

## **3.4 - Flood Hazard Profile**

### **3.4.1 Introduction**

The Mitigation Plan Development Team researched the flood hazard as it affects New York State. Contents of this section result from research and outreach including the following sources:

- The New York State Department of Environmental Conservation, Bureau of Flood Protection and Dam Safety, Division of Water, staff and web site, <http://www.dec.ny.gov/lands/311.html>
- The Federal Emergency Management Agency (FEMA) National Flood Insurance Program staff and web site, <http://www.fema.gov/hazard/flood/info.shtm> .
- The US Army Corps of Engineers, Cold Regions Research Laboratory (CRREL) at [http://www.erd.usace.army.mil/pls/erdcpub/WWW\\_WELCOME.NAVIGATION\\_PAGE?tmp\\_next\\_page=330&tmp\\_Main\\_Topic=51623](http://www.erd.usace.army.mil/pls/erdcpub/WWW_WELCOME.NAVIGATION_PAGE?tmp_next_page=330&tmp_Main_Topic=51623)
- National Oceanic and Atmospheric Administration (NOAA), National Climate Data Center at <http://www.ncdc.noaa.gov/oa/ncdc.html> .
- The United States Geological Survey (USGS) web site <http://www.usgs.gov/themes/flood.html>, including the USGS Circular 1245, <http://water.usgs.gov/pubs/circ/2003/circ1245/>
- New York State Climate Office, Department of Earth and Atmospheric Sciences at Cornell University web site, <http://nysc.eas.cornell.edu>, [http://nysc.eas.cornell.edu/climate\\_of\\_ny.html](http://nysc.eas.cornell.edu/climate_of_ny.html)

The following chart provides the definition of flooding:

<b>Term</b>	<b>Definition</b>
<b>Flooding</b>	<p>A general and temporary condition of partial or complete inundation on normally dry land from the following:</p> <ul style="list-style-type: none"><li>• Riverine flooding, including overflow from a river channel, flash floods, alluvial fan floods, and ice-jam floods.</li><li>• Riverine flooding including dam-break floods;</li><li>• Local drainage or high groundwater levels;</li><li>• Fluctuating lake levels;</li><li>• Coastal Flooding;</li><li>• Coastal erosion</li></ul>

### **The Concept of Flooding**

According to USGS, floods are the most frequent and costly natural disasters in terms of human hardship and economic loss. As much as 90% of damage related to natural disasters (excluding drought) are caused by floods and associated mud and debris flows. Floods are the most chronic and costly natural hazard in the United States, causing an average of 140 fatalities and \$5 billion damage each year (Schildgen, 1999). Despite advances in flood science and implementation of

Federal hazard-reduction policies, damage from flooding continues to escalate (Pielke and Downton, 2000). Damage from floods results from a combination of the great power of flowing water and the concentration of people and property along rivers. In the United States, about 3,800 towns and cities of more than 2,500 inhabitants are on floodplains (Miller and Miller, 2000). (USGS Circular 1245.)

Flooding is the primary natural hazard in the State of New York and damaging floods occur somewhere in the State each year. Depending on their location, floods can pose significant risks to health and safety or interruption to transportation and other services. Annual economic losses due to flooding are estimated to be as high as \$100 million. Collateral losses such as disruption of commerce, unemployment due to flooded workplaces and inundated transportation systems, expenses for disaster relief and cleanup, and other related costs, add millions of additional dollars to this figure.

As an example of the costs that could actually be associated with flooding disasters, one need go no further than the National Flood Insurance Program (NFIP). Based on NFIP statistics, as of June 7, 2010 there were 162,541 NFIP-insured properties in New York State. Best estimates are that only between 30% and 50% of at-risk properties are covered by flood insurance. Even if one assumes that the number of current NFIP policies represents only about 50% of properties that should be insured, that means an additional 162,500 properties could be at risk in the State's Special Flood Hazard Areas. On the basis of the current number of properties insured, the annual premium paid amounts to \$140,336,028. If all potentially eligible properties were insured, the premium would be slightly in excess of between \$280,672,000 and \$467,787,000. The corresponding value of coverage for the currently insured properties is just under \$38.3 billion, and would potentially increase to somewhere around \$70 billion if all flood prone properties were insured. More than 82,000 claims have been filed since 1978. Assuming all potentially insurable properties were indeed insured, claims since the same period could have increased to two to three times that number. Finally, the total statewide NFIP claims paid since 1978 was almost \$605,000,000. Again, assuming that all potentially eligible properties were insured, the total claims paid since 1978 could have risen to between \$1.1 and \$2 billion.

