

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

FLOODS IN NEW YORK-1971

by

F. Luman Robison



Open-file report

Albany, New York

1973

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Prepared by
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

in cooperation with
NEW YORK STATE DEPARTMENT OF TRANSPORTATION
and
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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FLOODS IN NEW YORK-1971

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INTRODUCTION

This report, for the calendar year 1971, was prepared at the request of the New York State Department of Transportation under provisions of an agreement between the New York State Department of Environmental Conservation and the U.S. Geological Survey for a cooperative statewide program to investigate the water resources of the State.

The report was compiled in the New York District, Water Resources Division, U.S. Geological Survey, under the direction of Robert J. Dingman, District Chief. The information was obtained from newspaper clippings, publications of the National Weather Service, and the Environmental Data Service of the National Oceanic and Atmospheric Administration ("Climatological Data" and "Storm Data"), and records of the U.S. Geological Survey.

OUTSTANDING FLOODS, TROPICAL STORM DORIA

The most damaging floods in New York in 1971 were caused by Tropical Storm Doria. The center of this storm passed over the northern part of New York City about 5 a.m. on August 28 and continued over land in a northeasterly direction into western Connecticut. Wind velocities were not great enough to justify the storm's classification as a hurricane, but the total rainfall for the 2 days, August 27 and 28, was sufficient to cause extensive flooding in the New York City-Long Island-Staten Island area and in the lower Hudson River valley.

Precipitation ranged from 6 to more than 8 inches from New York City northward to Hudson in the Hudson River valley, and from 4 to 5 inches in the upper Hudson River valley and Lake George area. Precipitation totals of 2.5 to 3.5 inches were measured as far west as Sullivan, Delaware, and Otsego Counties, and across the eastern Mohawk River valley northward to Essex County and southern Lake Champlain. A 24-hour total precipitation of 4.52 inches at Albany was the heaviest 2-day rainfall since October 1903. Figure 1 is a map showing precipitation measurements, in inches, for the indicated sites. All precipitation data were furnished by the National Weather Service.

Although the rainfall was intense and widespread throughout the southeastern part of the State, most of the flooding was due to overland runoff rather than from overflowing streams. There were no high stages exceeding peaks of record at any U.S. Geological Survey gaging stations in the area of the storm.

On some of the smaller streams where the Geological Survey has maintained crest-stage gages since 1960, record peak stages were recorded (table 1). Sites where flood-discharge determinations were made are shown in figure 2.

Flood-frequency relationships are not well defined for the area affected by this flood. Manmade influences due to urbanization affect the peak discharge for many streams. Gaging-station records for small areas are generally of short duration, so frequency relations for these small areas are uncertain. On the basis of the regional flood-frequency relationships, this flood had a recurrence interval of about 11 years for the long-term station on Ramapo River near Mahwah, N.J., which has a comparatively large drainage area of 118 square miles.

Flooding was reported in all the areas of heavy rainfall, but the most serious flooding occurred in the Greater New York City area, especially on Staten Island, where damage had been heavy from rains in late July and on August 1. Surface and subway transportation either was completely stalled or was greatly hampered.

The extent of the damage on Staten Island is indicated by the number of requests for loans filed with the Small Business Administration. A Staten Island newspaper reported that 20,000 loan applications were distributed to Island residents. Of 18,632 applications worth \$71 million filed in northern New Jersey and southeastern New York, 12,791, representing \$41,939,400, were filed by Staten Island homeowners and businessmen.

The lower half of the Hudson River valley sustained costly damages from inundation of croplands, highways, streets, and low-lying areas, as well as washouts of roads and a few bridges. Damage to truck-garden crops in Orange County was estimated to total \$250,000. Eight southeastern counties, where the damage to public facilities was estimated to total nearly \$6 million, were declared disaster areas by President Nixon. The counties so designated were: Dutchess, Nassau, Orange, Putnam, Rockland, Suffolk, Ulster, and Westchester. The damage estimates submitted by municipalities and other agencies and furnished by the New York State Department of Environmental Conservation are as follows:

<u>Municipality or agency</u>	<u>Total damage to public facilities</u>
Dutchess	\$ 118,843.92
Nassau	1,183,106.22
Orange	541,955.39
Putnam	88,946.22
Rockland	876,639.12
Suffolk	660,776.84
Ulster	240,598.00
Westchester	570,762.80
New York State	1,516,082.69
New York City	Amount not reported.
Thruway Authority	Do.
East Hudson Parkway Authority	Do.

SUMMARY OF OTHER FLOODS

Southeastern Region

In addition to the damage from the floods of Tropical Storm Doria in the southeastern region, a large part of the other damage reported in 1971 was also in the same region. In every month except January and September, flooding occurred somewhere in the New York City area or the lower Hudson River valley. Staten Island was especially hard hit by several storms. Surface and subway transportation either was interrupted or was completely stalled by flooded streets, parkways, and subway tunnels. Service for thousands of telephones was interrupted, and hundreds of basements and first floors were flooded. Figure 3 is a map showing the location of sites in the southeastern region where damage from floods was reported in 1971.

In the 31-day period, July 29-August 28, total rainfall in the New York City area and the lower Hudson River valley greatly exceeded normal. The weather station at Westerleigh, Staten Island, measured 20.35 inches of rain, which is 450 percent of normal. Above normal precipitation was also measured in the upper Hudson River and eastern Mohawk River valleys. Figure 4 is a map showing total rainfall and its distribution for the 31-day period.

Ice-Jam Floods

February ice jams caused some flooding at Utica, Mohawk, Herkimer, and Ilion in the central and eastern regions, and at Silver Creek, Sunset Bay, and the Buffalo area in the western region.

Snowmelt Runoff

In spite of record-breaking snowfall and water content of the accumulated snow, no serious flooding was reported from spring snowmelt. Very heavy snowfall occurred in every month from December through April. A new record-total seasonal snowfall for New York State was established in 1970-71 at two stations, Old Forge (373.5 inches) and Stillwater Reservoir (365.5 inches). Both stations are in northern Herkimer County. The previous record 351.9 inches was measured at Bennetts Bridge in Oswego County in the winter of 1946-47. The effects of abnormally heavy snowfall and subnormal air temperatures were reflected in the long duration of snow cover in the Adirondack region. Depth of snow in the western Adirondacks and the Tug Hill plateau ranged from 20 to 30 inches on April 30.

Figure 5 is a graph of daily mean air temperature and precipitation at Stillwater Reservoir in northeastern Herkimer County for February through May 1971. In February, the monthly mean temperature was slightly above normal; but in March, the mean was 6.2 degrees below normal; in April, 7.3 degrees below, and in May, 4.3 degrees below. Precipitation during the snowmelt period was well distributed, and there was no rapid runoff. The highest daily precipitation during the melt period (late March, April, and May) was 0.6 inch. The below-normal temperatures, with gradual warming, and the lack of intense precipitation combined to permit the great amount of water in the snowpack to run off without serious flooding.

Figure 6 is a map showing the water content of the snow on the ground in northern New York at the end of March 1971. These measurements of water content represent the maximum amounts for the winter 1970-71. Peak stages and discharges of selected gaging stations in northern New York in April and May 1971, and the maximums previously known are listed in table 2.

Streams originating in the areas where the snow has a high water content did not generally experience record-high peak stages and discharges. The only U.S. Geological Survey gaging stations where record-high peak flows were recorded were at South Colton and Raymondville on the Raquette River.

Summer Storms

During the months of April through September, heavy, short-duration rains and thunderstorms caused various degrees of flooding at many sites in the State. On May 20, a 2.5-inch rainfall in 6 hours flooded village streets, highways, and basements in parts of Essex, Franklin, and Hamilton Counties. A quarter of a mile of State Highway 28 in Hamilton County was washed out. On June 13, a 2-hour downpour flooded a hospital at Elmhurst in the Borough of Queens and caused damages estimated to total \$1 million. On June 28, a flash flood at Arcade in southwestern Wyoming County resulted in damages estimated to total \$1 million at an industrial plant. On September 6, a heavy local shower on Whiteface Mountain in Essex County triggered two slides of mud, boulders, and debris. Damages to the ski slopes and roads were estimated to total more than \$100,000. Thirteen persons were stranded on a chair lift from 45 minutes to 3 hours when the electric power lines were knocked down. On September 7, a cloudburst centered in the Boonville-Alder Creek-Forestport area of northeastern Oneida County produced up to 6.2 inches of rain in 24 hours. State Highway 46 was blocked by gravel, boulders, and mud. Some low-lying farmlands near Boonville were inundated.

