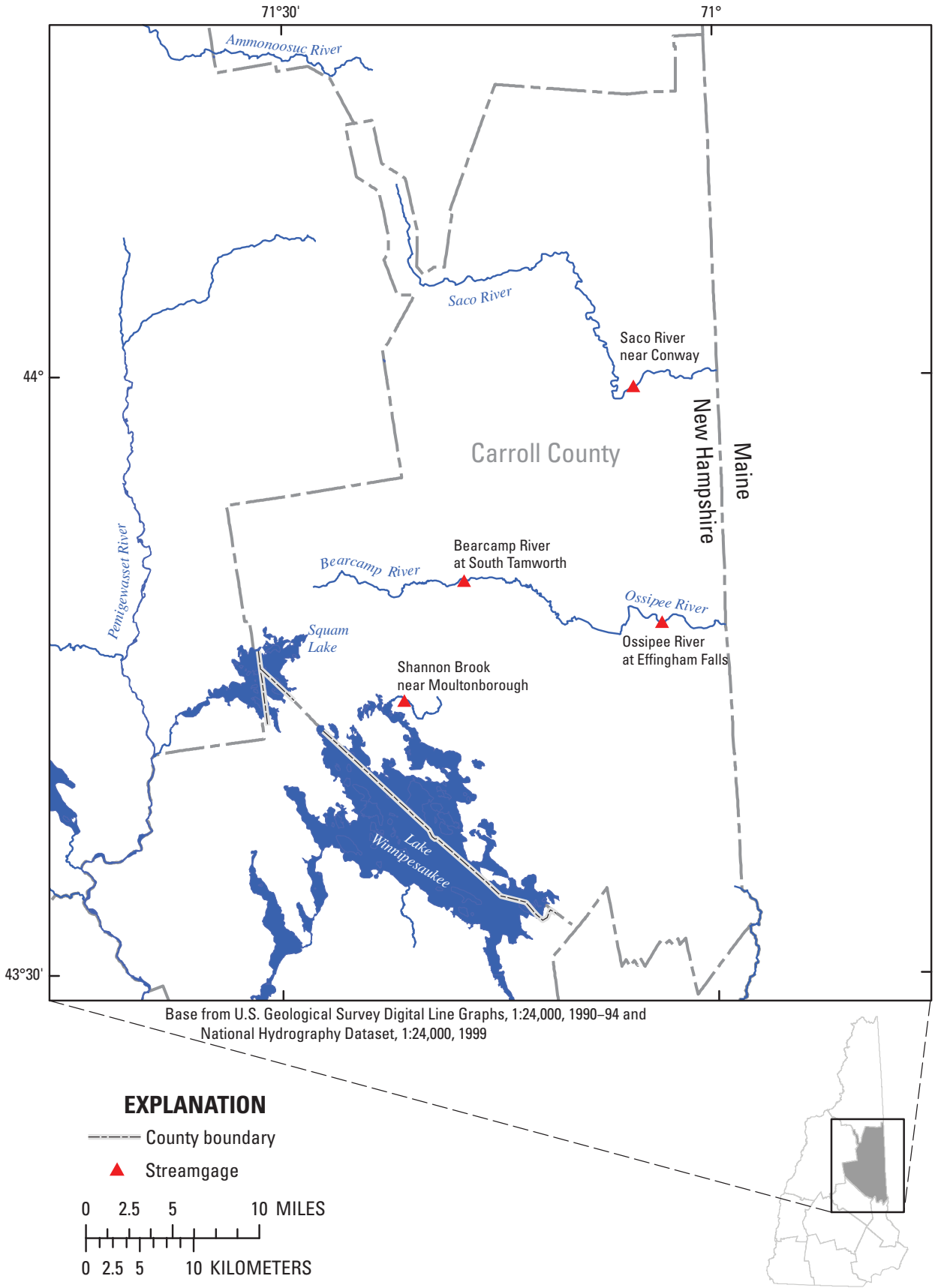


**Figure 2G.** Location of streamgages having peak stage and discharge data for the May 2006 flooding in Carroll County, New Hampshire.

# Tables 1–4

**Table 1.** Description of streamgages used to characterize the floods of May 2006 in central and southern New Hampshire.

[USGS, U.S. Geological Survey; mi², square miles; lat, latitude; long, longitude; NHDES, New Hampshire Department of Environmental Services; ft, feet; USACE, U.S. Army Corps of Engineers]

| USGS streamgage number | Streamgage name | Status | Operator | Drainage area (mi²) | Streamgage location |
|---|---|---|---|---|---|
| 01064500 | Saco River near Conway | Active | USGS | 385 | Lat 43°59'27", long 71°05'29", Carroll County, on left bank, at Odell Falls, 0.4 mi upstream of US Route 302, 1.5 mi northeast of the intersection of State Routes 16 and 113 in Conway, 1.8 mi downstream of mouth of Swift River. |
| 01064801 | Bearcamp River at South Tamworth | Active | USGS | 67.6 | Lat 43°49'48", long 71°17'18", Carroll County, on right bank, at downstream side of abandoned stone abutments, 0.7 mi upstream of Sanger Brook, 0.8 mi east of Bemis Mountain Road and State Route 25 intersection at South Tamworth, 1.0 mi downstream of Cold Brook, and 1.1 mi west of State Route 25 and State Route 113 intersection at Whittier. |
| 01065000 | Ossipee River at Effingham Falls | Active | NHDES[a] | 330 | Lat 43°47'42", long 71°03'35", Carroll County, on left bank, 850 ft upstream of State Route 153 bridge, 1,400 ft downstream of dam at outlet of Ossipee Lake, and 0.2 mi west of the intersection of State Routes 153 and 25 at Effingham Falls. |
| 01072100 | Salmon Falls River at Milton | Active | NHDES[a] | 108 | Lat 43°24'48", long 70°59'15", Strafford County, on right bank, just downstream of Milton Pond Dam and 300 ft southeast of State Route 125 and Prospect Hill Road intersection in Milton. |
| 01072800 | Cocheco River near Rochester | Active | USGS | 85.7 | Lat 43°16'06", long 70°58'27", Strafford County, on right bank, directly behind Rochester Country Club, 2,200 ft upstream of treatment lagoons, and 0.5 mi southeast of Main Street and Church Street intersection in Gonic. |
| 01072850 | Mohawk Brook near Center Strafford | Discontinued | USGS | 8.87 | Lat 43°15'47", long 71°05'50", Strafford County, on left bank, 1,900 ft downstream of State Route 202A bridge, and 1.5 mi east of the intersection of State Routes 126 and 202A in Center Strafford. |
| 01072870 | Isinglass River at Rochester Neck Road, near Dover | Active | USGS | 73.6 | Lat 43°14'05", long 70°57'25", Strafford County, 600 ft upstream of Rochester Neck Road bridge, and 0.7 mi upstream of mouth on Cocheco River. |
| 01072880 | Cocheco River at Spaulding Turnpike, at Dover | Active | Private[a] | 173 | Lat 43°12'21", long 70°53'47", Strafford County, on right bank, 100 ft downstream of Spaulding Turnpike bridge over Cocheco River. |
| 01073000 | Oyster River near Durham | Active | USGS | 12.1 | Lat 43°08'55", long 70°57'56", Strafford County, on left bank, 50 ft upstream of Old Concord Road bridge, and 0.6 mi east of US Route 4 and State Route 155 intersection. |
| 01073460 | North River above NH125, near Lee | Active[b] | USGS | 35.6 | Lat 43°05'01", long 71°02'32", Strafford County, 2,500 ft upstream of State Route 125 bridge, and 1.6 mi upstream of mouth on Lamprey River. |
| 01073500 | Lamprey River near Newmarket | Active | USGS | 183 | Lat 43°06'09", long 70°57'11", Strafford County, on right bank, 200 ft upstream of Packers Falls and Packer Falls Road bridge. |
| 01073587 | Exeter River at Haigh Road, near Brentwood | Active | USGS | 63.5 | Lat 42°59'04", long 71°02'20", Rockingham County, on right bank, 10 ft downstream of Haigh Road Bridge. |
| 01073600 | Dudley Brook near Exeter | Discontinued | USGS | 4.97 | Lat 42°59'35", long 71°01'20", Rockingham County, on right bank, upstream side of breached dam, 100 ft upstream of State Route 111A culvert, and 180 ft west of State Route 111A and Deer Hill Road intersection. |
| 01073750 | Mill Brook near NH108, at Stratham | Discontinued | USGS | 2.3 | Lat 43°01'24", long 70°55'04", Rockingham County, on right bank, at downstream most culvert of the Stratham traffic circle at the intersection of State Routes 108 and 33 in Stratham. |

**Table 1.** Description of streamgages used to characterize the floods of May 2006 in central and southern New Hampshire.—Continued