488 flood events were reported in New York between April 1, 2007 and January 26, 2010:

- 318 were undeclared flooding events with no recorded damages;
- 136 were undeclared flooding events with \$47.04 million in recorded damages insufficient to meet Presidential Disaster Declaration thresholds;
- 34 were major flooding incidents with \$157.6 million in property damages sufficient to warrant a Presidential Disaster Declaration.

### **Geographic Location/Extent/Severity and History of Flood Hazards**

Flooding is truly a statewide concern. Although some areas are more prone to flooding than others, no area is exempt from flood hazards: New York State contains over 52,000 miles of rivers and streams with 1480 communities designated as flood prone. It is estimated that one and a half million people live in these flood prone areas while millions more work, travel through, or use recreational facilities located in areas subject to flooding. In addition, areas outside mapped and recognized flood hazard zones can also experience flooding. FEMA reports that over 30% of the claims filed under the NFIP are from damages incurred outside the 100-year floodplain. An example of this type of area is the common "urban flooding" resulting from undersized or poorly maintained drainage systems.

Based on information including historical flooding and flood disaster declarations, flood problems are most acute in the Delaware, Susquehanna, Genesee, Chemung, Hudson, Mohawk, and Allegheny River Basins. These major waterways, along with the tributary streams in the basins, are subject to direct flooding. Tributary streams also imperil persons and property by backwater flooding associated with the major waterways in the basins.

River basins are not the only areas of New York State that exposed to flood hazards. New York has over 3000 miles of marine and lacustrine coastline that are often causes of flooding. This includes the lands adjacent to Lake Erie and Lake Ontario, the St. Lawrence and Niagara Rivers, the Hudson River estuary, the Kill van Kull and Arthur Kill, Long Island Sound and the Atlantic Ocean and their connecting bays, harbors, shallows, and marshes. Long Island alone has over 1200 miles of coastline. There are another 1000 miles of shoreline along the Great Lakes. Located on these shorelines are 25 cities, 112 towns, and 103 villages, all of which face the possibility of being affected by flooding.

### **Flood Hazard Types Defined and Located**

According to the Federal Interagency Floodplain Management Task Force, flooding in the United States can be separated into several types including the following:

- Riverine flooding, including overflow from a river channel, flash floods, alluvial fan floods, and ice-jam floods;
- Riverine flooding including dam-break floods;
- Local drainage or high groundwater levels;
- Fluctuating lake levels;
- Coastal Flooding;
- Coastal erosion.

### **Riverine Flooding**

Riverine flood problems are most severe in the following River Basins: Delaware, Susquehanna and Chemung, Erie-Niagara, Genesee, Allegany, Hudson and Mohawk.

Overbank flooding of rivers and streams is the most common type of flood event. Riverine floodplains range from narrow, confined channels in the steep valleys of hilly and mountainous areas to wide, flat areas along major rivers and low-lying coastal regions. The volume of water in the floodplain is a function of the size of the contributing watershed and topographic characteristics such as watershed shape and slope, and climatic and land-use characteristics.