Storm of September 11-14

September 11-14 was the third extended period of heavy rainfall in 6 weeks in the New York City area and in the lower Hudson River valley. Rainfall totals of 4.5 to 7.0 inches fell in the area from New York City and Nassau County northward to Greene and Columbia Counties. Rainfall totaled 7.4 inches at the White Plains airport and 6.9 inches at Yorktown. Central Park Observatory recorded a 24-hour total of 4.03 inches on September 13 and 14. Flood damage was widespread in the area of heaviest rainfall, especially to property in Westchester County, eastern Orange County, and the Catskill-Hudson area of the mid-Hudson River valley. As with Tropical Storm Doria, the heavy rainfall did not produce notably high peak discharges at long-term Geological Survey gaging stations. Stages and discharges of some small streams for the sites shown in figure 2 are listed in table 1.

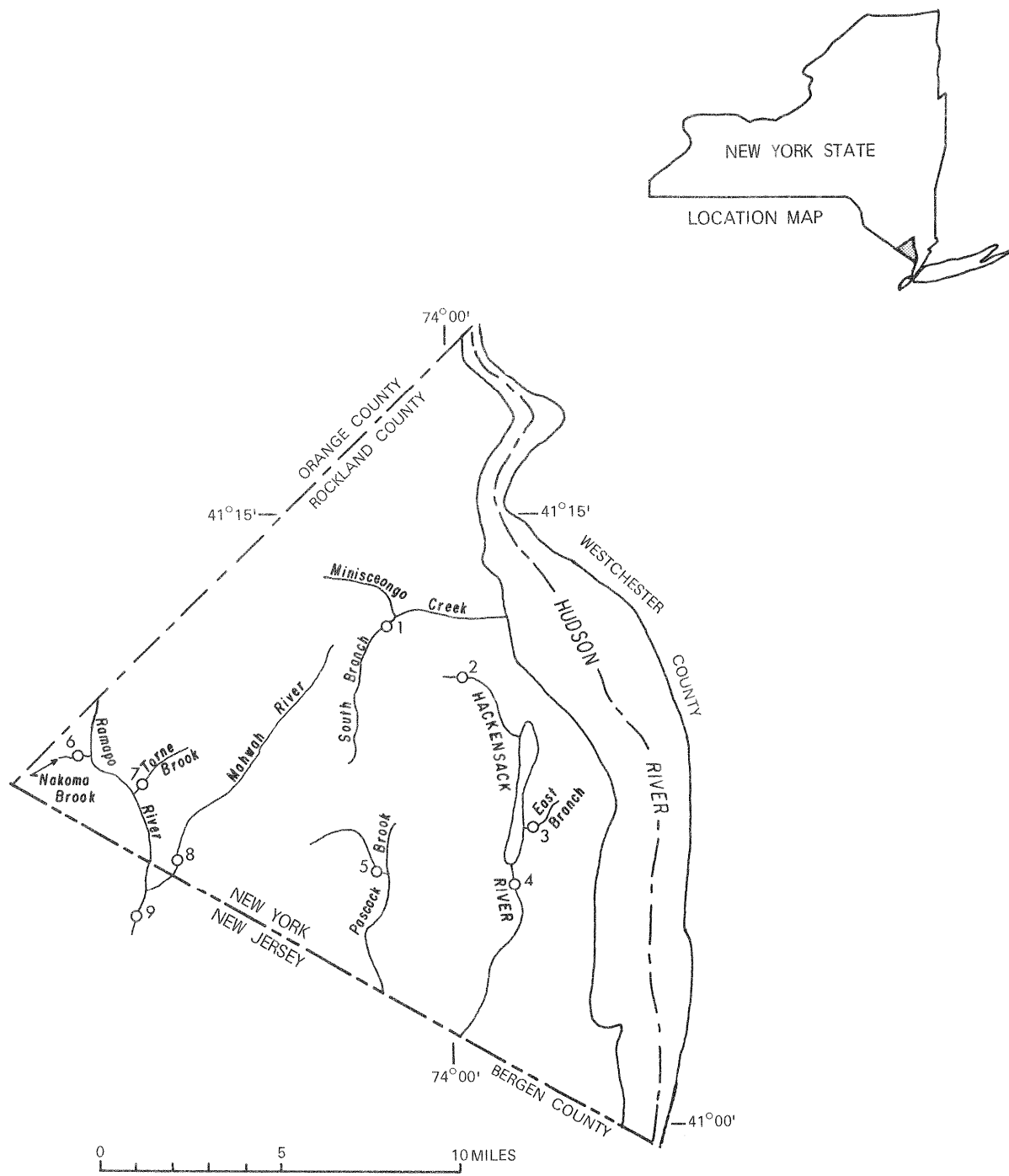
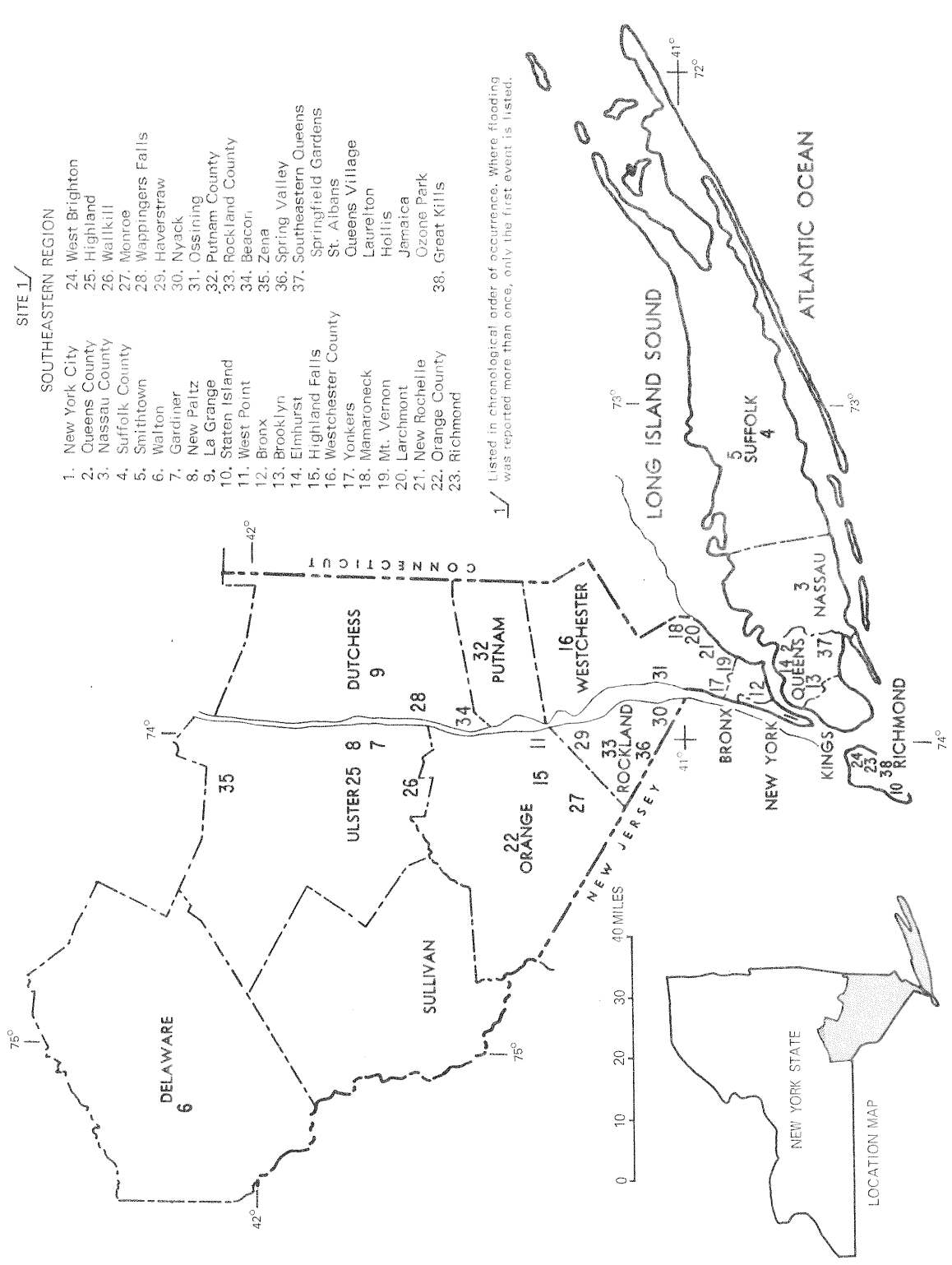


Figure 2.--Location of flood-determination points in Rockland County, N.Y., and near Mahwah, N.J., August 28 and September 14, 1971. (Numbers refer to table 1.)