[USGS, U.S. Geological Survey; mi$^2$, square miles; lat, latitude; long, longitude; NHDES, New Hampshire Department of Environmental Services; ft, feet; USACE, U.S. Army Corps of Engineers]

| USGS streamgage number | Streamgage name | Status | Operator | Drainage area (mi$^2$) | Streamgage location |
|---|---|---|---|---|---|
| 01073785 | Winnicut River at Greenland, near Portsmouth | Active | USGS | 14.1 | Lat 43°02'12", long 70°50'55", Rockingham County, on left bank, 20 ft upstream of State Fish and Game Department dam, 150 ft downstream of State Route 33 bridge, and 1.1 mi west of the intersection of State Routes 33 and 151 in Greenland. |
| 01073810 | Berrys Brook at Sagamore Road, near Portsmouth | Discontinued | USGS | 5.38 | Lat 43°02'10", long 70°44'59", Rockingham County, on right bank, at upstream side of Sagamore Road, 0.7 mi south of State Route 1A and Sagamore Road intersection at Foyers Corner in Rye. |
| 01073822 | Little River at Woodland Road, near Hampton | Active[b] | USGS | 6.12 | Lat 42°57'53", long 70°47'51", Rockingham County, on left bank, at upstream side of Woodland Road, and 275 ft north of Woodland Road and State Route 111 intersection in North Hampton. |
| 01073838 | Taylor River at Old Stage Road near Hampton | Discontinued | USGS | 8.41 | Lat 42°56'33", long 70°52'40", Rockingham County, on left bank, at upstream side of dam, 100 ft upstream of Old Stage Road bridge, and 650 ft southwest of Old Stage Road and Timber Swamp Road intersection at Coffins Mill in Hampton. |
| 01073848 | Hampton Falls River at Mill Lane, near Seabrook | Discontinued | USGS | 3.61 | Lat 42°54'11", long 70°54'05", Rockingham County, on right bank, 150 ft north of Mill Lane and Weare Road intersection, 500 ft upstream of Mill Lane culvert, and 1.6 mi northwest of US Route 1 and State Route 107 intersection in Seabrook. |
| 01074520 | East Branch Pemigewasset River at Lincoln | Active | USGS | 115 | Lat 44°02'51", long 71°39'37", Grafton County, on right bank, at upstream side of old crib dam, locally known as "the old hole," 800 ft upstream of Cooper Memorial Drive bridge, 1,900 ft downstream of Pollard Brook, 1.8 miles above mouth, 0.8 mi east of Connector Road and State Route 112 intersection in Lincoln. |
| 01075000 | Pemigewasset River at Woodstock | Active | USGS | 193 | Lat 43°58'34", long 71°40'48", Grafton County, on right bank at downstream side of abandoned bridge abutments, immediately east of Woodstock Fire Station, 300 ft upstream of southern most State Route 175 bridge, and 300 ft east of North Station Road and State Route 175 intersection in Woodstock. |
| 01075800 | Stevens Brook near Wentworth | Discontinued | USGS | 2.94 | Lat 43°50'10", long 71°53'09", Grafton County, on left bank, 150 ft upstream of Buffalo Road bridge, 250 ft southeast of Zoe Road and Buffalo Road intersection, 1,800 ft upstream of mouth, and 1.7 mi northwest of Sand Hill Road and State Route 25. |
| 01076000 | Baker River near Rumney | Active | USGS | 143 | Lat 43°47'44", long 71°50'45", Grafton County, on right bank, 200 ft upstream of small right bank tributary, 1,900 ft upstream of mouth of Halls Brook, 1,400 ft west of Halls Brook Road and State Route 25 intersection, 1.7 mi southeast of Sand Hill Road and State Route 25 intersection in West Rumney. |
| 01076500 | Pemigewasset River at Plymouth | Active | USGS | 622 | Lat 43°45'33", long 71°41'10", Grafton County, on right bank, 150 ft downstream of Holderness Road bridge in Plymouth, 1,700 ft downstream of Baker River, and 0.8 mi south of State Route 3A and US Route 3 intersection. |
| 01077000 | Squam River at Ashland | Active | NHDES[a] | 57.6 | Lat 43°42'19", long 71°37'49", Grafton County, on right bank, 250 ft downstream of the Little Squam Lake Dam, 300 ft upstream of River Street bridge, and 300 ft north of River Street and US Route 3 intersection. |

**Table 1.** Description of streamgages used to characterize the floods of May 2006 in central and southern New Hampshire.—Continued

[USGS, U.S. Geological Survey; mi², square miles; lat, latitude; long, longitude; NHDES, New Hampshire Department of Environmental Services; ft, feet; USACE, U.S. Army Corps of Engineers]

| USGS streamgage number | Streamgage name | Status | Operator | Drainage area (mi²) | Streamgage location |
|---|---|---|---|---|---|
| 01077510 | Newfound River below Newfound Lake near Bristol | Active | NHDES | 98 | Lat 43°37'02", long 71°44'28", Grafton County, at outlet of Newfound Lake, 75 ft downstream of Newfound Lake Dam, 500 ft downstream of West Shore Road, and 800 ft west of West Shore Road and State Route 3A intersection in Bristol. |
| 01078000 | Smith River near Bristol | Active | USGS | 85.8 | Lat 43°33'59", long 71°44'54", Merrimack County, on right bank, 2,200 ft north of Borough Road and Axtell Road intersection, and 4,700 ft upstream of Borough Road Bridge in Bristol. |
| 01079602 | Poorfarm Brook near Gilford | Discontinued | USGS | 6.38 | Lat 43°34'22", long 71°21'20", Belknap County, on right bank, at downstream side of Scenic Drive bridge, 250 ft downstream of State Route 11, 500 ft west of Scenic Drive and State Route 11 intersection, 950 ft upstream of mouth on Lake Winnipesaukee. |
| 01079900 | Shannon Brook near Moultonborough | Discontinued | USGS | 6.99 | Lat 43°43'49", long 71°21'28", Carroll County, on left bank, immediately upstream of State Route 109 bridge (gage house is 20 ft downstream of bridge), 3,800 ft south of the intersection of State Routes 109 and 171 in Moultonborough, and 1.4 mi upstream of mouth on Lake Winnipesaukee. |
| 01080000 | Lake Winnipesaukee at Weirs Beach | Active | NHDES[a] | 363 | Lat 43°36'27", long 71°27'34", Belknap County, 600 ft east of Weirs Beach Post Office, 0.3 mi northwest of US Route 3 bridge across Paugus Bay at Weirs Beach. |
| 01080500 | Lake Winnipesaukee Outlet at Lakeport | Active | NHDES[a] | 363 | Lat 43°32'57", long 71°27'54", Belknap County, 100 ft upstream of Elm Street bridge across Paugus Bay, 150 ft upstream of dam across Paugus Bay, 0.2 mi northwest of Elm Street and Union Avenue intersection in Lakeport. |
| 01081000 | Winnipesaukee River at Tilton | Active | USGS | 471 | Lat 43°26'30", long 71°35'17", Belknap County, on right bank, 150 ft upstream of Bridge/School Street bridge, 300 ft south of Town Hall in Tilton, 0.3 mi southeast of US Route 3 and State Route 132 intersection in Tilton. |
| 01081500 | Merrimack River at Franklin Junction | Active | USGS | 1,507 | Lat 43°25'22", long 71°39'12", Merrimack County, on right bank, at Franklin Junction, 4,000 ft south of State Route 127 and US Route 3 intersection, 5,300 ft downstream of confluence of Pemigewasset and Winnipesaukee Rivers, 1.5 mi south of US Route 3 and Church Street intersection in Franklin. |
| 01082000 | Contoocook River at Peterborough | Active | USGS | 68.1 | Lat 42°51'45", long 71°57'35", Hillsborough County, on left bank, 750 ft upstream of Morrison Road bridge, 1,300 ft downstream of mill dam in Noone, and 0.6 mi southwest of US Route 202 and State Route 101 intersection in Peterborough. |
| 01083000 | Nubanusit Brook below MacDowell Dam near Peterborough | Active | USGS | 44 | Lat 42°53'34", long 71°59'14", Hillsborough County, on left bank, 300 ft downstream of Edward MacDowell Dam, 600 ft upstream of abandoned mill dam, and 0.4 mi north of Wilder Street and Union Street in West Peterborough. |
| 01084000 | North Branch near Antrim | Discontinued | USGS | 54.8 | Lat 43°04'54", long 71°58'44", Hillsborough County, on right bank, 600 ft upstream of Old North Branch road bridge in North Branch, 3,800 ft upstream of State Route 9 bridge, and 2,400 ft northeast of the intersection of State Routes 9 and 31. |
| 01084500 | Beards Brook near Hillsborough | Discontinued | USGS | 55.4 | Lat 43°06'51", long 71°55'36", Hillsborough County, on right bank, 300 ft upstream of West Main Street bridge, 560 ft upstream of mouth on North Branch, and 1,800 ft west of US Route 202 and West Main Street intersection in Hillsborough. |

**Table 1.** Description of streamgages used to characterize the floods of May 2006 in central and southern New Hampshire.—Continued