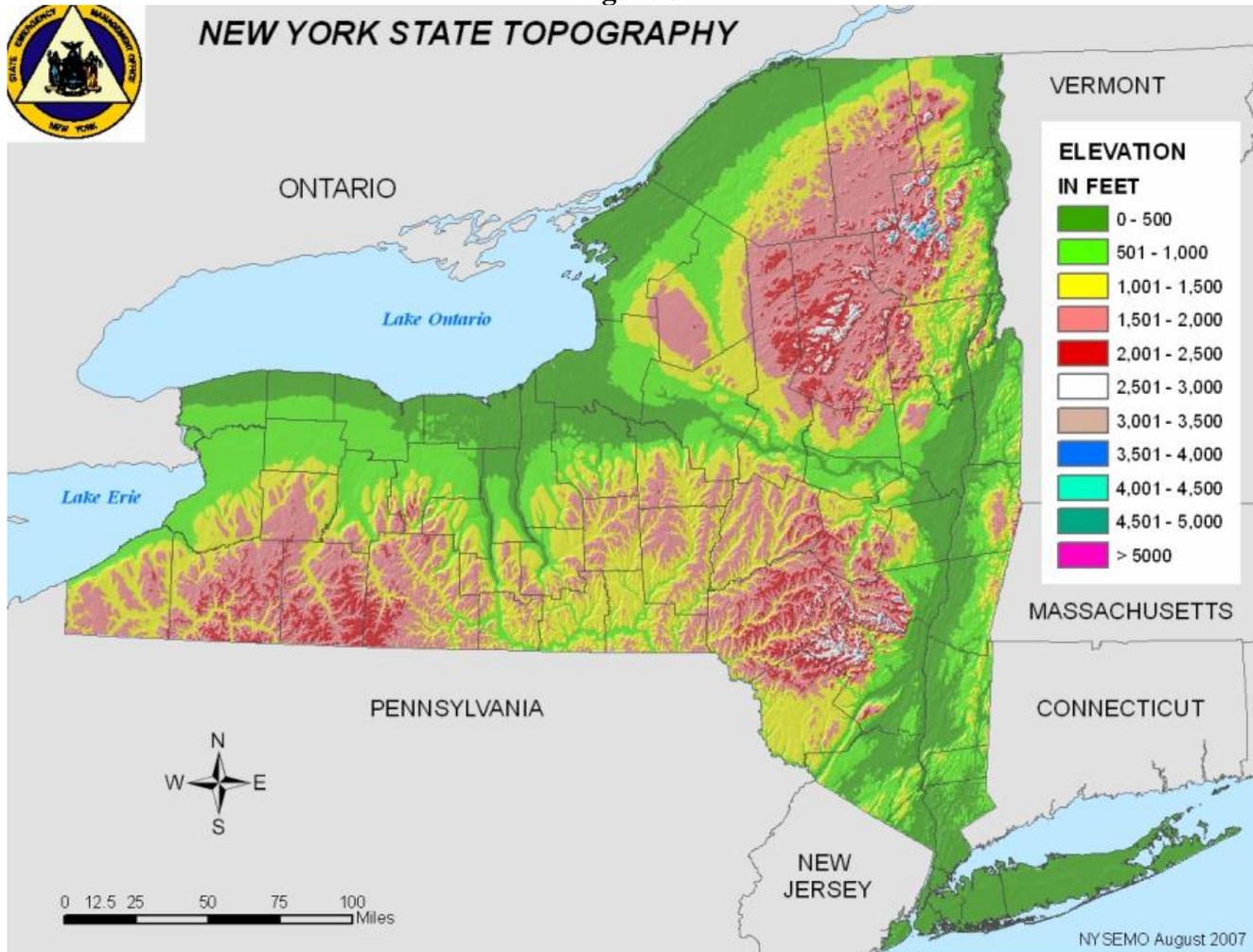
In steep, narrow valleys, flooding usually occurs quickly, is of short duration, and floodwaters are likely to be rapid and deep. In relatively flat floodplains, areas may remain inundated for days or even weeks, but floodwaters are typically slow-moving and relatively shallow, and may accumulate over long periods of time.

Flooding from large rivers usually results from large-scale weather systems that generate prolonged rainfall over wide areas. These same weather systems may cause flooding in hundreds of smaller basins that drain to major rivers. Small rivers and streams are susceptible to flooding from more localized weather systems that cause intense rainfall over small areas. In some parts of the State, annual spring floods result from snowmelt, and the extent of flooding depends on the depth of winter snowpack and spring weather patterns. In the northeast, winter thaws, sometimes combined with rain, can also cause significant flooding.

## Flash Floods

Based on the characterization of the flash flood hazard noted below, flash flooding can occur almost anywhere in New York State; however the distinctive flashflood event that is characterized by fast moving water and violent damaging results requires a steep topography. Although steep topography can be found anywhere, it prevails in the following regions: the Allegany-Catskill plateau which runs the entire width of New York State's Southern Tier and the Adirondack Mountains of the Northern Plateau. See **Figure 3-4** which includes a topographical representation of New York State.

Figure 3-4



Flash flood is a term widely used by flood experts and the general population. However, there is no single definition, or a clear means to separate flash floods from the rest of the spectrum of riverine floods.

Flash floods are characterized by a rapid rise in water level, high velocity, and large amounts of debris. They are capable of tearing out trees, undermining buildings and bridges, and scouring new channels. Major factors causing flash flooding are the intensity and duration of rainfall, the steepness of watershed and stream gradients. The extent and density of watershed vegetation, the natural and artificial flood storage areas and the configuration of the stream bed and floodplain are also important.

Flash floods may result from the failure of a dam, the sudden breakup of an ice jam, or an intense rainfall over a very short duration. All of these events can cause the release of a large volume of water in a short period of time. Flash flooding in urban areas is an increasingly serious problem due to removal of vegetation, increased paving, the replacement of permeable ground cover with impermeable surfaces that increase runoff, and the construction of drainage systems that increase the speed of runoff.