Table 1.--Flood stages and discharges in Rockland County, N.Y., and near Mahwah, N.J., August 28 and September 14, 1971

Stream and place of determination (numbers refer to figure 2)	Drainage area (sq mi)	Period of record	Maximum flood previously known			Maximum during present flood				
			Date	Gage height (ft)	Discharge (cfs)	Discharge (cfs/sq mi)	Date	Gage height (ft)	Discharge (cfs)	Discharge (cfs/sq mi)
1. South Branch Minisceongo Creek at Letchworth Village	5.83	1960-71	5-29-68	3.84	234	40.1	8-28 9-14	4.01 3.19	264 169	45.3 29.0
2. Hackensack River at Brookside Park	13.2	1959-63 1966-71	5-29-68	7.40	--	--	8-28 9-14	5.97 6.33	740 872	56.1 66.1
3. East Branch Hackensack River near Congers	6.86	1960, 1968-69 1971	5-29-68	9.29	125	18.2	8-28 9-14	9.44 9.79	139 174	20.3 25.4
4. Hackensack River at West Nyack	29.4	1958-71	4- 2-70	7.51	863	--	8-28 9-14	6.19 6.79	478 647	16.3 22.0
5. Pascack Brook Tributary at Spring Valley	4.58	1960-71	5-29-68	5.16	--	--	8-28 9-14	5.71 3.71	-- --	-- --
6. Nakoma Brook at Sloatsburg	5.35	1960-71	5-29-68	10.13	525	--	8-28 9-14	9.27 6.99	420 177	78.5 33.1
7. Torne Brook at Ramapo	2.62	1960-71	4- 2-70	8.13	--	--	8-28 9-14	10.42 8.16	-- --	-- --
8. Mahwah River near Suffern	12.3	1958-71	5-29-68	7.78	1,650	134	8-28 9-14	7.56 6.35	1,520 898	124 73.0
9. Ramapo River near Mahwah, N.J.	118	1902-06 1922-71	10- 9-03	--	12,400	105	8-28 9-14	10.76 --	5,640 --	47.8 --



SITE 1/
SOUTHEASTERN REGION

- | | |
|------------------------|-------------------------|
| 1. New York City | 24. West Brighton |
| 2. Queens County | 25. Highland |
| 3. Nassau County | 26. Watkill |
| 4. Suffolk County | 27. Monroe |
| 5. Smithtown | 28. Wappingers Falls |
| 6. Walton | 29. Haverstraw |
| 7. Gardiner | 30. Nyack |
| 8. New Paltz | 31. Ossining |
| 9. La Grange | 32. Putnam County |
| 10. Staten Island | 33. Rockland County |
| 11. West Point | 34. Beacon |
| 12. Bronx | 35. Zena |
| 13. Brooklyn | 36. Spring Valley |
| 14. Elmhurst | 37. Southeastern Queens |
| 15. Highland Falls | Springfield Gardens |
| 16. Westchester County | St. Albans |
| 17. Yonkers | Queens Village |
| 18. Mamaroneck | Laurelton |
| 19. Mt. Vernon | Hollis |
| 20. Larchmont | Jamaica |
| 21. New Rochelle | Ozone Park |
| 22. Orange County | 38. Great Kills |
| 23. Richmond | |

1/ Listed in chronological order of occurrence. Where flooding was reported more than once, only the first event is listed.

Figure 3.--Sites in the southeastern region of New York where flood damage was reported in 1971.



Figure 4.--Total rainfall in central, eastern, and southeastern New York, July 29 through August 28, 1971. (Data furnished by National Weather Service.)

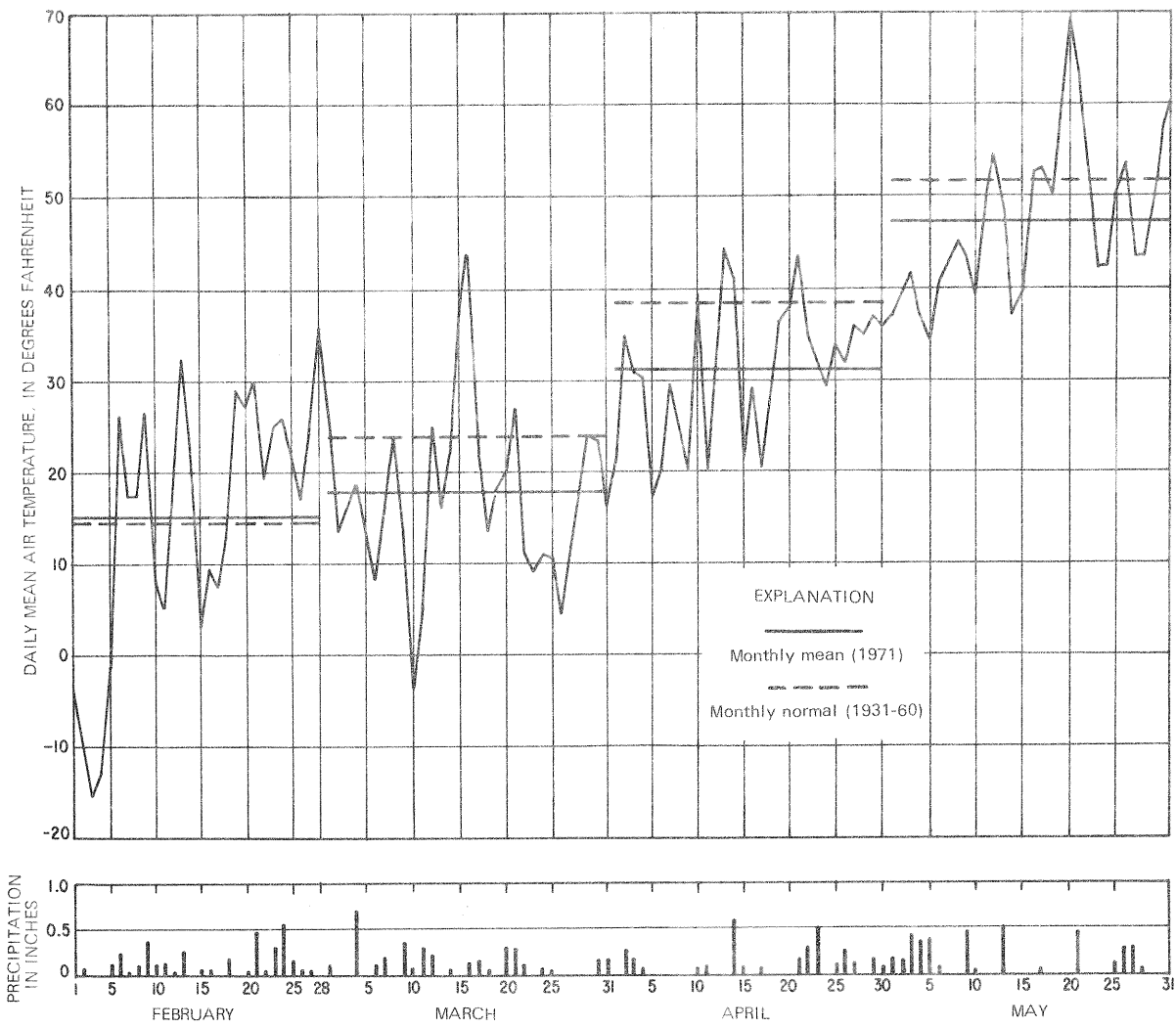


Figure 5.--Daily air temperature and precipitation at Stillwater Reservoir, February through May 1971.