[USGS, U.S. Geological Survey; $mi^2$, square miles; lat, latitude; long, longitude; NHDES, New Hampshire Department of Environmental Services; ft, feet; USACE, U.S. Army Corps of Engineers]

| USGS streamgage number | Streamgage name | Status | Operator | Drainage area ($mi^2$) | Streamgage location |
|---|---|---|---|---|---|
| 01085000 | Contoocook River near Henniker | Active | USGS | 368 | Lat 43°09'07", long 71°51'28", Merrimack County, on right bank, 900 ft west of Western Avenue and Cote Hill Road intersection, 1.6 mi downstream of Sand Brook, and 1.7 mi upstream of Western Avenue bridge in Henniker. |
| 01085500 | Contoocook River below Hopkinton Dam at West Hopkinton | Active | USGS | 427 | Lat 43°11'33", long 71°44'43", Merrimack County, on right bank 750 ft downstream of covered bridge at West Hopkinton, 2,200 ft downstream of Hopkinton Dam, and 1.2 mi north of the intersection of State Routes 127 and 9 in Hopkinton. |
| 01085800 | West Branch Warner River near Bradford | Discontinued | USGS | 5.75 | Lat 43°15'33", long 72°01'35", Merrimack County, on left bank, 75 ft downstream of small right-bank tributary, 200 ft upstream of Fairground Road bridge, 750 ft east of Fairground Road and Newell Road intersection, and 3.8 mi west of Main Street and State Route 103 intersection in Bradford. |
| 01086000 | Warner River at Davisville | Active | USGS | 146 | Lat 43°15'03", long 71°43'58", Merrimack County, on left bank, 60 ft downstream of State Route 127 bridge at Davisville, and 0.9 mi east of Interstate Highway 89 and State Route 103 interchange in Warner. |
| 01087000 | Blackwater River near Webster | Active | USGS | 129 | Lat 43°17'49", long 71°41'42", Merrimack County, on left bank, 1,200 ft west of Clothespin Bridge Road and Pleasant Street intersection at Dingit Corner, 2,300 ft downstream of Clothespin Bridge Road bridge, and 2.4 mi downstream of Blackwater Dam. |
| 01087850 | Contoocook River at River Hill, near Penacook | Active | USACE | 760 | Lat 43°14'59", long 71°37'12", Merrimack County, at Horse Hill Road Bridge, 200 ft west of River Road, Horse Hill Road, and Bog Road intersection at River Hill, and 2.4 mi southwest of US Route 3 and Washington Street intersection in Penacook. |
| 01088400 | Merrimack River at Concord | Active | USACE | 2,300 | Lat 43°12'32", long 71°31'51", Merrimack County, at downstream side of Bridge Street (State Route 9) bridge over the Merrimack River, and 1,600 ft east of Bridge Street (State Route 9) and Main Street (US Route 3) intersection in Concord. |
| 01089000 | Soucook River near Concord | Discontinued | USGS | 76.8 | Lat 43°14'19", long 71°27'45", Merrimack County, on left bank, 500 ft upstream of State Route 9 bridge, 4,300 ft upstream of Cemetery Brook, and 0.4 mi northeast of the intersection of State Routes 106 and 9. |
| 01089100 | Soucook River at Pembroke Road, near Concord | Active | USGS | 81.9 | Lat 43°12'49", long 71°28'51", Merrimack County, on left bank, 100 ft upstream of Pembroke Road bridge, 550 ft upstream of Frenchs Brook, and 770 ft east of State Route 106 and Pembroke Road intersection in Concord. |
| 01089500 | Suncook River at North Chichester | Discontinued | USGS | 157 | Lat 43°15'24", long 71°22'12", Merrimack County, on left bank, 100 ft downstream of Depot Road, 800 ft east of Depot Road and State Route 28 intersection, and 2,000 ft upstream of Sanders Brook. |
| 01090800 | Piscataquog River below Everett Dam, near East Weare | Active | USGS | 63.1 | Lat 43°05'29", long 71°39'36", Hillsborough County, on right bank, 500 ft downstream of Everett Dam, 2,700 ft upstream of Clough Park Road bridge, and 1.7 mi north of Clough Park Road and River Road intersection in Weare. |
| 01091000 | South Branch Piscataquog River near Goffstown | Discontinued | USGS | 104 | Lat 43°00'53", long 71°38'31", Hillsborough County, on right bank, 20 ft upstream of Breed Brook Road bridge, 50 ft northwest of Breed Brook Road and State Route 13 intersection, 2.3 mi west of the intersection of State Routes 13 and 114 and Mountain Road in Goffstown. |

**Table 1.** Description of streamgages used to characterize the floods of May 2006 in central and southern New Hampshire.—Continued

[USGS, U.S. Geological Survey; mi², square miles; lat, latitude; long, longitude; NHDES, New Hampshire Department of Environmental Services; ft, feet; USACE, U.S. Army Corps of Engineers]

| USGS streamgage number | Streamgage name | Status | Operator | Drainage area (mi²) | Streamgage location |
|---|---|---|---|---|---|
| 01091500 | Piscataquog River near Goffstown | Active | USGS | 202 | Lat 43°01'00", long 71°33'04", Hillsborough County, on left bank, 300 ft upstream of Henry Bridge Road bridge, 1,400 ft upstream of Harry Brook, and 0.6 mi northwest Henry Bridge Road and State Route 114 intersection in Goffstown. |
| 01092000 | Merrimack River near Goffs Falls, below Manchester | Active | USGS | 3,092 | Lat 42°56'53", long 71°27'50", Hillsborough County, on right bank, 600 ft upstream of Interstate Highway 293 bridge, and 3,300 ft downstream of Bowman Brook in Manchester. |
| 01093000 | Sucker Brook at Auburn | Discontinued | USGS | 27.8 | Lat 43°00'21", long 71°20'57", Rockingham County, on left bank, 600 ft upstream of State Route 121, and 600 ft north of State Route 121 and Hooksett Road intersection in Auburn. |
| 01094000 | Souhegan River at Merrimack | Active | USGS | 171 | Lat 42°51'27", long 71°30'24", Hillsborough County, on left bank, at head of Wildcat Falls, 2,850 ft upstream of south bound bridge on Everett Turnpike, 0.9 mi southwest of Baboosic Lake Road and US Route 3 intersection in Merrimack. |
| 010965844 | Beaver Brook at South Road, near Derry | Active | USGS | 30.3 | Lat 42°50'22", long 71°21'00", Rockingham County, on left bank, upstream side of South Road, at Kendall Pond outlet, 100 ft east of Kendall Pond Road and South Road intersection, 0.8 mi southeast of the intersection of State Routes 128 and 102 in Londonderry. |
| 010965852 | Beaver Brook at North Pelham | Active | USGS | 47.8 | Lat 42°46'58", long 71°21'15", Hillsborough County, on right bank, 10 ft downstream of State Route 128 bridge at the Windham-Pelham town line, 0.7 mi north of State Route 128 and Castle Hill Road intersection in North Pelham, and 1.4 miles south of the intersection of State Routes 111 and 128. |
| 01096587 | Tributary to Cobbetts Pond at Interstate 93S Exit Ramp near Windham | Active | USGS | 0.54 | Lat 42°48'24", long 71°16'27", Rockingham County, on right bank, upstream of Interstate Highway 93 South exit ramp, 675 ft upstream of mouth at Cobbetts Pond, 675 ft south of State Route 111 and Interstate Highway 93 South exit ramp intersection, and 1.7 mi east of Lowell Road and State Route 111 intersection at Windham. |
| 01100505 | Spicket River at North Salem | Active | USGS | 16.5 | Lat 42°50'57", long 71°12'56", Rockingham County, on right bank, 70 ft downstream of Haverhill Road bridge, 100 ft southeast of North Main Street, Haverhill Road, and Island Pond Road intersection in Cowbell Corners, and 1,200 ft south of Island Pond Road and State Route 111 intersection in Derry. |
| 011005605 | Policy Brook at Interstate 93N Rest Stop Entrance Ramp, near Salem | Active | USGS | 10.2 | Lat 42°45'13", long 71°13'15", Rockingham County, on left bank, upstream of Interstate Highway 93 northbound rest stop entrance ramp, and 2,100 ft southeast of the Cross Street bridge over Interstate Highway 93 in Salem. |
| 01100561 | Spicket River near Methuen, MA | Active | USGS | 62.1 | Lat 42°44'35", long 71°12'32", Rockingham County, Hydrologic, on left bank, at upstream side Hampshire Road bridge at the New Hampshire-Massachusetts Border, 800 ft downstream from mouth of Policy Brook, and 0.5 mi west of State Route 28 and Lawrence Road intersection. |
| 01137500 | Ammonoosuc River at Bethlehem Junction | Active | USGS | 87.6 | Lat 44°16'07", long 71°37'51", Grafton County, on left bank, 1,200 ft upstream of US Route 302 bridge at Pierce Bridge, 1,300 ft south of US Route 302 and Muchmore Road intersection and, 3.0 mi east of US Route 302 and State Route 142 intersection in Bethlehem. |

**Table 1.** Description of streamgages used to characterize the floods of May 2006 in central and southern New Hampshire.—Continued

[USGS, U.S. Geological Survey; $mi^2$, square miles; lat, latitude; long, longitude; NHDES, New Hampshire Department of Environmental Services; ft, feet; USACE, U.S. Army Corps of Engineers]

| USGS streamgage number | Streamgage name | Status | Operator | Drainage area ($mi^2$) | Streamgage location |
|---|---|---|---|---|---|
| 01138500 | Connecticut River at Wells River, VT | Active | USGS | 2,644 | Lat 44°09'12", long 72°02'32", Orange County, on right bank, at village of Wells River, 200 ft downstream of US 302 bridge, 400 ft upstream of Wells River, 1,200 ft downstream of Ammonoosuc River, 0.2 mi west of US Route 302 and State Route 135 in Woodsville, NH. |
| 01141800 | Mink Brook near Etna | Discontinued | USGS | 4.6 | Lat 43°42'08", long 72°11'15", Grafton County, on left bank, 750 ft upstream of Ruddsboro Road bridge, 700 ft west of Three Mile Road and Ruddsboro Road intersection, 1.6 mi northeast of Etna Road and King Road intersection in Etna. |
| 01144500 | Connecticut River at West Lebanon | Active | USGS | 4,092 | Lat 43°38'46", long 72°18'46", Grafton County, on left bank, 50 ft downstream of Boston & Maine Railroad bridge, 500 ft downstream of White River, 1,100 ft northwest of US Route 4 and State Route 12A intersection in West Lebanon. |
| 01145000 | Mascoma River at West Canaan | Active | NHDES[a] | 80.5 | Lat 43°39'00", long 72°04'17", Grafton County, on right bank, 45 ft downstream of Boston and Maine Railroad bridge, 0.9 mi east of US Route 4 and South Road intersection in West Canaan. |
| 01150500 | Mascoma River at Mascoma | Active | NHDES[a] | 153 | Lat 43°38'56", long 72°10'57", Grafton County, on left bank, 100 ft upstream of Payne Road bridge, 100 ft downstream of Mascoma Lake dam, 0.2 mi south of US 4 and Payne Road intersection in Mascoma. |

[a]Streamgage formerly operated by the U.S. Geological Survey.