The tragic flash flood event of June 19, 2007 in the Town of Colchester, Delaware County is a text book example of the potential for loss of lives, property and infrastructure due to flash flooding. Approximately 8” of rain fell over a two-hour period on the very steep slopes of the Catskill Mountains in the Town of Colchester. The resulting flash flood sent a wall of water down tributaries of the upper East Branch of the Delaware River and washed away roads, bridges, homes and cars, taking the lives of four people.

### Ice Jam Floods

Flooding caused by ice jams is similar to flash flooding. Ice jam formation causes a rapid rise of water at the jam and extending upstream. Failure or release of the jam causes sudden flooding downstream.

The formation of ice jams depends on the weather and physical conditions in river channels. Unlike the typical violent flash flooding occurrences where steep terrain is present, ice jams are most likely to occur where the channel slope naturally decreases, where culverts freeze solid at headwaters of reservoirs, at natural channel restrictions such as bends and bridges, and along shallows where channels may freeze solid. Ice jams are common in the Northeast United States and New York is no exception. In fact, according to the US Army Corps of Engineers, New York State ranks second in the Nation for total number of ice jam events. **Table 3-5** presents a comparison of total ice jam events by state for the period of February 1, 1867 thru May 24, 2010.

**Table 3-5**  
**Ice Jam Event Ranking by State**

<u>State</u>	<u>Total Number of Jams</u>	<u>Most Recent Jam</u>	<u>First Recorded Jam</u>	<u>Number of Rivers</u>	<u>Number of Locations</u>	<u>Rank by State</u>
MT	1596	3/16/2010	01/01/1894	163	450	1
NY	1548	1/29/2010	02/09/1857	206	491	2
WI	1402	3/14/2010	4/7/1906	148	321	3
MN	1275	3/19/2010	01/09/1858	136	288	4
AK	1175	5/24/2010	06/01/1889	159	436	5
ND	1152	3/23/2010	03/31/1881	94	250	6
PA	1128	1/8/2010	03/15/1784	172	452	7
NE	1070	3/12/2010	2/26/1905	68	268	8
SD	1062	3/18/2010	04/05/1881	115	299	9
VT	893	2/1/2010	01/01/1785	94	259	10
IL	864	1/12/2010	03/10/1868	91	289	11
ME	712	1/26/2010	01/01/1780	98	273	12
NH	637	1/26/2010	01/01/1835	82	171	13
OH	549	1/25/2010	02/05/1883	91	232	14

MI	484	2/3/2010	3/27/1904	105	197	15
WY	320	12/17/2008	3/16/1922	72	113	16
ID	289	12/30/2009	1/15/1909	63	109	17
IA	283	3/16/2010	04/07/1879	57	173	18
CO	270	1/27/2010	01/01/1891	82	119	19
MA	224	3/14/2010	2/28/1913	47	70	20
MO	223	2/11/2010	11/15/1842	28	70	21
CT	197	1/27/2005	2/28/1902	48	86	22
OR	173	1/8/2009	1/17/1909	42	61	23
IN	155	1/17/2009	2/29/1904	28	88	24
NJ	105	1/27/2009	3/7/1904	20	33	25
WV	65	1/18/2010	1/28/1918	32	51	26
VA	54	1/18/2010	12/22/1909	25	34	27
UT	51	2/11/2007	3/23/1929	21	27	28
MD	47	2/8/2004	01/01/1856	21	29	29
WA	44	2/2/2009	1/23/1919	25	27	30
KY	26	12/19/2000	12/1/1917	7	20	31
KS	22	1/27/2009	2/8/1924	14	22	32
NC	12	1/3/2001	2/24/1925	9	9	33
CA	11	2/3/2008	4/16/1993	6	9	34
RI	10	3/3/1972	2/9/1941	5	5	35
NM	7	2/2/1994	4/2/1937	4	4	36
AR	5	1/9/1942	1/8/1940	4	5	37
DC	4	2/16/1948	2/13/1918	1	1	38
TN	3	1/20/1940	2/2/1936	2	3	38
AL	2	1/29/1940	1/28/1940	2	2	39
AZ	1	1/31/1962	1/31/1962	1	1	39
DE	1	2/14/1948	2/14/1948	1	1	39
NV	1	2/1/1962	2/1/1962	1	1	39
TX	1	1/22/1940	1/22/1940	1	1	

Source: US Army Corps of Engineers, Engineering Research & Development Center, Cold Region Research & Engineering Laboratory (CRREL)

Ice jams and resulting floods can occur during fall freeze-up from the formation of frazil ice, during midwinter periods when stream channels freeze solid forming anchor ice, and during spring breakup when rising water levels from snowmelt or rainfall break existing ice cover into large floating masses that lodge at bridges, or other constructions. Damage from ice jam flooding usually exceeds that caused by open water flooding. Flood elevations are usually higher than predicted for free-flow conditions, water levels may change rapidly, and additional physical damage is caused by the force of ice impacting buildings and other structures. Because of the sometimes unpredictable nature of ice jam floods, FEMA's Flood Insurance Rate Maps often do not reflect ice jam flood threats.