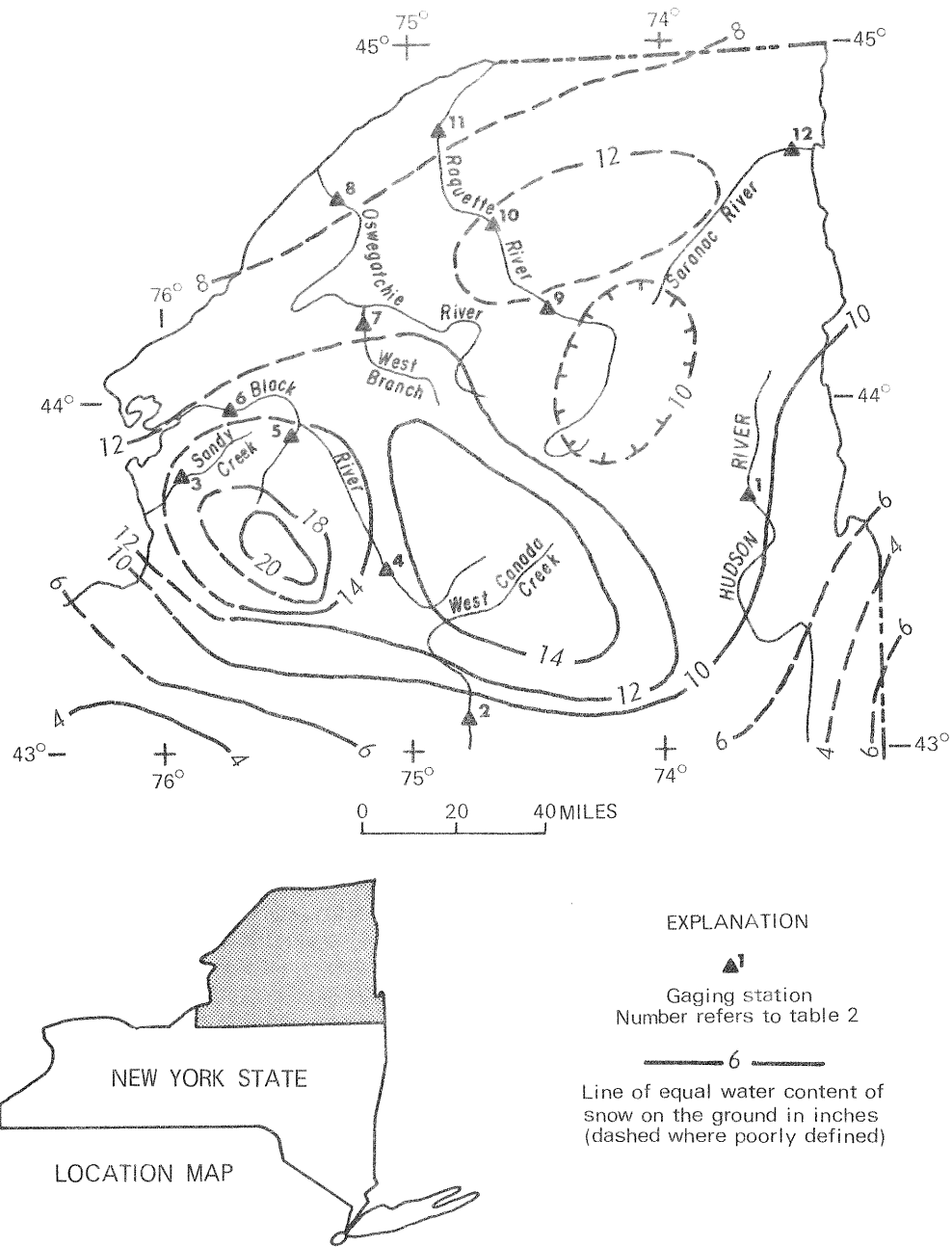


Figure 6.--Maximum water content of snow on the ground in northern New York, winter of 1970-71. (Measurements made March 29-31, 1971.)

Table 2.--Peak stages and discharges in northern New York, April and May 1971

Stream and place of determination (numbers refer to figure 6)	Drainage area (sq mi)	Period of record	Maximum flood previously known				Maximum during 1971			
			Date	Gage height (ft.)	Discharge (cfs)	Discharge (cfs/sq mi)	Date	Gage height (ft)	Discharge (cfs)	Discharge (cfs/sq mi)
1. Hudson River near Newcomb	192	1925-71	1- 1-49	11.40	7,440	38.8	5-22	6.72	3,060	15.9
2. West Canada Creek at Kast Bridge	556	1920-71	3-26-13	--	23,300	41.9	5-12	5.11	7,640	13.7
3. Sandy Creek near Adams	128	1957-71	4- 4-63	11.01	11,800	92.2	5-3	--	2,500	19.5
4. Black River near Boonville	295	1911-71	3-28-13	12.5	12,400	42.0	5-9	8.47	4,510	15.3
5. Deer River at Deer River	98.1	1956-71	4- 4-63	9.60	11,400	116	4-14	4.14	3,470	35.4
6. Black River at Watertown	1,876	1920-71	4- 5-63	11.57	36,700	19.6	5-10	8.30	20,400	10.9
7. West Branch Oswegatchie River near Harrisville	258	1916-71	1- 9-30	9.6	6,920	26.8	5-5	7.23	4,120	16.0
8. Oswegatchie River near Heuvelton	973	1916-71	4- 6-60	10.36	19,600	20.1	4-17	6.93	9,670	9.94
9. Raquette River at Piercefield	722	1908-71	5-16-43	12.09	8,240	11.4	5-14	11.92	7,810	10.8
10. Raquette River at South Colton	939	1953-71	4-22-54	9.07	8,330	8.9	5-11	9.80	9,720	10.3
11. Raquette River at Raymondville	1,131	1943-71	4-17-54	7.60	11,000	9.73	5-12	7.66	11,100	9.81
12. Saranac River at Plattsburg	608	1903-30 1943-71	4- 8-28	--	11,500	18.9	5-4	7.96	6,010	9.88

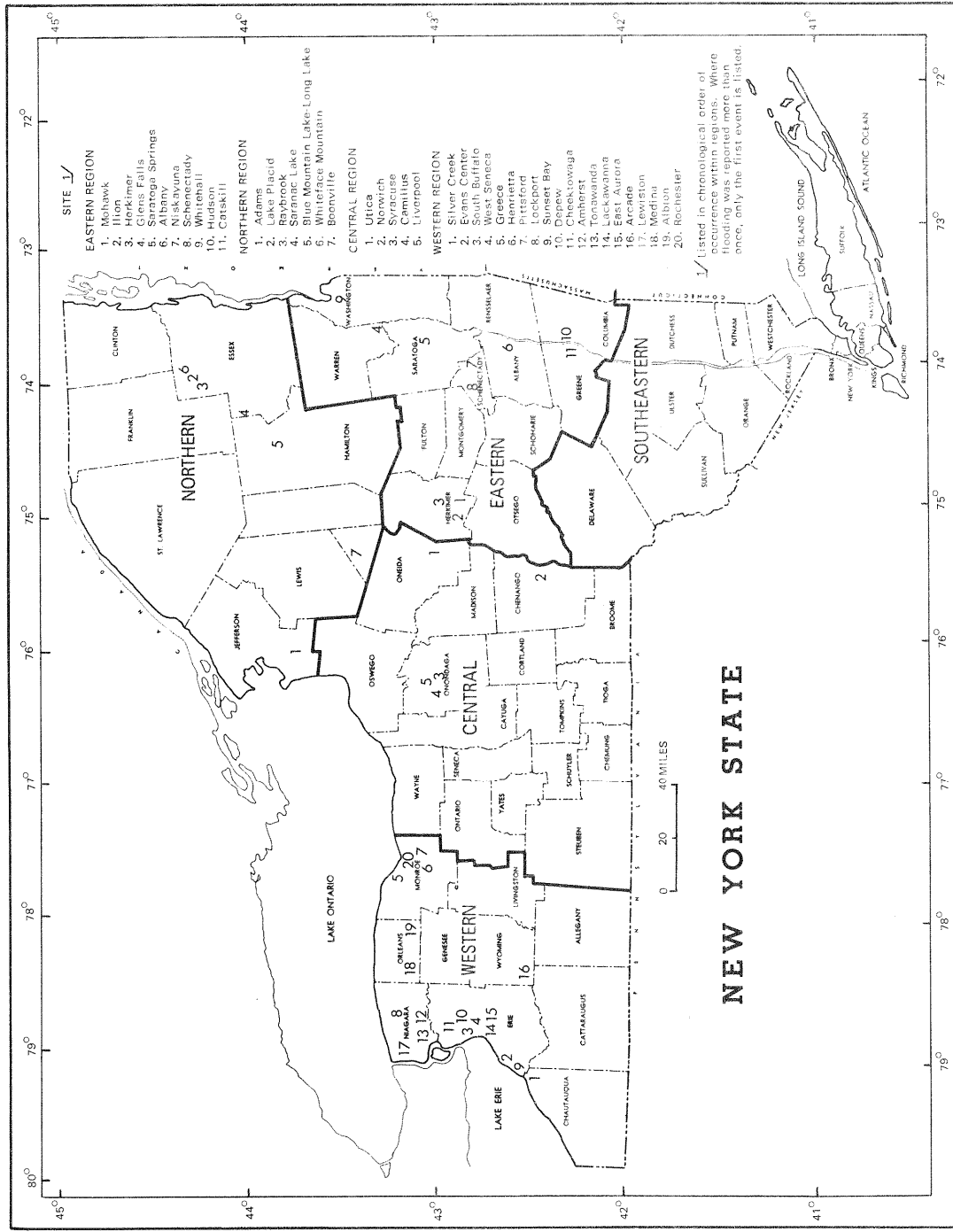


Figure 7.--Regions and sites in New York, except the southeastern region, where flood damage was reported in 1971. (See figure 3 for sites in the southeastern region.)

CHRONOLOGICAL DESCRIPTIONS OF FLOODS WITHIN REGIONS

Succeeding paragraphs describing floods are edited versions of news items in the indicated publications. Flood accounts have been grouped by regions. The news items are in chronological order within each region. Regions and sites in New York where flood damage was reported in 1971 are shown in figures 3 and 7.

Southeastern Region

STORM DATA, February 7-9

Rainfall totaling 1.0 to 2.0 inches in the Greater New York City area and Long Island caused extensive and deep flooding of highways, streets, basements, and low-lying areas in Queens and Nassau Counties.