[b]Streamgage was active at time of flood, but discontinued September 30, 2006.

**Table 2.** Peak-stage data and peak-discharge data for the flooding in May 2006 at 65 streamgages in central and southern New Hampshire.

[USGS, U.S. Geological Survey; ft, feet; NAVD 88, North American Vertical Datum of 1988; NGVD 29, National Geodetic Vertical Datum of 1929; $ft^3/s$, cubic feet per second; na, not available. Periods of record without an end date are active streamgages]

| USGS streamgage number | Streamgage name | May 2006 flood | | | | | | | Period of record | Maximum previously recorded flood | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Peak stage, local datum (ft) | Peak stage, NGVD 29 (ft) | Peak stage, NAVD 88 (ft) | Quality ranking of stage | Peak discharge ($ft^3/s$) | Day | Time | | Peak discharge ($ft^3/s$) | Date |
| 01064500 | Saco River near Conway | 9.42 | 427.61 | 427.17 | Excellent | 13,900 | May 14 | 12:45 pm | 1904–10, 1929– | 47,200 | 3-27-1953 |
| 01064801 | Bearcamp River at South Tamworth | 7.73 | 501.10 | 500.64 | Excellent | 3,220 | May 14 | 7:00 am | 1993– | 6,150 | 6-14-1998 |
| 01065000 | Ossipee River at Effingham Falls | 8.83[a] | na | na | Excellent | 4,780[a] | May 17 | 4:00 pm | 1942–90, 1998– | 11,700 | 3-28-1953 |
| 01072100 | Salmon Falls River at Milton | 7.30[a] | 404.44 | 403.88 | Excellent | 5,450[abc] | May 14 | 5:30 pm | 1968– | 4,000 | 4-6-1984 |
| 01072800 | Cocheco River near Rochester | 18.86 | 138.24 | 137.63 | Excellent | 5,550[c] | May 14 | 7:15 pm | 1995– | 3,700 | 6-15-1998 |
| 01072850 | Mohawk Brook near Center Strafford | 6.18 | na | na | Good | 2,370[bc] | May 14 | na | 1964–77 | 1,890 | 3-14-1977 |
| 01072870 | Isinglass River at Rochester Neck Road, near Dover | 19.37 | na | na | Excellent | 4,370 | May 14 | 10:30 pm | 2003– | 1,780 | 4-4-2005 |
| 01072880 | Cocheco River at Spaulding Turnpike, at Dover | 14.36 | na | na | Excellent | 10,800[b] | May 15 | 2:00 am | 1992–96 | 4,590 | 4-17-1996 |
| 01073000 | Oyster River near Durham | 8.47 | 73.76 | 73.05 | Excellent | 873 | May 14 | 6:30 pm | 1934– | 1,160 | 10-21-1996 |
| 01073460 | North River above NH125, near Lee | 12.26 | na | na | Excellent | 3,790 | May 15 | 3:45 am | 2004–06 | 861 | 4-4-2005 |
| 01073500 | Lamprey River near Newmarket | 18.31 | 56.59 | 55.86 | Excellent | 8,970[c] | May 16 | na | 1934– | 7,570 | 4-7-1987 |
| 01073587 | Exeter River at Haigh Road, near Brentwood | 12.00 | 72.27 | 71.52 | Excellent | 3,520[c] | May 15 | 12:00 pm | 1996– | 3,060 | 10-22-1996 |
| 01073600 | Dudley Brook near Exeter | 9.24 | 95.29 | 94.54 | Fair | 660[bc] | May 14 | na | 1962–85 | 358 | 4-2-1973 |
| 01073750 | Mill Brook near NH108, at Stratham | 10.81 | na | na | Excellent | 305[b] | May 14 | na | 1973–79, 2003–04 | 390 | 4-2-1973 |
| 01073785 | Winnicut River at Greenland, near Portsmouth | 6.30 | 14.56 | 13.81 | Excellent | 1,450 | May 14 | 10:45 pm | 2002– | 708 | 4-2-2004 |
| 01073810 | Berrys Brook at Sagamore Road, near Portsmouth | 6.55 | 23.67 | 22.90 | Excellent | 505[b] | May 14 | na | 2003–04 | 239 | 4-2-2004 |
| 01073822 | Little River at Woodland Road, near Hampton | 7.96 | 12.96 | 12.18 | Excellent | 774 | May 14 | 6:45 pm | 2003–06 | 320 | 4-2-2004 |
| 01073838 | Taylor River at Old Stage Road near Hampton | 8.76 | 20.84 | 20.06 | Poor | na[d] | May 14 | na | 2004 | na | na |
| 01073848 | Hampton Falls River at Mill Lane, near Seabrook | 11.04 | na | na | Fair | na[d] | May 14 | na | 2003–04 | 248 | 4-2-2004 |

**Table 2.** Peak-stage data and peak-discharge data for the flooding in May 2006 at 65 streamgages in central and southern New Hampshire.—Continued

[USGS, U.S. Geological Survey; ft, feet; NAVD 88, North American Vertical Datum of 1988; NGVD 29, National Geodetic Vertical Datum of 1929; $ft^3/s$, cubic feet per second; na, not available. Periods of record without an end date are active streamgages]

| USGS streamgage number | Streamgage name | May 2006 flood | | | | | | | Period of record | Maximum previously recorded flood | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Peak stage, local datum (ft) | Peak stage, NGVD 29 (ft) | Peak stage, NAVD 88 (ft) | Quality ranking of stage | Peak discharge ($ft^3/s$) | Day | Time | | Peak discharge ($ft^3/s$) | Date |
| 01074520 | East Branch Pemigewasset River at Lincoln | 10.10 | 831.13 | 830.82 | Excellent | 4,960 | May 14 | 6:30 am | 1993– | 16,900 | 4-14-2002 |
| 01075000 | Pemigewasset River at Woodstock | 8.56 | 625.00 | 624.66 | Excellent | 8,470 | May 14 | 7:45 am | 1939–77, 2002– | 47,000 | 10-24-1959 |
| 01075800 | Stevens Brook near Wentworth | 4.15 | na | na | Good | 481 | May 14 | na | 1963–98 | 1,120 | 6-30-1973 |
| 01076000 | Baker River near Rumney | 9.33 | 506.67 | 506.27 | Excellent | 6,440 | May 14 | 11:00 am | 1929–77, 2001– | 21,400 | 6-15-1942 |
| 01076500 | Pemigewasset River at Plymouth | 14.44 | 471.51 | 471.10 | Excellent | 22,100 | May 14 | 2:15 pm | 1904– | 65,400 | 3-19-1936 |
| 01077000 | Squam River at Ashland | 11.73 | na | na | Excellent | 425 | May 19 | 12:30 pm | 1940– | 1,090 | 7-4-1973 |
| 01077510 | Newfound River below Newfound Lake near Bristol | 10.54[a] | na | na | Excellent | 3,500[ac] | May 16 | 8:00 am | 1994– | 2,730 | 12-20-2003 |
| 01078000 | Smith River near Bristol | 11.41 | 461.21 | 460.83 | Excellent | 4,590 | May 14 | 10:00 pm | 1918– | 8,100 | 3-19-1936 |
| 01079602 | Poorfarm Brook near Gilford | 6.67/ 5.40[e] | 514.33/ 513.06[e] | 513.89/ 512.62[e] | Good/poor[e] | 1,050 | May 14 | na | 1998–2004 | 730 | 6-14-1998 |
| 01079900 | Shannon Brook near Moultonborough | 8.33 | na | na | Excellent | 565[b] | May 14 | na | 1999–2004 | 333 | 9-17-1999 |
| 01080000 | Lake Winnipesaukee at Weirs Beach | 5.50[a] | 505.50 | 505.07 | Excellent | na | May 22 | 11:45 am | 1934– | 505.86 ft | 6-4-1984 |
| 01080500 | Lake Winnipesaukee Outlet at Lakeport | 4.61[a] | 505.16 | 504.72 | Excellent | 2,503[a] | May 31 | 5:45 am | 1933–83, 1988– | 2,890[f] | 3-31-1936 |
| 01081000 | Winnipesaukee River at Tilton | 6.96 | 448.83 | 448.36 | Excellent | 2,980 | May 20 | 3:45 pm | 1937– | 4,580 | 3-31-1984 |
| 01081500 | Merrimack River at Franklin Junction | 15.16 | 266.24 | 265.74 | Excellent | 20,800 | May 14 | 1:30 pm | 1905–78, 1983– | 83,000 | 3-19-1936 |
| 01082000 | Contoocook River at Peterborough | 4.62 | 736.59 | 735.87 | Excellent | 1,470 | May 14 | 10:15 pm | 1946– | 3210 | 4-2-2004 |
| 01083000 | Nubanusit Brook below MacDowell Dam near Peterborough | 5.79 | 905.14 | 904.47 | Excellent | 663 | May 25 | 11:15 am | 1921–31, 1946– | 1,130 | 4-11-1931 |
| 01084000 | North Branch near Antrim | 4.65 | 886.03 | 885.46 | Good | na[g] | May 14 | 4.65 | 1924–70 | 5,000 | 3-19-1936 |
| 01084500 | Beards Brook near Hillsborough | 7.84 | 601.48 | 600.87 | Fair | 3,000[b] | May 14 | na | 1946–76, 2006 | 4,800[bh] | 10-9-2005 |
| 01085000 | Contoocook River near Henniker | 13.48 | 483.80 | 483.18 | Excellent | 10,400 | May 15 | 10:00 am | 1938, 1940–77, 1989– | 22,200 | 9-21-1938 |