While it is difficult to identify particular areas that are generally prone to ice jam flooding because the hazard can be very localized, based on the causal characteristics, ice jam flood hazard is most prevalent in locations of flat terrain and where climate includes extended periods of below freezing temperatures. Areas of New York that include characteristics lending to ice jam flooding include the northern counties of the Finger Lakes region and far western New York, the Mohawk Valley of central and eastern New York, and the North Country. Analysis of various historical records support the indications of causal characteristic but also point out that there are few regions of the State that can be considered exempt from ice jam flooding hazard. **Table 3-6** lists documented ice jam flooding events in New York State.

**Table 3-6**

**New York State Ice Jam Flooding Events Occurring Between 3/2/2007 and 3/11/2009\***

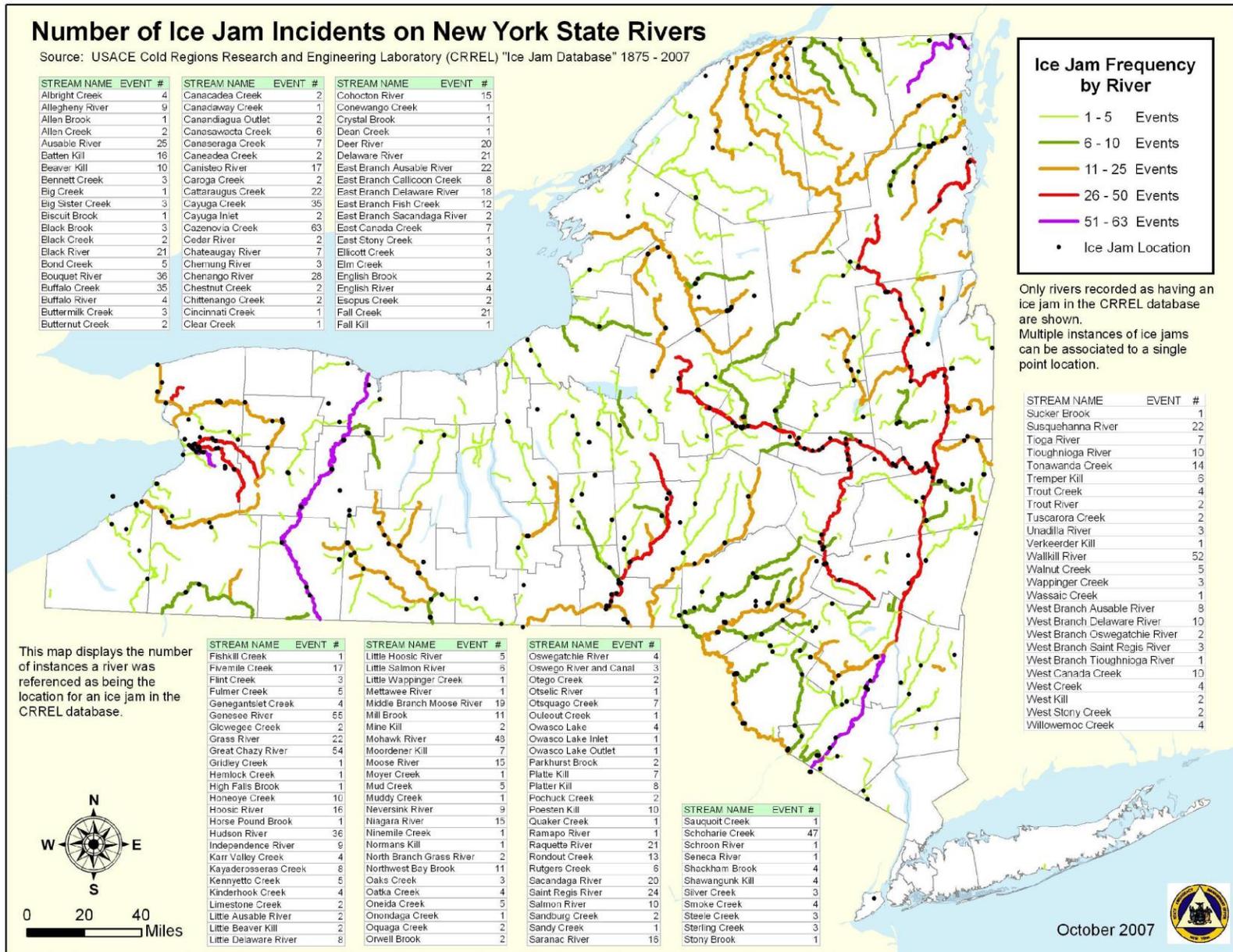
<b>Jam Date</b>	<b>River</b>	<b>City</b>
3/2/2007	Walnut Creek	Silver Creek
3/4/2007	Wallkill River	Gardiner
3/6/2007	Susquehanna River	Waverly
3/14/2007	Cattaraugus Creek	Sunset Bay
3/15/2007	Genesee River	Wellsville
3/15/2007	Cattaraugus Creek	Gowanda
3/15/2007	Mohawk River	Schenectady
3/15/2007	Mohawk River	Canajoharie
3/15/2007	Susquehanna River	Corbettsville
3/15/2007	Mohawk River	Sprakers
3/15/2007	Mohawk River	Fort Plain
3/15/2007	East Branch Ausable River	Au Sable Forks
3/15/2007	Great Chazy River	Perry Mills
3/16/2007	Hudson River	Troy
12/24/2007	East Branch Ausable River	Au Sable Forks
1/30/2008	Niagara River	Buffalo
2/7/2008	Niagara River	Niagara Falls
2/7/2008	Tonawanda Creek	Rapids
2/11/2008	Cazenovia Creek	Cazenovia
2/13/2008	Hoosic River	Buskirk
4/2/2008	Great Chazy River	Perry Mills
12/27/2008	Mohawk River	Schenectady
12/28/2008	Great Chazy River	Perry Mills
1/15/2009	Mohawk River Lock 12	Tribes Hill
2/8/2009	Buffalo Creek	West Seneca
2/8/2009	Cazenovia Creek	West Seneca
2/8/2009	Buffalo Creek	Elma
2/8/2009	Cayuga Creek	Lancaster
2/10/2009	Canisteo River	West Cameron
2/10/2009	Cohocton River	Campbell