LONG ISLAND NEWSDAY, February 8

All last night and early today many families throughout Suffolk and Nassau Counties were the victims of heavy rainfall that began about 8 p.m. and inundated basements, blocked many roads, and stalled cars.

The Round Swamp Road area of the Long Island Expressway was closed by 2 feet of water. Heavy flooding on Northern and Southern State Parkways in both Suffolk and Nassau Counties was reported, and several sections of the parkways were closed. Many cars were abandoned because of the flooding.

NEW YORK TIMES, February 9

Additional rain fell in the metropolitan area last night, and hazardous driving conditions that plagued motorists earlier in the day continued. Severe flooding in Queens compelled police to wade through eight lanes of water at 2 a.m. to reach about 50 motorists trapped by the deep water. Parts of the Cross Island Parkway were closed and flooding was reported on the Brooklyn-Queens Expressway.

SMITHTOWN NEWS, February 11

The deluge that began about 8 p.m. on Sunday, February 7, was not the heaviest to hit Smithtown in recent months but became a real nuisance. It did not soak into the frozen ground but ran off into streets and cellars.

Once again storm runoff from an adjacent farm couldn't be contained by the temporary sandbag barrier built around the nearly completed Smithtown Nesaquake Junior High School. Tons of water flowed over the banks, poured into the building, and caused heavy damage to heating, ventilating, and electrical equipment, and ruined the school's gymnasium floor.

About 35 flooded basements kept the highway department pumping and cleanup crews working around the clock for a day and a half.

POUGHKEEPSIE JOURNAL, February 15

Minor flooding of roads in Dutchess County was caused by a 1-inch rain on February 14.

WALTON REPORTER, February 18

Heavy rains triggered the release of ice jams and caused some flooding at Walton on February 13 and 14. Water accumulated in the basements of a few houses.

POUGHKEEPSIE JOURNAL, February 22

Melting ice and snow caused some minor flooding in Dutchess County on Sunday, February 21.

STORM DATA, March 1-2

Snowmelt runoff and ice jams during the late February thaw caused severe local flooding along the Wallkill River, between Gardiner and New Paltz in Ulster County and along parts of Wappinger Creek in Dutchess County. Two families were forced to evacuate their homes as 25 summer vacation homes along the Wallkill River were flooded in the town of Gardiner. Several roads in both counties were closed until late on March 2, when the level of streams receded steadily.

KINGSTON FREEMAN, March 1

Rapidly melting snow sent the Wallkill River over its banks yesterday, closed roads, and flooded several summer homes. A 1-mile section of Route 299 and 4 miles of Springtown Road along the Wallkill River flats remained closed today.

Overlook Road in the town of La Grange, Dutchess County, was under 2 feet of water and closed to traffic.

KINGSTON FREEMAN, March 3

Damage to six homes flooded on Sunday, February 28, in the town of Gardiner is estimated at \$40,000, according to a spokesman for the Wallkill Valley Flood Control Commission. Two of the homes were occupied when the water overflowed the river banks, but the residents escaped by wading through waist-deep water.

ALBANY TIMES UNION, March 4

Service to about 1,300 telephone subscribers in the New Paltz area was interrupted for 7 hours yesterday when floodwater short circuited a telephone cable.

STORM DATA, April 6-7

Precipitation in New York City, mostly rain and totaling 2.0 to 2.5 inches, caused extensive flooding of streets and low-lying areas on Staten Island.

STORM DATA, April 24

Localized heavy rain and high winds struck a Boy Scout camporee near West Point. Tents were blown down, and some were washed away. Partial evacuation of the encampment was necessary.

NEW YORK POST, May 13

Flooding from heavy rain caused a virtual city-wide traffic jam during the rush hour today in Bronx, Brooklyn, Manhattan, and Queens.

STORM DATA, June 13

A 2-hour downpour of about 1 inch of rain today severely flooded a major hospital in the Elmhurst section of the borough of Queens. A 5- to 6-foot accumulation of water in the basement caused estimated damages of \$300,000 to X-ray equipment, foodstuffs, and laboratory instruments. Thunderstorm activity and heavy rains elsewhere in the borough flooded some highways and streets.

NEW YORK NEWS, June 14

Three heavy thundershowers, driven by gusts of wind with velocities as high as 33 miles per hour, lashed scattered sections of New York City with 0.97 inch of rain yesterday. Streets and highways were flooded and service was disrupted in two hospitals in Queens. The flooding at St. Johns Hospital in Elmhurst necessitated the closing of the emergency ward and the removal of patients from the first-floor rooms.

NEW YORK DAILY MIRROR, June 15

The preliminary estimate of damage from flooding at St. Johns Hospital in Elmhurst on June 13 was \$250,000; but after a thorough survey, the estimate was revised upward to \$1 million. This amount included damaged structures, ruined medical supplies, spoiled food, and damaged electrical equipment.

HIGHLAND FALLS NEWS OF THE HIGHLANDS, July 29

A torrential rain on Monday, July 26, caused some flash flooding of streets in Highland Falls.

STORM DATA, July 29-30

Heavy rainfall of 3.5 to 3.8 inches centered over New York City and its Westchester County suburbs. Heaviest downpours occurred during morning rush hours. Commuter and subway trains either were halted or were greatly delayed. Virtually every major expressway and arterial highway into the city was flooded; massive traffic tie-ups occurred. Extensive flooding and some property damage was reported in the Westchester County suburbs of Yonkers, Mamaroneck, Mt. Vernon, and Larchmont, as well as on Staten Island. Heavy rains forced sewage plants in Westchester County to discharge untreated wastes into Long Island Sound. As a result, authorities were forced to close several pleasure beaches. Heavy rains also extended northward to the mid-Hudson River Valley. Kingston reported a 1.0-inch rain in 30 minutes in the evening of July 29.

NEW ROCHELLE STANDARD STAR, July 30

Heavy rains caused some flooding in New Rochelle Thursday night and early today. Five feet of water accumulated in the city incinerator, which sits in a low spot. Four hours of pumping were required to empty it.

NEW YORK POST, July 30

A driving downpour that hit New York City during today's morning rush hour caused serious flooding. Water on parts of most of the highways at least doubled the commuting time for thousands of drivers.

The National Weather Service reported that 1.73 inches of rain fell in the city between 8 and 10 a.m.

Flooding, some of it more than a foot deep, was reported on many parkways. Numerous stalled cars aggravated the delays. Several subway trains were hampered by flooding of tracks and short circuiting of some wires.

STORM DATA, August 1

Heavy rains struck New York City today, the third occurrence in 4 days. Severely affected this time were the boroughs of Manhattan, Brooklyn, and Richmond, as most of the 2.1-inch precipitation occurred during afternoon hours. Subway tunnels were flooded, and many expressways around the city were rendered perilous, if not impassable, to automobiles. Collapse of part of a street in Brooklyn left a hole 30 feet wide by 15 feet deep. Depth of floodwater was as much as 5 feet in many places. On Staten Island, a cemetery, the ground floor of a hospital, and basements of 1,000 homes were damaged by floodwater. Some streets were blocked by a mud slide. Telephone service was crippled in wide areas of the city. This storm brought total rainfall in 4 days (July 29-August 1) to 5.87 inches at the Central Park Observatory.

NEW YORK TIMES, August 2

Torrential rains yesterday pounded the metropolitan area for the third consecutive day. Streets and hundreds of basements were flooded and subway and electrical service was disrupted.

In Brooklyn last night, 5 feet of water covered some street intersections. Water was 3 feet deep in some parts of Staten Island, where low-lying sections were particularly hard hit. A mud slide stranded 500 cars on the Staten Island Expressway. Doctors Hospital in Richmond had a foot of water on its first floor.

On Staten Island, a 100-foot section of a retaining wall 5 feet high at Moravian Cemetery collapsed. Much of the cemetery was flooded.

NEW YORK POST, August 2

Service to more than 32,000 phones in the city was disrupted today, owing to flooding caused by the torrential rain that poured 5.7 inches of water on the city in the last 3 days.

STATEN ISLAND ADVANCE, August 3

When the retaining wall at a cemetery on Staten Island collapsed, the small pond it protected drained and released goldfish. The fish were washed into the cellar of a house a half mile away. A 2 1/2-foot pet alligator and a 20-pound snapping turtle were washed out of their pens but were later recovered.

STATEN ISLAND ADVANCE, August 5

According to an inspection made by the Small Business Administration, the flood damage from the recent rain was not sufficient to justify the declaration of Staten Island as a disaster area. Structural damage in the 106 homes and 19 businesses inspected was insufficient to justify such a recommendation.

STORM DATA, August 11

Cloudburst rains were accompanied by strong winds, as 0.62 inch fell in 10 minutes at a water plant in Larchmont. Some streets and highways were flooded. Thunderstorms also affected Staten Island and Nassau County with heavy rains and flooding. At Massapequa, southern Nassau County, 2 inches of rain fell in 30 minutes.