**Table 2.** Peak-stage data and peak-discharge data for the flooding in May 2006 at 65 streamgages in central and southern New Hampshire.—Continued

[USGS, U.S. Geological Survey; ft, feet; NAVD 88, North American Vertical Datum of 1988; NGVD 29, National Geodetic Vertical Datum of 1929; $ft^3/s$, cubic feet per second; na, not available. Periods of record without an end date are active streamgages]

| USGS streamgage number | Streamgage name | May 2006 flood | | | | | | | Period of record | Maximum previously recorded flood | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Peak stage, local datum (ft) | Peak stage, NGVD 29 (ft) | Peak stage, NAVD 88 (ft) | Quality ranking of stage | Peak discharge ($ft^3/s$) | Day | Time | | Peak discharge ($ft^3/s$) | Date |
| 01085500 | Contoocook River below Hopkinton Dam at West Hopkinton | 8.61 | 364.44 | 363.76 | Excellent | 5,460 | May 25 | 6:30 pm | 1964– | 7,530 | 4-8-1987 |
| 01085800 | West Branch Warner River near Bradford | 9.52 | na | na | Good | 1,010[bc] | May 14 | na | 1963–2004 | 881 | 8-12-2003 |
| 01086000 | Warner River at Davisville | 12.35[i] | 392.31 | 391.72 | Excellent | 8,640[c] | May 15 | 5:15 am | 1940–78, 1999– | 4,510 | 3-27-1953 |
| 01087000 | Blackwater River near Webster | 7.00 | 438.73 | 438.17 | Excellent | 2,220 | May 31 | 10:45 am | 1919–20, 1927– | 11,000[j] | 3-19-1936 |
| 01087850 | Contoocook River at River Hill, near Penacook | 17.15 | 349.12 | 348.52 | Excellent | 10,300 | May 15 | 10:00 am | na | na | na |
| 01088400 | Merrimack River at Concord | 15.12 | 232.29 | 231.68 | Excellent | 35,420 | May 15 | 1:00 pm | na | na | na |
| 01089000 | Soucook River near Concord | na | 306.65 | 306.07 | Excellent | 4,790[ck] | May 14 | na | 1952–87 | 3,700 | 3-14-1977 |
| 01089100 | Soucook River at Pembroke Road, near Concord | 14.92 | 270.81 | 270.21 | Excellent | 5,110[bc] | May 14 | 8:45 pm | 1989– | 2,320 | 4-17-1996 |
| 01089500 | Suncook River at North Chichester | 13.55 | 342.90 | 342.33 | Good | 7,600 | May 15 | na | 1919–20, 1922–27, 1929–70 | 12,900 | 3-19-1936 |
| 01090800 | Piscataquog River below Everett Dam, near East Weare | 8.63 | 328.29 | 327.63 | Excellent | 1,540 | May 31 | 6:00 pm | 1963– | 1,770 | 6-12-1984 |
| 01091000 | South Branch Piscataquog River near Goffstown | na | 320.91 | 320.24 | Good | 7,180[cl] | May 14 | na | 1941–78 | 4,100 | 6-25-1944 |
| 01091500 | Piscataquog River near Goffstown | 12.55 | 187.20 | 186.53 | Excellent | 10,100 | May 14 | 8:45 pm | 1936, 1938, 1940–78, 1983– | 21,900 | 9-21-1938 |
| 01092000 | Merrimack River near Goffs Falls, below Manchester | 19.86 | 129.13 | 128.44 | Excellent | 74,700 | May 15 | 7:30 am | 1936– | 150,000[j] | 3-20-1936 |
| 01093000 | Sucker Brook at Auburn | 4.36 | 257.08 | 256.38 | Good | na[d] | May 14 | na | 1938–70 | 602[m] | 9-12-1954 |
| 01094000 | Souhegan River at Merrimack | 9.87 | 170.45 | 169.75 | Excellent | 6,140 | May 15 | 10:00 am | 1910–76, 1980, 1982– | 16,900 | 3-19-1936 |
| 010965844 | Beaver Brook at South Road, near Derry | 6.90 | 220.66 | 219.97 | Excellent | 2,230 | May 15 | 2:00 am | 2006– | na | na |

**Table 2.** Peak-stage data and peak-discharge data for the flooding in May 2006 at 65 streamgages in central and southern New Hampshire.—Continued

[USGS, U.S. Geological Survey; ft, feet; NAVD 88, North American Vertical Datum of 1988; NGVD 29, National Geodetic Vertical Datum of 1929; $ft^3/s$, cubic feet per second; na, not available. Periods of record without an end date are active streamgages]

| USGS streamgage number | Streamgage name | May 2006 flood | | | | | | | Period of record | Maximum previously recorded flood | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Peak stage, local datum (ft) | Peak stage, NGVD 29 (ft) | Peak stage, NAVD 88 (ft) | Quality ranking of stage | Peak discharge ($ft^3/s$) | Day | Time | | Peak discharge ($ft^3/s$) | Date |
| 010965852 | Beaver Brook at North Pelham | 14.90 | 164.16 | 163.45 | Excellent | 2,940[c] | May 15 | 3:15 am | 1987– | 1,850 | 4-6-1987 |
| 01096587 | Tributary to Cobbetts Pond at Interstate 93S Exit Ramp near Windham | 4.10 | na | na | Excellent | 72 | May 14 | 11:30 am | 2006- | na | na |
| 01100505 | Spicket River at North Salem | 7.06 | na | na | Excellent | 801 | May 15 | 11:00 am | 2001– | 240 | 5-26-2005 |
| 011005605 | Policy Brook at Interstate 93N Rest Stop Entrance Ramp, near Salem | 9.65 | 115.35 | 114.59 | Excellent | 515 | May 15 | 5:00 am | 2006– | na | na |
| 01100561 | Spicket River near Methuen, MA | 12.15 | 113.05 | 112.28 | Excellent | >2,260[n] | May 16 | 4:30 am | 2001– | 1,140 | 3-24-2001 |
| 01137500 | Ammonoosuc River at Bethlehem Junction | 6.00 | 1186.74 | 1186.48 | Excellent | 2,260 | May 14 | 8:30 am | 1940– | 11,300 | 11-12-1995 |
| 01138500 | Connecticut River at Wells River, VT | 8.03 | 407.78 | 407.40 | Excellent | 22,400 | May 20 | 10:00 am | 1950– | 57,100 | 7-1-1973 |
| 01141800 | Mink Brook near Etna | 4.36 | na | na | Good | 870[bc] | May 14 | na | 1963–88 | 629 | 8-1-1986 |
| 01144500 | Connecticut River at West Lebanon | 17.34 | 338.86 | 338.45 | Excellent | 42,800 | May 20 | 8:45 am | 1912–76, 1979– | 136,000 | 11-4-1927 |
| 01145000 | Mascoma River at West Canaan | 7.87 | 837.72 | 837.43 | Excellent | 2,850[a] | May 14 | 10:15 am | 1938–78, 1985– | 4,310 | 9-22-1938 |
| 01150500 | Mascoma River at Mascoma | 9.65 | 750.33 | 750.03 | Excellent | 4,350[a] | May 15 | 12:30 pm | 1924– | 5,090 | 3-19-1936 |

[a]Data provided by New Hampshire Department of Environmental Services.

[b]Discharge estimated by graphically extending stage-discharge relation.

[c]Discharge is maximum for the period of record, which is greater than 10 years.

[d]Backwater from downstream conditions invalidated the stage-discharge relation.

[e]Peak stages determined at upstream and downstream control locations, as control for the streamgage was moved during period of record. The lower elevations are at a point approximately 100 ft downstream of the streamgage house.

[f]Maximum daily mean discharge.

[g]Peak stage/high-water mark too far downstream to be used for estimating discharge from the stage-discharge relation.

[h]Previously unpublished discharge estimate from flagged high-water marks following the October 8 and 9, 2005, flood.

[i]Stage of September 1938 flood was 12.80 ft.

[j]Prior to construction of flood-control structures.

[k]Discharge estimated by adjusting the peak discharge determined at the downstream streamgage, 01089100, by the ratio of the drainage areas.

[l]Measurement of peak discharge at width contraction by indirect methods (Matthai, 1967).

[m]Maximum stage on September 12, 1954, was 2.55 ft.