2/11/2009	Oneida Creek	Oneida
2/11/2009	Fall Creek	Ithaca
2/12/2009	Schoharie Creek	Fort Hunter
2/12/2009	Susquehanna River	Conklin
2/12/2009	Chenango River	Chenango
2/12/2009	Cattaraugus Creek	Sunset Bay
2/12/2009	Ausable River	Au Sable Forks
2/12/2009	Bridenbecker Creek	Schuyler
2/12/2009	Chenango River	Chenango
2/13/2009	Hoosic River	Eagle Bridge
2/13/2009	Wallkill River	Gardiner
3/7/2009	Nowadaga Creek	Danube
3/8/2009	Ausable River	Ausable Forks
3/8/2009	Mohawk River	Schenectady
3/9/2009	East Canada Creek	Dolgeville
3/11/2009	Saranac River	Plattsburgh

\* 3/11/2009 was the most current data available for NYS at the time of updating the 2010 report. Additional data on ice jam events in NYS is available at <https://rsgis.crrel.usace.army.mil/icejam/>

The US Army Corps of Engineers (USACE), in conjunction with their Center of Expertise in Hanover, New Hampshire at the Cold Regions Research and Engineering Laboratory (CRREL) can provide assistance to communities in New York State to address ice jam problems. This assistance can take the form of short term mitigation of an on-going or anticipated event or the long term mitigation of recurring ice jam flooding events with various structural and non-structural solutions.

Figure 3-5 Number of Ice Jam Incidents on New York State Rivers



### **Dam Break Floods**

Dam failures can occur as a result of structural failures, such as progressive erosion of an embankment or overtopping and breaching by a severe flood. Earthquakes may weaken dams. Disastrous floods caused by dam failures, although not in the category of natural hazards, have caused great loss of life and property damage, primarily due to their unexpected nature and high velocity floodwater.

### **Local Drainage or High Groundwater Levels**

Locally heavy precipitation may produce flooding in areas other than delineated floodplains or along recognizable drainage channels. If local conditions cannot accommodate intense precipitation through a combination of infiltration and surface runoff, water may accumulate and cause flooding problems. During winter and spring, frozen ground and accumulations of snow may contribute to inadequate drainage and localized ponding. Similar to ice jams, poor drainage flooding problems are localized but generally occur in areas with flat gradients and generally increase with urbanization which speeds the accumulation of floodwaters because of the addition of impervious areas. Shallow sheet flooding may result unless channels have been improved to account for increased flows.