STATEN ISLAND ADVANCE, August 20

Another day of heavy rains flooded Staten Island streets and basements yesterday, disrupted rail service, snarled rush hour traffic, and caused a minor power failure.

STORM DATA, August 27-28

The center of Tropical Storm Doria passed over the northern sector of New York City about 5 a.m. on the 28th, on an inland path which continued northeasterly into the western interior of Connecticut. Heaviest precipitation totals of 6.0 to 8.0 inches occurred from New York City northward to the Poughkeepsie area of lower Hudson Valley. Individual storm totals included 8.55 inches at Poughkeepsie. In extreme eastern Long Island, precipitation totals decreased to 0.9-0.4 inch. Streets, highways, and subways were flooded in Greater New York City area, and all surface transportation was hampered. Severe flooding occurred on Staten Island where a youth narrowly escaped drowning when pinned underneath a car by floodwater. Deep flooding was extensive in lower Hudson Valley as small streams overflowed and rainwater drained into all sorts of low-lying areas. Several hundred acres of truck crops, corn, and hay were inundated in Orange County with losses estimated at nearly \$250,000. Some roads were washed out, bridges were undermined, and city streets were covered with mud and debris. Flood damage in seven southeastern counties was estimated at over \$3 million.

STATEN ISLAND ADVANCE, August 28

Tropical Storm Doria yesterday clobbered Staten Island, already saturated by a summer of torrential rains, with 7.86 inches of rain, which was not only a record for the date but helped to make this August the wettest in the Island's history. There have been 16.73 inches of rain since August 1 and 20.30 inches since July 29. The closest comparable rainfall for an August was 12.55 inches in 1955.

The Staten Island Rapid Transit was once again paralyzed by heavy flooding at several of its stations. The system was knocked out of operation at 2:30 p.m. yesterday. Service was partially restored in the evening but was again shut down from 4:20 a.m. to 7:06 a.m.

A 6-year old boy from West Brighton was knocked off his feet by the rushing water and swept under a parked car. He was trapped for 2 minutes, submerged in the water, when some men found and rescued him. He was unconscious when pulled from the water but was revived by mouth-to-mouth resuscitation by an off-duty fireman.

LONG ISLAND PRESS, August 28

Tropical Storm Doria, carrying 60-mile per hour winds, tore down signs, tree branches, and power lines. The triple effect of rain, wind, and tide flooded streets and homes, foundered small boats, and tore large ones loose from their moorings off Long Island shores. Motorists found many arteries impassable because of flooding while train commuters ran into delays on both the subways and surface railroads.

St. Johns Hospital in Elmhurst, not yet recovered from the June 13 flood, which did \$1 million damage, was hard hit again by yesterday's heavy rain. The hospital was forced to shut down all emergency services at 2:30 p.m. when water swept into the basement and ground floor of the building. A spokesman for the hospital said the loss could run as high as \$100,000.

HIGHLAND MID-HUDSON POST, August 29

The flash rain on Saturday the 28th, which created flood conditions at Highland, washed out Maple Avenue, wrecked other roads, and carried away 2,000 yards of fill from the Hurd's Bridge project. The rain, which was the worst in 16 years, deposited 7 inches of rain in 7 hours. Sections of some neighborhood roads were washed out by the storm.

NEW PALTZ NEWS, September 1

The approximately 7 inches of rain that fell during a 7-hour period last Friday, August 27, took its toll on the village of Wallkill and its surrounding townships, with some flooding of roads and washed out shoulders.

MONROE GAZETTE, September 2

Tropical Storm Doria caused minor flooding of streets and basements in Monroe on Saturday, August 28. The stream, which comes from the Round Lake and Walton Lake regions feeding into Monroe Pond in Crane Park, overflowed into Lake Street and Route 17M. The former Brooks Pond also overflowed into Route 17M.

WAPPINGERS AND SOUTHERN DUTCHESS NEWS, September 2

Extensive flooding of streets and basements, fallen power lines, and overloaded storm sewers made it necessary for the Wappingers Falls Fire Department to seek outside assistance, following the heavy rain from Doria. Streets and cellars were flooded and were covered with mud and debris. Over a hundred flooded basements were pumped out by the firemen from the many mutual aid companies who responded to the village's request for aid.

BRONXVILLE REVIEW PRESS-REPORTER, September 2

The heavy rain of Tropical Storm Doria last Friday and Saturday flooded the Bronx River Parkway and forced parkway motorists to detour around the deeply flooded areas. Some cars were trapped by the rising water and were discovered on the parkway the next day when the flood subsided.

STATEN ISLAND ADVANCE, September 3

Parts of Staten Island are still under water a week after the record rains of a week ago. Some yards are covered with 3 feet of water and some badly washed out streets have not yet been filled in.

STORM DATA, September 11-14

A slow-moving cyclonic system over the mid-Atlantic region produced the third extended period of very heavy rains in the last 6 weeks in the New York City and southeastern upstate areas. Four-day precipitation totals of 4.5 to 7.0 inches fell from New York City and Nassau County northward to Greene and Columbia Counties in the mid-Hudson Valley. White Plains Airport measured 7.4 inches.

Yorktown reported 6.9 inches, and Central Park Observatory recorded a 24-hour total of 4.03 inches on September 13-14. Storm accumulations decreased to 2.5 to 3.5 inches in the Catskills, near 2.0 inches in central Long Island, 0.8 to 1.25 inches in Albany area, and 0.6 to 0.9 inch on eastern Long Island. Flooding was widespread in the area of heaviest rainfall, but especially heavy damage was reported in Westchester County, eastern Orange County (villages of Haverstraw and Nyack) and the Catskill-Hudson sector of the mid-Hudson Valley. Locally, severe damage occurred near the slopes of Mt. Beacon in southwestern Dutchess County.

YONKERS HERALD STATESMAN, September 14

The weekend rains brought flooding, interrupted telephone and power service, and tragedy to a 12-year-old Ossining boy who was drowned in Kilbrook Stream near his home.

NEW YORK TIMES, September 14

President Nixon has declared seven counties in southeastern New York State to be major disaster areas as a result of Tropical Storm Doria, August 27 and 28. His inclusion of the New York State counties, Dutchess, Orange, Rockland, Nassau, Putnam, Suffolk, and Westchester, meant that \$4.5 million more in Federal funds could be channeled into storm repair operations to public facilities. The public damage was confined to things such as bridges, culverts, and roads.

BEACON NEWS, September 14

Water flowed down the side of Mt. Beacon Monday afternoon and evening washing away driveways and buckling the blacktop of one street and flooding cellars in Beacon. The new Rombout School was again flooded but not as badly as by the storm Doria.

KINGSTON FREEMAN, September 14

A resident of the village of Zena was driving home at about 11:30 p.m. Monday when his car was swept into Sawkill Creek by the surging force of flash-flood waters. The driver was able to escape through a window before the vehicle was swept away.

NANUET ROCKLAND INDEPENDENT LEADER, September 15

There was no name for the storm that struck Rockland County over the past weekend, but it dumped as much as 6.5 inches of rain in most areas of the county.

From areas where flooding had never been reported before, homeowners jammed town switchboards with complaints of water damage. Army engineers rushed 10,000 sandbags to Spring Valley where members of the street department, volunteer firemen, and others worked all night to fill them. The sandbags were distributed to homeowners who used them to keep floodwater away from basements and garages.

NEW YORK TIMES, September 15

A downpour that continued on and off through the day and evening spilled more than 3.72 inches of rain on the metropolitan area yesterday, snarled service on the East Side IRT subway, and stalled eastbound auto traffic on the George Washington Bridge.

As the rains continued into the fourth day, Mayor Lindsay's Emergency Control Board requested the State and the Federal Governments to declare New York City a disaster area. The board claimed that about \$2.5 million in damages had been caused by the Tropical Storm Doria 2 weeks ago and that the flooding problems had been compounded by the recent heavy rains.

BEACON NEWS, September 15

The City of Beacon will receive \$73,000 in Federal funds for losses resulting from Hurricane Doria, now that the county has been declared a portion of the "major disaster area" says the commissioner of accounts. This figure will cover damage to the city's pocket reservoir and dam, loss of about 40 to 60 million gallons of water, and expenditures resulting from destruction of streets and sidewalks.

STORM DATA, September 18

Early this morning localized rain of cloudburst characteristics hit the Springfield Gardens, St. Albans, and Queens Village sections of southeastern Borough of Queens as well as adjacent portions of Nassau County. Heavy damage to property and contents of numerous home basements occurred. Highway and street traffic was stalled by flooded underpasses and low-lying areas. An official rainfall measurement of 1.79 inches was reported at Hempstead-Garden City, but storm totals were very likely heavier in southwestern Queens.