[n]Peak discharge was not available at the time of this writing. On May 15, 2006, at 4:30 pm, a discharge measurement was made at a stage of 11.91 ft, local datum. The measured discharge was 2,260 $ft^3/s$.

**Table 3.** Flow-frequency data and recurrence interval estimates of the May 2006 flood for 65 streamgages in central and southern New Hampshire.

[USGS, U.S. Geological Survey; ft³/s, cubic feet per second; yr, year; <, less than; >, greater than; na, not available. Frequency curve determination method: LeBlanc, frequency curve estimated with regression equation (LeBlanc, 1978; LP3, log-Pearson type-3 frequency analysis; FIS, flow-frequency curve from Federal Emergency Management Agency flood-insurance study; Ratio, frequency curve based on a downstream streamgage with frequency curve adjusted by the ratio of drainage area of the streamgages]

| USGS stream-gage number | Streamgage name | Peak discharge of May 2006 flood (ft³/s) | Estimated discharges for selected recurrence intervals (ft³/s) | | | | | | | Frequency curve determi-nation method | Recurrence interval of May 2006 flood (yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2-yr | 5-yr | 10-yr | 25-yr | 50-yr | 100-yr | 500-yr | | |
| 01064500 | Saco River near Conway | 13,900 | 16,700 | 26,000 | 32,600 | 41,400 | 48,300 | 55,500 | 73,100 | LP3 | <2 |
| 01064801 | Bearcamp River at South Tamworth | 3,220 | 3,330 | 5,070 | 6,260 | 7,810 | 8,980 | 10,200 | 13,000 | LP3 | <2 |
| 01065000 | Ossipee River at Effingham Falls | 4,780 | 3,480 | 4,840 | 5,850 | 7,260 | 8,400 | 9,640 | 11,000 | LP3 | 2–5 |
| 01072100 | Salmon Falls River at Milton | 5,450 | 1,410 | 2,230 | 2,880 | 3,830 | 4,640 | 5,550 | 6,550 | LP3 | 50–100 |
| 01072800 | Cocheco River near Rochester | 5,550 | 1,760 | 3,070 | 4,210 | 5,990 | 7,600 | 9,480 | 11,700 | LP3 | 10–25 |
| 01072850 | Mohawk Brook near Center Strafford | 2,370 | 289 | 683 | 1,110 | 1,920 | 2,770 | 3,900 | 8,040 | LP3 | 25–50 |
| 01072870 | Isinglass River at Rochester Neck Road, near Dover | 4,380 | 1,560 | 2,380 | 2,920 | 3,940 | 4,680 | 5,620 | 8,230 | LeBlanc | 25–50 |
| 01072880 | Cocheco River at Spaulding Turnpike, at Dover | 10,800 | 3,350 | 4,950 | 6,040 | 7,900 | 9,300 | 11,100 | 15,800 | LeBlanc | 50–100 |
| 01073000 | Oyster River near Durham | 873 | 302 | 471 | 597 | 772 | 913 | 1,060 | 1,460 | LP3 | 25–50 |
| 01073460 | North River above NH125, near Lee | 3,790 | 795 | 1,230 | 1,520 | 2,100 | 2,500 | 3,020 | 4,520 | LeBlanc | 100–500 |
| 01073500 | Lamprey River near Newmarket | 8,970 | 2,170 | 3,440 | 4,450 | 5,920 | 7,170 | 8,560 | 12,400 | LP3 | 100–500 |
| 01073587 | Exeter River at Haigh Road, near Brentwood | 3,450 | 831 | 1,150 | 1,380 | 1,730 | 2,000 | 2,340 | 3,200 | LeBlanc | >500 |
| 01073600 | Dudley Brook near Exeter | 660 | 167 | 256 | 326 | 426 | 511 | 604 | 859 | LP3 | 100–500 |
| 01073750 | Mill Brook near NH108, at Stratham | 305 | 52.2 | 83.4 | 104 | 152 | 183 | 223 | 352 | LeBlanc | 100–500 |
| 01073785 | Winnicut River at Greenland, near Portsmouth | 1,450 | 227 | 334 | 406 | 542 | 637 | 758 | 1,100 | LeBlanc | >500 |
| 01073810 | Berrys Brook at Sagamore Road, near Portsmouth | 505 | 77.4 | 112 | 136 | 182 | 213 | 253 | 368 | LeBlanc | >500 |
| 01073822 | Little River at Woodland Road, near Hampton | 774 | 109 | 164 | 202 | 278 | 329 | 395 | 590 | LeBlanc | >500 |
| 01073838 | Taylor River at Old Stage Road near Hampton | na | 102 | 143 | 172 | 222 | 257 | 302 | 424 | LeBlanc | na |
| 01073848 | Hampton Falls River at Mill Lane, near Seabrook | na | 63 | 95.5 | 117 | 163 | 193 | 232 | 349 | LeBlanc | na |

**Table 3.** Flow-frequency data and recurrence interval estimates of the May 2006 flood for 65 streamgages in central and southern New Hampshire.—Continued

[USGS, U.S. Geological Survey; ft³/s, cubic feet per second; yr, year; <, less than; >, greater than; na, not available. Frequency curve determination method: LeBlanc, frequency curve estimated with regression equation (LeBlanc, 1978; LP3, log-Pearson type-3 frequency analysis; FIS, flow-frequency curve from Federal Emergency Management Agency flood-insurance study; Ratio, frequency curve based on a downstream streamgage with frequency curve adjusted by the ratio of drainage area of the streamgages]

| USGS stream-gage number | Streamgage name | Peak discharge of May 2006 flood (ft³/s) | Estimated discharges for selected recurrence intervals (ft³/s) | | | | | | | Frequency curve determi-nation method | Recurrence interval of May 2006 flood (yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2-yr | 5-yr | 10-yr | 25-yr | 50-yr | 100-yr | 500-yr | | |
| 01074520 | East Branch Pemigewasset River at Lincoln | 4,960 | 11,300 | 14,500 | 16,500 | 19,000 | 20,800 | 22,600 | 26,800 | LP3 | <2 |
| 01075000 | Pemigewasset River at Woodstock | 8,470 | 11,700 | 19,100 | 24,800 | 32,800 | 39,400 | 46,600 | 65,600 | LP3 | <2 |
| 01075800 | Stevens Brook near Wentworth | 481 | 203 | 393 | 573 | 878 | 1,170 | 1,540 | 2,740 | LP3 | 5–10 |
| 01076000 | Baker River near Rumney | 6,440 | 5,170 | 8,730 | 11,800 | 16,600 | 20,800 | 25,900 | 41,000 | LP3 | 2–5 |
| 01076500 | Pemigewasset River at Plymouth | 22,100 | 21,200 | 30,100 | 36,500 | 45,000 | 51,600 | 58,600 | 76,300 | LP3 | 2–5 |
| 01077000 | Squam River at Ashland | 425 | 240 | 438 | 608 | 872 | 1,110 | 1,370 | 2,160 | LP3 | 2–5 |
| 01077510 | Newfound River below Newfound Lake near Bristol | 3,500 | 1,560 | 2,320 | 2,780 | 3,300 | 3,660 | 3,990 | 4,680 | LP3 | 25–50 |
| 01078000 | Smith River near Bristol | 4,590 | 1,740 | 2,570 | 3,200 | 4,100 | 4,840 | 5,650 | 7,840 | LP3 | 25–50 |
| 01079602 | Poorfarm Brook near Gilford | 1,050 | 220 | 374 | 472 | 722 | 882 | 1,090 | 1,780 | LeBlanc | 100–500 |
| 01079900 | Shannon Brook near Moultonborough | 565 | 325 | 592 | 770 | 1240 | 1,560 | 1,970 | 3,420 | LeBlanc | 5–10 |
| 01080000 | Lake Winnipesaukee at Weirs Beach | na | na | na | 505.4 ft | na | 505.9 ft | 506.2 ft | 506.7 ft | FIS | 10–25 |
| 01080500 | Lake Winnipesaukee Outlet at Lakeport | 2,503 | 1,570 | 2,060 | 2,360 | 2,700 | 2,940 | 3,160 | 3,640 | LP3 | 10–25 |
| 01081000 | Winnipesaukee River at Tilton | 2,980 | 2,220 | 2,930 | 3,330 | 3,790 | 4,100 | 4,380 | 4,970 | LP3 | 5–10 |
| 01081500 | Merrimack River at Franklin Junction | 20,800 | na | na | 14,800 | na | 25,000 | 30,000 | 62,000 | FIS[a] | 10–50 |
| 01082000 | Contoocook River at Peterborough | 1,470 | 1,290 | 1,830 | 2,210 | 2,710 | 3,100 | 3,490 | 4,480 | LP3 | 2–5 |
| 01083000 | Nubanusit Brook below MacDowell Dam near Peterborough | 663 | na | na | 650 | na | 700 | 800 | 900 | FIS[a] | 10–50 |
| 01084000 | North Branch near Antrim | na | 890 | 1,440 | 1,930 | 2,720 | 3,450 | 4,330 | 7,120 | LP3 | na |
| 01084500 | Beards Brook near Hillsborough | 3,000 | 1,200 | 1,700 | 2,070 | 2,570 | 2,970 | 3,400 | 4,500 | LP3 | 50–100 |
| 01085000 | Contoocook River near Henniker | 10,400 | na | na | 9,100 | na | 17,000 | 21,600 | 34,000 | FIS[a] | 10–50 |
| 01085500 | Contoocook River below Hopkinton Dam at West Hopkinton | 5,460 | na | na | 7,200 | na | 7,300 | 9,500 | 13,000 | FIS[a] | <10 |
| 01085800 | West Branch Warner River near Bradford | 1,010 | 345 | 558 | 712 | 915 | 1,070 | 1,240 | 1,630 | LP3 | 25–50 |