High groundwater levels may be of concern and can cause problems even where there is no surface flooding. Seasonally high groundwater is common in many areas and occurs only after long periods of above-average precipitation in others. High groundwater problems are known to occur in urban areas where groundwater pumping has ended and aquifer levels have rebounded. Basement flooding is a particular complaint in areas susceptible to high groundwater levels.

Areas of New York that include characteristics lending to poor drainage type flooding include the Long Island communities, western New York and, in general, the more urbanized areas.

### **Fluctuating Lake Levels**

Water levels in lakes can fluctuate on a short-term seasonal basis or on a long-term basis over periods of months or years. Heavy seasonal rainfall can cause high lake levels for short periods of time and snow melt can result in higher water levels during the spring. Long-term fluctuations are a less-recognized phenomenon that can cause high water and subsequent flooding problems lasting for years, or even decades.

In New York, Lakes Ontario and Erie experience seasonal and long term fluctuations due to precipitation patterns over the vast Great Lakes drainage basin. The lakes have been known to exhibit high water levels for significant periods, in spite of the limited amount of relief offered to Lake Ontario downstream along the St. Lawrence River. Even during low water periods, however, storms can cause significant flooding when strong winds cause surges. Other large lakes in New York, including the Finger Lakes and Lake Champlain, also experience seasonal and long term fluctuations in mean water levels.

### **Coastal Flooding**

There are two major types of coastal storm events that impact the State's marine coastline and the communities located on those shores. Hurricanes and tropical storms are one major type. Originating in the warm waters of the South Atlantic, these are high energy storm systems and their usual path, from south to north, puts Long Island's south shore at great risk. They can produce both high winds and heavy rainfall. When one of these storms makes landfall coincident with high tide, the wind driven storm surge can overtop barrier dunes, threatening the areas

behind them. Nor'easters can also cause flooding on our marine coasts. These storms form in the gap between a high and low pressure system and are sometimes referred to as "precipitation machines." They bring sustained high winds and heavy snow or rain, and are often responsible for storm surges on the north shore of Long Island. These coastal storms, including Nor'easters, Tropical storms, and hurricanes, can reach the inland and upland portions of the State and bring torrential rains.

Communities along the shores of Lake Erie and Lake Ontario also are faced with coastal flooding. High water levels in lakes, sometimes due to seasonal runoff, sometimes due to above normal runoff over a longer term period can cause near shore flooding (see discussion in the preceding section). But flooding along the Great Lakes can also come from a seich. Like water sloshing in a bathtub, seiches are tide-like rises and drops in Great Lakes coastal water levels caused by prolonged strong winds that push water toward one side of the lake, causing the water level to rise on the downwind side of the lake and to drop on the upwind side. When the wind stops, the water sloshes back and forth, with the near shore water level rising and falling in decreasingly small amounts on both sides of the lake until it reaches equilibrium.

**Table 3-7:**  
**COASTAL FLOODING** event(s) were reported in New York between 09/01/1815 and 11/14/2009.

**Dth:** Deaths  
**Inj:** Injuries  
**PrD:** Property Damage  
**CrD:** Crop Damage

Location or County	Date	Type	Dth	Inj	PrD	CrD
1 <a href="#">Long Island</a> – “The Great Gale of 1815” – many structures damaged	Sept., 1815	Coastal Flood	0	0	0	0
2 <a href="#">Long Island</a>	Sept., 1821	Coastal Flood	21	0	0	0
3 <a href="#">Long Island</a>	Sept., 1944	Coastal Flood	0	0	800K	0
4 <a href="#">Suffolk</a>	March, 1962	Coastal Flood	0	0	0	0
5 <a href="#">Nassau - Fire Island</a>	Sept., 1966	Coastal Flood	0	0	0	0
6 <a href="#">Atlantic Coastal New York</a>	June, 1972	Coastal Flood	0	0	0	0
7 <a href="#">Long Island</a>	12/21/92	Coastal Flood	0	0	31.2M	0
8 <a href="#">Westchester and Suffolk</a>	11/19/96	Coastal Flood	0	0	16.1M	0
9 <a href="#">Suffolk</a>	01/09/1993	Coastal Flood	0	0	0	0
10 <a href="#">Suffolk</a>	02/13/1993	Coastal Flood	0	0	0	0
11 <a href="#">Coastal New York</a>	03/04/1993	Coastal Flood	0	0	0	0
12 <a href="#">Atlantic Coastal New York</a>	03/13/1993	Coastal Flood	0	0	0	0
13 <a href="#">Suffolk</a>	04/07/1993	Coastal Flood	0	0	0	0
14 <a href="#">Nassau - Fire Island</a>	08/31/1993	Coastal Flood	0	0	0	0
15 <a href="#">Atlantic Coastal New York</a>	12/14/1993	Coastal Flood	0	0	0	0