LONG ISLAND PRESS, September 18

Heavy rains, which pelted sections of the metropolitan area beginning early this morning, caused flash flooding in some sections of Long Island. Particularly hard hit were low-lying areas in southeastern Queens, Laurelton, Queens Village, St. Albans, and Hollis. About 40 homes had basements flooded with sewage. Some homes even had water in their living rooms.

PEEKSKILL STAR, September 28

A special mobile unit, set up by the U.S. Government's Small Business Administration, will be in Peekskill tomorrow to issue applications for small business loans to homeowners, businesses, and tenants who suffered flood damage as a result of Tropical Storm Doria.

STORM DATA, October 10

Sustained rains, lasting most of the day, yielded 2.0 to 3.0 inches to coastal sections and the lower third of the Hudson River valley. Caving and extensive erosion resulted to a sewer construction project in downtown Kingston, Ulster County. Flooded streets and basements, clogged sewers, and washouts of mud and debris occurred on Staten Island, and in the Borough of Queens. A sewer construction site in Brooklyn was damaged by a cave-in.

STATEN ISLAND ADVANCE, October 11

Flooded streets, backed up sewers, cancelled ball games, and cars with wet wires or brakes were reported, when 2.01 inches of rain fell on Staten Island yesterday. Many streets were flooded, slowing or halting traffic. In Great Kills, quick discovery and repair of a natural gas line break averted a possibly serious accident.

LONG ISLAND PRESS, October 13

Homeowners of southeastern Queens threaten a march on City Hall if their sewer and catch basin complaints continue to be ignored. Heavy rains on Sunday, the 10th, caused an explosion of angry comments in the St. Albans, Hollis, Jamaica, and Ozone Park communities, where some streets were impassable and basements were flooded.

MARLBOROUGH SOUTHERN ULSTER PIONEER, November 10

Inspection of storm damage inflicted by Doria in nine Ulster County communities is nearing completion in preparation for filing for funds under a \$220,000 allocation by the Federal Government. The greater portion of the damage was in the village of Highland and the town of Lloyd. Other damage reports were filed for the towns of Rochester, Warwarsing, Hurley, Shandaken, Kingston, Woodstock, and Gardiner.

NEW YORK POST, December 1

Traffic stood still during the evening rush, Monday, November 29, on many highways in New York City. West Side Highway, East Side Highway, Brooklyn-Queens Expressway, and other major arteries were affected. Clogged drains were blamed for much of the flooding.

STATEN ISLAND ADVANCE, February 20, 1972

More than two-thirds of all the money disbursed by the Federal Government to alleviate the results of the damage caused by Hurricane Doria on August 27, 1971, will wind up on Staten Island, according to figures released by the Small Business Administration.

One explanation offered for the apparent disparity in amount of damage between Staten Island and other areas is the fact that by the time Doria arrived, the Island had already experienced several heavy downpours and severe flooding, and several sections were still waterlogged.

In figures released by the Small Business Administration, 12,791 applications for loans have been filed by Staten Island residents. Of this total, 12,660 loan requests, representing \$41,118,000, came from homeowners, and 131 requests totaling \$821,400 came from Island businessmen. As of February 11, 1972, 3,431 loans totaling \$9,470,000 had been disbursed. An additional 1,200 loans had been approved and 5,000 applications were still pending.

Eastern Region

STORM DATA, February 13-14

Precipitation, mostly as rain, totaled from 2.0 to 2.7 inches from eastern Finger Lakes to Chenango County and northward to western Mohawk valley. Extensive flooding from overflowing creeks was reported in villages of Herkimer, Mohawk, and Ilion.

HERKIMER EVENING TELEGRAM, February 15

Overflowing creeks in Mohawk and Herkimer on the evening of Saturday, the 13th, flooded streets and homes, resulting in extensive damage.

The hardest hit appeared to be Mohawk, which has six square blocks of flooded homes. Early in the evening Fulmer Creek burst loose, sending more than 3 feet of water and ice cascading into the intersection of Harter and Charles Streets. Before the evening was over, Devendorf, Erie, and Lock Streets, and parts of West Main and North Streets were flooded. Many of the homes on these streets have their entire basements filled with water and their heating equipment drowned out. Dynamite was used in an effort to open Fulmer Creek, but it had little effect on the flood.

In Herkimer, several motorists were forced to abandon their cars as Bellinger and West Canada Creeks overflowed their banks. Ice and slush were jammed up as high as 7 feet at the Church Street bridge over Bellinger Creek. Debris from this creek flowed or was pushed into Harmon Field and German, Church, Marion, Frederick, and Graham Streets. Esther and Pullman Streets received some flooding from West Canada Creek.

HERKIMER EVENING TELEGRAM, February 18

Flooding in Mohawk last weekend may force the County Sewer Board to change the location of the proposed \$3.7 million sewage-treatment plant. To decrease the flood danger from Fulmer Creek, it may be necessary to straighten the stream channel. If this move is made, part of the land set aside for the plant will be taken over by the new channel. It was reported that more than 100 homes in Mohawk had to have their cellars pumped out, owing to the Saturday night flood that sent a 3-foot wave of water and ice onto streets near Main Street.

GLENS FALLS POST-STAR AND TIMES, June 9

Heavy rain from a thunderstorm caused minor street flooding in Glens Falls yesterday and temporary abandonment of a few automobiles.

STORM DATA, June 25

Precipitation of 2.3 inches measured in Saratoga Springs today resulted in the flooding of some streets and basements.

HERKIMER EVENING TELEGRAM, July 20

Flooding was reported on several streets in Ilion late yesterday afternoon after a prolonged rainfall caused sewers to back up from the overload.

STORM DATA, August 27-28

Tropical Storm Doria produced a 24-hour total rainfall of 4.52 inches at Albany, the heaviest such amount since October 1903.

CATSKILL MAIL, August 30

Catskill and Greene County got their share of swollen streams and flooded roads and cellars, as part of Tropical Storm Doria peppered the area and the Capital District with an all day and all night rain on Friday, the 27th. A part of the Thruway below Albany was closed for a short time from flooding.

TROY RECORD, August 31

The heavy rains Saturday morning, 28th, caused extensive damage to the new \$995,000 sewage treatment plant under construction in Niskayuna.

SCHENECTADY GAZETTE, September 1

A storm sewer in lower Broadway in Schenectady burst Saturday and caused some flood damage to 14 business places. Seven owners estimate their flood damage at \$200,000.

WHITEHALL TIMES, September 2

Rain from Hurricane Doria totaled nearly 6 inches at Whitehall last Friday and Saturday. Streets were turned into lakes, ponds, and streams. Flooded cellars were commonplace with water 4 and 5 feet deep in some homes.

HUDSON REGISTER STAR, September 14

Two and a half days of rain caused minor flooding and telephone and power line damage in Hudson.

CATSKILL MAIL, September 15

The West Bridge Street area of Catskill was hit by a heavy rainfall on September 13 and 14. Many home basements were flooded, and furnaces and other equipment were damaged.

Central Region

STORM DATA, February 13-14

Flooding of Realls Creek in North Utica heavily damaged a home and a motel.

UTICA OBSERVER DISPATCH, February 16

Overflow from Realls Creek caused extensive damage to buildings and homes in North Utica over the past weekend. It was reported that the flooding of Realls Creek was caused by ice jams under the two Thruway culverts. At one time, water was 4 feet deep in Genesee Street above Wurz Avenue.

NORWICH SUN, February 24

Ice jams in Canasawacta Creek caused flooding of a few basements in Norwich last week.

STORM DATA, July 24

Cloudburst rains hit the city of Syracuse and its suburbs about noon today with 1.75 inches falling in 40 minutes. Widespread flooding of streets, parks, and basements resulted. Expressway through the city was closed, as water up to 8 feet deep accumulated in underpasses. Basements and first floors of downtown business establishments and the basement of one hospital were flooded.

STORM DATA, July 26

Heavy rains and damaging winds struck Syracuse and areas of counties to the east for the second time in 2 days. National Weather Service station at Syracuse measured 1.4 inches of rain in 40 minutes. Flooding was severe in Camillus and Liverpool, but the greater Syracuse area sustained less flooding than in the storm of the 24th.

Northern Region

ADAMS JEFFERSON JOURNAL, April 21

House trailers at a lot on South Main Street, Route 11, Adams, were surrounded by water last weekend, as snow continued to melt in 60-degree temperatures.

STORM DATA, May 20

Adjoining portions of three counties, Franklin, Essex, and Hamilton in northern Adirondacks were struck by a heavy downpour of rain. Rainfall of 1.5 inches in less than 60 minutes and a total of 2.5 inches in 6 hours fell in Lake Placid, Raybrook, and Saranac Lake areas, resulting in flash flooding of village streets, highways, and low-lying terrain. Business properties sustained damage to basements and street floors in the three communities. In Hamilton County a quarter-mile section of highway was washed out and other sections were blocked by landslides between Blue Mountain Lake and Long Lake, forcing closure of 10 miles of highway.