**Table 3.** Flow-frequency data and recurrence interval estimates of the May 2006 flood for 65 streamgages in central and southern New Hampshire.—Continued

[USGS, U.S. Geological Survey; ft³/s, cubic feet per second; yr, year; <, less than; >, greater than; na, not available. Frequency curve determination method: LeBlanc, frequency curve estimated with regression equation (LeBlanc, 1978; LP3, log-Pearson type-3 frequency analysis; FIS, flow-frequency curve from Federal Emergency Management Agency flood-insurance study; Ratio, frequency curve based on a downstream streamgage with frequency curve adjusted by the ratio of drainage area of the streamgages]

| USGS stream-gage number | Streamgage name | Peak discharge of May 2006 flood (ft³/s) | Estimated discharges for selected recurrence intervals (ft³/s) | | | | | | | Frequency curve determi-nation method | Recurrence interval of May 2006 flood (yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2-yr | 5-yr | 10-yr | 25-yr | 50-yr | 100-yr | 500-yr | | |
| 01086000 | Warner River at Davisville | 8,640 | 2,150 | 3,110 | 3,820 | 4,820 | 5,630 | 6,500 | 8,810 | LP3 | 100–500 |
| 01087000 | Blackwater River near Webster | 2,220 | 1,740 | 2,080 | 2,250 | 2,420 | 2,530 | 2,620 | 2,790 | LP3 | 5–10 |
| 01087850 | Contoocook River at River Hill, near Penacook | 10,300 | na | na | 8,000 | na | 15,000 | 23,300 | 33,000 | FIS[a] | 10–50 |
| 01088400 | Merrimack River at Concord | 35,420 | na | na | 19,300 | na | 33,750 | 44,000 | 86,250 | FIS[a] | 50–100 |
| 01089000 | Soucook River near Concord | 4,790 | 1,260 | 1,940 | 2,470 | 3,220 | 3,840 | 4,500 | 6,300 | Ratio | 100–500 |
| 01089100 | Soucook River at Pembroke Road, near Concord | 5,110 | 1,340 | 2,070 | 2,630 | 3,430 | 4,090 | 4,800 | 6,720 | LP3 | 100–500 |
| 01089500 | Suncook River at North Chichester | 7,600 | 2,220 | 3,480 | 4,510 | 6,060 | 7,420 | 8,970 | 13,400 | LP3 | 50–100 |
| 01090800 | Piscataquog River below Everett Dam, near East Weare | 1,540 | 987 | 1,320 | 1,520 | 1,760 | 1,930 | 2,090 | 2,440 | LP3 | 5–10 |
| 01091000 | South Branch Piscataquog River near Goffstown | 7,180 | 2,070 | 3,100 | 3,810 | 4,720 | 5,410 | 6,110 | 7,770 | LP3 | 100–500 |
| 01091500 | Piscataquog River near Goffstown | 10,100 | na | na | 5,300 | na | 9,700 | 12,500 | 21,000 | FIS[a] | 50–100 |
| 01092000 | Merrimack River near Goffs Falls, below Manchester | 74,700 | na | na | 44,000 | na | 56,000 | 69,000 | 127,000 | FIS[a] | 100–500 |
| 01093000 | Sucker Brook at Auburn | na | 256 | 379 | 459 | 556 | 626 | 693 | 843 | LP3 | na |
| 01094000 | Souhegan River at Merrimack | 6,140 | 3,140 | 4,830 | 6,190 | 8,210 | 9,960 | 11,900 | 17,600 | LP3 | 5–10 |
| 010965844 | Beaver Brook at South Road, near Derry | 2,230 | 482 | 835 | 1,150 | 1,630 | 2,080 | 2,610 | 4,250 | Ratio | 50–100 |
| 010965852 | Beaver Brook at North Pelham | 2,890 | 761 | 1,320 | 1,810 | 2,600 | 3,320 | 4,170 | 6,790 | LP3 | 25–50 |
| 01096587 | Tributary to Cobbetts Pond at Interstate 93S Exit Ramp near Windham | 72 | 20.8 | 37.5 | 48.3 | 79.3 | 98.7 | 124 | 218 | LeBlanc[b] | 10–25 |
| 01100505 | Spicket River at North Salem | 799 | 338 | 519 | 639 | 884 | 1,050 | 1,270 | 1,900 | LeBlanc[b] | 10–25 |
| 011005605 | Policy Brook at Interstate 93N Rest Stop Entrance Ramp, near Salem | 515 | 204 | 314 | 387 | 538 | 640 | 772 | 1,160 | LeBlanc[b] | 10–25 |
| 01100561 | Spicket River near Methuen, MA | na | 854 | 1,200 | 1,440 | 1,820 | 2,110 | 2,470 | 3,410 | LeBlanc[b] | na |

**Table 3.** Flow-frequency data and recurrence interval estimates of the May 2006 flood for 65 streamgages in central and southern New Hampshire.—Continued

[USGS, U.S. Geological Survey; ft³/s, cubic feet per second; yr, year; <, less than; >, greater than; na, not available. Frequency curve determination method: LeBlanc, frequency curve estimated with regression equation (LeBlanc, 1978; LP3, log-Pearson type-3 frequency analysis; FIS, flow-frequency curve from Federal Emergency Management Agency flood-insurance study; Ratio, frequency curve based on a downstream streamgage with frequency curve adjusted by the ratio of drainage area of the streamgages]

| USGS stream-gage number | Streamgage name | Peak discharge of May 2006 flood (ft³/s) | Estimated discharges for selected recurrence intervals (ft³/s) | | | | | | | Frequency curve determi-nation method | Recurrence interval of May 2006 flood (yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2-yr | 5-yr | 10-yr | 25-yr | 50-yr | 100-yr | 500-yr | | |
| 01137500 | Ammonoosuc River at Bethlehem Junction | 2,260 | 4,390 | 6,360 | 7,790 | 9,720 | 11,300 | 12,900 | 17,100 | LP3 | <2 |
| 01138500 | Connecticut River at Wells River, VT | 22,400 | 32,700 | 41,200 | 46,100 | 51,600 | 55,400 | 58,800 | 66,000 | LP3 | <2 |
| 01141800 | Mink Brook near Etna | 870 | 215 | 366 | 486 | 662 | 810 | 973 | 1,420 | LP3 | 50–100 |
| 01144500 | Connecticut River at West Lebanon | 42,800 | 47,300 | 63,200 | 74,400 | 89,400 | 101,000 | 114,000 | 145,000 | LP3 | <2 |
| 01145000 | Mascoma River at West Canaan | 2,850 | 1,640 | 2,340 | 2,800 | 3,380 | 3,820 | 4,250 | 5,260 | LP3 | 10–25 |
| 01150500 | Mascoma River at Mascoma | 4,350 | 1,950 | 2,890 | 3,570 | 4,470 | 5,180 | 5,930 | 7,790 | LP3 | 10–25 |

[a]Computed by the U.S. Army Corps of Engineers for the flood-insurance study.

[b]Results from the Leblanc (1978) regression equations may be unreliable in basin with urbanization or regulation.

**Table 4.** Relation of computed May 2006 flood discharge and stage data to flood-insurance study data for selected streamgages in central and southern New Hampshire.

[USGS, U.S. Geological Survey; na, not available; ft³/s, cubic feet per second; yr, year; NAVD 88, North American Datum of 1988; NGVD 29, National Geodetic Vertical Datum of 1929]