WATERTOWN DAILY TIMES, May 21

Roads bore the brunt of damage from the storm that struck the Saranac Lake-Lake Placid sector in the afternoon of Thursday the 20th with more than 2 inches of rain.

A quarter-of-a-mile section of Route 30 between Blue Mountain Lake and Long Lake was washed out. Route 3 suffered a rock slide east of the state bridge where the highway winds through a deep culvert. Lake Flower Avenue and River Street in Saranac Lake were under water. A restaurant, closed several days ago after suffering more than a foot of water, again received several inches from the heavy rain.

WATERTOWN DAILY TIMES, June 14

The half-a-mile section of Route 30 near Blue Mountain Lake, washed out by a flash flood May 20 and reopened through temporary repairs, will undergo permanent reconstruction under a contract for \$45,065 just awarded by the State Department of Transportation.

STORM DATA, September 6

Locally, heavy downpour of rain on the slopes of Whiteface Mountain, a few miles west of Wilmington, resulted in slides of mud, boulders, and debris. Ski slopes and hiking trails sustained damage estimated at \$100,000.

PLATTSBURGH PRESS-REPUBLICAN, September 7

A flash flood struck the Whiteface Ski Center yesterday at 4:15 p.m. during a heavy rainstorm. Mud, debris, and boulders flowed down the mountain and tore down utility poles that carried power for the chair lifts.

STORM DATA, September 7

A cloudburst centered in the Boonville, Alder Creek, and Forestport area of northeastern Oneida County produced 3.5 inches of rain within 3 hours at Boonville. The 24-hour total fall was 4.22 inches. Observers at Alder Creek and Forestport measured totals of 5.0 and 6.2 inches, respectively. State Highway 46 between Boonville and North Western was blocked in some places by gravel, boulders, and mud where culverts were plugged. Some low-lying farmlands and meadows were inundated south and southeast of Boonville.

LAKE PLACID NEWS, September 9

Repairs and clean-up operations occupied Whiteface Mountain crews today, 3 days after the huge Labor Day mudslides destroyed some trail work and scattered debris over the mountain. No official damage estimate has yet been given, although several unofficial estimates were between \$100,000 and \$150,000. The bulk of the work will be in replacing washed-out soil and re-grading.

The mudslide apparently started near the Castle just below the mountain summit and went in two directions, some of the mud crossing the Memorial Highway and going down the north slope. Damage was done to the road, the parking lot, and water, sewer, and power connections at the top.

Bulldozers Monday opened a lane so that employees' cars left at the top could be evacuated. The Castle will be operating on emergency generators until power lines are repaired.

A second slide apparently followed an old slide down the southeast slope, then into the streambed, which approaches the base of the newest chair lift, number 6. The slide caused a rush of water down the streambed, over the small dam at the pump house, and through the streambed in a grove of trees. This slide ended in a sea of mud and debris, fanned out on both sides of the lower lodge but concentrated on the roadside near the bridge.

The work road was washed out in places where culverts were completely swept away. Danny's bridge just above a small pump house on the ski hill was washed out. The brook flowed past the lodge, rushed into the Ausable River on both sides of the bridge, and cut off the lodge and parking lot from the entrance road.

Thirteen persons were stranded on the chair lift, five for about 3 hours, and the rest for 45 minutes to an hour. The rescue missions included lowering the visitors to the ground by ropes and in one instance by the use of a trail machine.

Western Region

DUNKIRK-FREDONIA OBSERVER, February 23

About 25 houses in Silver Creek were surrounded by water, and cellars were flooded early today as a series of thunderstorms poured water into creeks still jammed with ice from last week's thaw and rain. The banks of Silver Creek are high enough to keep the water contained, but the water from Walnut Creek overflowed onto Lincoln, Rix, and Oliver Streets.

BUFFALO COURIER-EXPRESS, February 24

Ice jams and a thaw caused Big Sister Creek to overflow yesterday flooding portions of the town of Evans. Route 5 and 232 in Evans were closed, and two families were forced to evacuate their homes in low areas near Route 5. Volunteer firemen were kept busy most of the day and night pumping water from cellars, mostly in the vicinity of Evans Center.

BUFFALO COURIER-EXPRESS, February 25

Ice jams in Big Sister Creek, town of Evans, were broken yesterday by eight charges of dynamite, and the water receded to bank level in most parts of the stream.

BUFFALO NEWS, February 27

Minor flooding occurred today in parts of South Buffalo and West Seneca as ice-jammed Cazenovia and Buffalo Creeks overflowed their banks.

ROCHESTER DEMOCRAT-CHRONICLE, February 28

Many streets, cellars, and driveways were under water last night after a day of snow-melting temperatures. Police said streets in low-lying areas were hardest hit by flooding. Greece, Henrietta, and Pittsford were the communities most seriously affected.

BUFFALO COURIER-EXPRESS, March 1

Cleanup operations were under way throughout much of western New York late Sunday in the wake of several floods that were caused when ice jams forced some streams over their banks. Conditions returned nearly to normal Sunday in the Brian Lane-Gregory Drive sector of West Seneca, which had been hard hit Saturday when the Buffalo River flowed over its banks and flooded the basements of about 30 homes.

LOCKPORT UNION SUN AND JOURNAL, March 1

Melting snow caused the flooding of several roads in the vicinity of Lockport during the past weekend.

DUNKIRK-FREDONIA OBSERVER, March 1

Late Saturday morning the community of Sunset Bay was again flooded by an ice jam in Cattaraugus Creek. Nearly the whole area was under 3 feet of water. The ice jam formed about 300 to 400 feet upstream from the mouth. More than a case of dynamite was used to open a channel through it. Many of the residents left their homes for a short time when the rising flood water threatened their safety. Since the flooding of this colony is at best an annual occurrence, the inhabitants are equipped with wet-weather gear and some even have small boats to use if needed.

STORM DATA, June 2

Heavy rains caused widespread flooding of basements, streets, and low-lying areas of Buffalo and suburbs. The basement of a hospital in Depew was flooded by 2 feet of water. Numerous streets were closed owing to deep flooding of underpasses. The National Weather Service at Buffalo recorded 1.5 inches of rain between 9 and 11 p.m.

STORM DATA, June 13

Early morning thundershowers of 1.5 inches of rain caused widespread flooding in Buffalo and suburbs for a second occurrence in less than 2 weeks. The basements in two hospitals in Buffalo were flooded and sustained considerable water damage to elevator shafts, living quarters, and storage areas. Two persons narrowly escaped drowning when their car was trapped by several feet of water in a flooded underpass. Street flooding was reported in the suburbs of Depew, Cheektowaga, Amherst, and Tonawanda.

BUFFALO COURIER-EXPRESS, June 15

A violent thunderstorm shortly after 1 a.m. Monday caused extensive flooding of homes north of the city. Town of Tonawanda police reported receiving 85 calls of flooded basements and streets. In Lackawanna one underpass was flooded to a depth of nearly 6 feet. In Buffalo several street intersections were flooded.

EAST AURORA ADVERTISER, June 17

Torrents of rain caused widespread flooding throughout the village of East Aurora early Monday morning. Many basements were flooded forcing residents of basement apartments to be evacuated. One resident claimed the flooding to be the worst he has seen in 16 years.

STORM DATA, June 28

Predawn thunderstorms, yielding an official measurement of 4.9 inches of rain, caused flood damage estimated at near \$1 million in the community of Arcade in southwestern Wyoming County. A large industrial plant sustained heavy flood damage to ground floor. Streets in business section were inundated by 2 feet of water. The tracks of the steam-driven Arcade-Attica railroad were washed out in several places.

OLEAN TIMES HERALD, June 28

A flash flood ripped through Arcade today, flooding basements, making highways impassable, caving in the wall of one house, and forcing several residents to evacuate their homes. At an industrial plant, water came in the back doors and flowed through the front door. No estimate of the damage was announced, but the plant was closed until further notice.

STORM DATA, July 13

Violent thunderstorms caused variable damage in a narrow band from Lewiston to Rochester. Heavy rains of 1.4 inches in half an hour at Lockport and storm totals up to 2.5 inches in affected counties caused extensive flooding in Lewiston, Lockport, Medina, Albion, and Rochester. Streets and underpasses were flooded in Rochester by the heaviest 2-hour rain (2.25 inches) in 21 years.

STORM DATA, August 21

The extreme western sector from Chautauqua County northeastward to Rochester was struck by thunderstorms with heavy rain during early and mid-morning hours. A storm total of 2.9 inches was measured at Bemus Point, Chautauqua County, most of which fell between 3:15 and 6:00 a.m. Heavy, short-duration rains in Rochester resulted in considerable flooding of basements, streets, intersections, and expressways.