| USGS streamgage number | Streamgage name | Peak discharge of May 2006 flood (ft³/s) | Magnitude of discharge for X-yr recurrence interval at streamgage location from flood-insurance study (ft³/s) | | | | Peak stage of May 2006 flood, NGVD 29 (ft) | Water-surface elevation for X-yr recurrence interval at streamgage location from flood-insurance study, NGVD 29 (ft) | | | | Value to subtract from NGVD 29 elevation to obtain NAVD 88 (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 10-yr | 50-yr | 100-yr | 500-yr | | 10-yr | 50-yr | 100-yr | 500-yr | |
| 01064500 | Saco River near Conway | 13,900 | 29,750 | 45,840 | 53,640 | 72,180 | 427.61 | 431.9 | 435.4 | 437.1 | 440.5 | 0.44 |
| 01064801 | Bearcamp River at South Tamworth | 3,220 | na | na | 14,900 | na | 501.10 | na | na | 510 | na | 0.46 |
| 01072100 | Salmon Falls River at Milton | 5,450 | 2,930 | 4,500 | 5,290 | 7,490 | 404.44 | 408.1 | 409.2 | 409.8 | 411.0 | 0.56 |
| 01072800 | Cocheco River near Rochester | 5,550 | 3,160 | 5,100 | 6,120 | 9,580 | 138.24 | 135.0 | 136.6 | 137.5 | 139.8 | 0.61 |
| 01073500 | Lamprey River near Newmarket | 8,970 | 4,120 | 6,270 | 7,300 | 10,000 | 56.59 | 48.1 | 52.0 | 53.5 | 58.0 | 0.73 |
| 01073587 | Exeter River at Haigh Road, near Brentwood | 3,450 | 1,810 | 2,640 | 3,010 | 3,900 | 72.20 | 69.0 | 70.1 | 70.4 | 71.2 | 0.75 |
| 01073600 | Dudley Brook near Exeter | 660 | na | na | 506 | na | 95.29 | na | na | 94.1 | na | 0.75 |
| 01073822 | Little River at Woodland Road, near Hampton | 774 | 118 | 189 | 226 | 330 | 12.96 | 9.0 | 9.4 | 10.0 | 11.7 | 0.78 |
| 01074520 | East Branch Pemigewasset River at Lincoln | 4,960 | 13,000 | 24,000 | 30,300 | 50,000 | 831.13 | 834.0 | 836.5 | 838.0 | 842.0 | 0.31 |
| 01075000 | Pemigewasset River at Woodstock | 8,470 | na | na | 47,700 | na | 625.00 | na | na | 632.0 | na | 0.34 |
| 01076000 | Baker River near Rumney | 6,440 | 8,200 | 12,800 | 14,400 | 19,000 | 506.67 | 506.4 | 509.1 | 509.7 | 511.4 | 0.40 |
| 01076500 | Pemigewasset River at Plymouth | 22,100 | 35,000 | 53,500 | 62,000 | 82,700 | 471.51 | 482.0 | 482.5 | 483.4 | 494.0 | 0.41 |
| 01080000 | Lake Winnipesaukee at Weirs Beach | na | na | na | na | na | 505.50 | 505.4 | 505.9 | 506.2 | 506.7 | 0.43 |
| 01080500 | Lake Winnipesaukee Outlet at Lakeport | 2,503 | 2,600 | 2,600 | 3,500 | 4,300 | 505.16 | 504.0 | 504.3 | 504.3 | 504.3 | 0.44 |
| 01081000 | Winnipesaukee River at Tilton | 2,980 | 3,465 | 4,965 | 5,715 | 7,670 | 448.83 | 449.8 | 451.4 | 452.2 | 454.1 | 0.47 |
| 01081500 | Merrimack River at Franklin Junction | 20,800 | 14,800 | 25,000 | 30,000 | 62,000 | 266.24 | 263.1 | 268.4 | 270.4 | 281.1 | 0.50 |

**Table 4.** Relation of computed May 2006 flood discharge and stage data to flood-insurance study data for selected streamgages in central and southern New Hampshire. —Continued

[USGS, U.S. Geological Survey; na, not available; $ft^3/s$, cubic feet per second; yr, year; NAVD 88, North American Datum of 1988; NGVD 29, National Geodetic Vertical Datum of 1929]

| USGS streamgage number | Streamgage name | Peak discharge of May 2006 flood ($ft^3/s$) | Magnitude of discharge for X-yr recurrence interval at streamgage location from flood-insurance study ($ft^3/s$) | | | | Peak stage of May 2006 flood, NGVD 29 (ft) | Water-surface elevation for X-yr recurrence interval at streamgage location from flood-insurance study, NGVD 29 (ft) | | | | Value to subtract from NGVD 29 elevation to obtain NAVD 88 (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 10-yr | 50-yr | 100-yr | 500-yr | | 10-yr | 50-yr | 100-yr | 500-yr | |
| 01082000 | Contoocook River at Peterborough | 1,470 | 2,300 | 4,310 | 5,700 | 9,890 | 736.59 | 736.7 | 739.4 | 740.5 | 742.6 | 0.72 |
| 01083000 | Nubanusit Brook below MacDowell Dam near Peterborough | 663 | 650 | 700 | 800 | 900 | 905.14 | na | na | na | na | 0.67 |
| 01084000 | North Branch near Antrim | na | 2,500 | 4,780 | 5,600 | 8,400 | 886.03 | 885.2 | 887.2 | 888.0 | 891.0 | 0.57 |
| 01084500 | Beards Brook near Hillsborough | 3,000 | 2,300 | 3,900 | 4,800 | 7,100 | 601.48 | 598.4 | 601.8 | 603.7 | 610.0 | 0.61 |
| 01085000 | Contoocook River near Henniker | 10,400 | 9,100 | 17,000 | 21,600 | 34,000 | 483.77 | 484.4 | 489.2 | 491.6 | 496.0 | 0.62 |
| 01085500 | Contoocook River below Hopkinton Dam at West Hopkinton | 5,460 | 7,200 | 7,300 | 9,500 | 13,000 | 364.44 | 365.7 | 365.8 | 367.5 | 370.0 | 0.68 |
| 01086000 | Warner River at Davisville | 8,640 | 4,600 | 7,800 | 9,500 | 14,550 | 392.31 | 386.0 | 388.0 | 389.0 | 391.5 | 0.59 |
| 01087000 | Blackwater River near Webster | 2,220 | na | na | 2,600 | na | na | na | na | 440.0 | na | 0.56 |
| 01087850 | Contoocook River at River Hill, near Penacook | 10,300 | 8,000 | 15,000 | 23,300 | 33,000 | 349.12 | 348.2 | 352.3 | 356.1 | 359.5 | 0.60 |
| 01088400 | Merrimack River at Concord | 35,420 | 19,300 | 33,750 | 44,000 | 86,250 | 232.29 | 226.4 | 230.1 | 232.4 | 238.8 | 0.61 |
| 01089000 | Soucook River near Concord | 4,790 | 2,410 | 4,100 | 5,045 | 7,605 | 306.65 | 301.4 | 304.0 | 305.2 | 307.0 | 0.58 |
| 01089100 | Soucook River at Pembroke Road, near Concord | 5,110 | 2,620 | 4,450 | 5,475 | 8,255 | 270.81 | 268.0 | 271.2 | 272.0 | 274.0 | 0.60 |
| 01089500 | Suncook River at North Chichester | 7,600 | 4,775 | 8,335 | 10,330 | 15,970 | 342.90 | 341.3 | 344.0 | 345.2 | 347.9 | 0.57 |
| 01090800 | Piscataquog River below Everett Dam, near East Weare | 1,540 | na | na | 2,200 | na | 328.29 | na | na | 329.6 | na | 0.66 |
| 01091000 | South Branch Piscataquog River near Goffstown | 7,180 | 3,690 | 5,910 | 6,990 | 10,220 | 320.91 | 317.8 | 320.0 | 321.0 | 323.8 | 0.67 |

**Table 4.** Relation of computed May 2006 flood discharge and stage data to flood-insurance study data for selected streamgages in central and southern New Hampshire. —Continued

[USGS, U.S. Geological Survey; na, not available; $ft^3/s$, cubic feet per second; yr, year; NAVD 88, North American Datum of 1988; NGVD 29, National Geodetic Vertical Datum of 1929]

| USGS streamgage number | Streamgage name | Peak discharge of May 2006 flood ($ft^3/s$) | Magnitude of discharge for X-yr recurrence interval at streamgage location from flood-insurance study ($ft^3/s$) | | | | Peak stage of May 2006 flood, NGVD 29 (ft) | Water-surface elevation for X-yr recurrence interval at streamgage location from flood-insurance study, NGVD 29 (ft) | | | | Value to subtract from NGVD 29 elevation to obtain NAVD 88 (ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 10-yr | 50-yr | 100-yr | 500-yr | | 10-yr | 50-yr | 100-yr | 500-yr | |
| 01091500 | Piscataquog River near Goffstown | 10,100 | 5,300 | 9,700 | 12,500 | 21,000 | 187.20 | 182.9 | 185.8 | 186.9 | 189.4 | 0.67 |
| 01092000 | Merrimack River near Goffs Falls, below Manchester | 74,700 | 44,000 | 56,000 | 69,000 | 127,000 | 129.13 | 122.1 | 126.0 | 128.0 | 140.0 | 0.69 |
| 01094000 | Souhegan River at Merrimack | 6,140 | 6,920 | 11,900 | 12,500 | 22,000 | 170.45 | 171.1 | 174.2 | 174.7 | 179.0 | 0.70 |
| 010965844 | Beaver Brook at South Road, near Derry | 2,230 | 860 | 1,760 | 2,160 | 3,600 | 220.66 | 217.5 | 218.8 | 219.2 | 220.4 | 0.69 |
| 010965852 | Beaver Brook at North Pelham | 2,890 | 1,450 | 2,470 | 3,070 | 4,750 | 164.16 | 161.3 | 162.9 | 163.5 | 165.3 | 0.71 |
| 01100561 | Spicket River near Methuen, MA | na | 900 | 1,600 | 1,900 | 2,900 | 113.05 | 109.0 | 111.3 | 111.6 | 114.3 | 0.77 |
| 01138500 | Connecticut River at Wells River, VT | 22,400 | na | na | 80,300 | na | 407.78 | na | na | 420.0 | na | 0.38 |
| 01144500 | Connecticut River at West Lebanon | 42,800 | 72,000 | 108,000 | 125,000 | 157,000 | 338.86 | 345.4 | 351.0 | 353.9 | 358.0 | 0.41 |
| 01145000 | Mascoma River at West Canaan | 2,850 | 3,100 | 4,815 | 5,665 | 7,970 | 837.72 | 837.5 | 839.2 | 840.0 | 841.8 | 0.29 |
| 01150500 | Mascoma River at Mascoma | 4,350 | 3,500 | 5,750 | 7,000 | 10,000 | 750.33 | 748.8 | 750.8 | 752.8 | 754.0 | 0.30 |

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