16 <a href="#">Atlantic Coastal New York</a>	01/04/1994	Coastal Flood	0	0	0	0
17 <a href="#">Atlantic Coastal New York</a>	03/02/1994	Coastal Flood	0	0	0	0
18 <a href="#">Suffolk – North and South Fork</a>	12/24/1994	Coastal Flood	0	0	0	0
19 <a href="#">Atlantic Coastal New York</a>	02/04/1995	Coastal Flood	0	0	0	0
20 <a href="#">Nassau</a>	11/14/1995	Coastal Flood	0	0	0	0
21 <a href="#">Queens</a>	11/14/1995	Coastal Flood	0	0	0	0
22 <a href="#">Suffolk</a>	11/14/1995	Coastal Flood	0	0	0	0
23 <a href="#">Westchester</a>	11/14/1995	Coastal Flood	0	0	0	0
24 <a href="#">Long Island</a>	12/20/1995	Coastal Flood	0	0	0	0
25 <a href="#">Long Island</a>	12/20/1995	Coastal Flood	0	0	0	0
26 <a href="#">Nassau - Fire Island</a> <a href="#">Suffolk - Hamptons</a>	08/29/1996	Coastal Flooding	0	0	0	0
27 <a href="#">Bronx, New York, Queens, Westchester</a> <a href="#">Nassau – East Bayville &amp; Freeport</a> <a href="#">Suffolk – Asharoken &amp; Orient Point</a>	10/19/1996	Coastal Flood	0	0	11.5M	0
28 <a href="#">Bronx, Kings, Queens, New York, Richmond, &amp; Westchester</a> <a href="#">Nassau – Freeport</a> <a href="#">Suffolk – Babylon &amp; Lindenhurst</a>	12/13/1996	Coastal Flood	0	0	0	0
29 <a href="#">Atlantic Coastal New York</a>	01/10/1997	Coastal Flood	0	0	0	0
30 <a href="#">Atlantic Coast New York</a>	01/10/1997	Coastal Flood	0	0	0	0
31 <a href="#">Atlantic Coast New York</a>	01/10/1997	Coastal Flood	0	0	0	0
32 <a href="#">Nassau - Freeport</a>	08/20/1997	Coastal Flood	0	0	0	0
33 <a href="#">Suffolk - Babylon</a>	08/20/1997	Coastal Flood	0	0	0	0
34 <a href="#">Queens, Suffolk</a> <a href="#">Nassau – Freeport &amp; Bayville</a>	11/14/1997	Coastal Flooding	0	0	0	0
35 <a href="#">Bronx – Edgewater</a> <a href="#">Suffolk – Patchogue, Hamptons, Bayport, Bellport, &amp; Blue Point</a>	12/29/1997	Coastal Flooding	0	0	0	0
36 <a href="#">Nassau- Freeport</a> <a href="#">Suffolk - Bridgehampton</a>	01/29/1998	Coastal Flood	0	0	0	0
37 <a href="#">Staten Island – Oakwood Beach &amp; Crescent Beach</a> <a href="#">Nassau – Freeport &amp; Massapequa</a> <a href="#">Suffolk – Babylon, Ocean Beach, S. Hampton, Smith Point</a>	02/05/1998	Coastal Flood	0	0	750K	0

38 <a href="#">Nassau – Freeport Suffolk – Port Jefferson, East Hampton, Montauk, New Suffolk</a>	02/24/1998	Coastal Flood	0	0	0	0
39 <a href="#">Erie - Buffalo</a>	12/12/2000	Seiche	0	0	50K	0
40 <a href="#">Erie - Angola</a>	03/09/2002	Seiche	0	0	35K	0
41 <a href="#">Nassau – Freeport Suffolk - Amityville</a>	10/16/2002	Coastal Flood	0	0	0	0
42 <a href="#">Chautauqua and Erie Ripley to Buffalo</a>	11/06/2005	Seiche	0	0	25K	0
43 <a href="#">Nassau - Freeport</a>	01/03/2006	Coastal Flood	0	0	0	0
44 <a href="#">Nassau _ Freeport</a>	10/07/2006	Coastal Flood	0	0	0	0
45 <a href="#">Nassau - Freeport</a>	10/28/2006	Coastal Flood	0	0	0	0
46 <a href="#">Chautauqua and Erie</a>	12/01/2006	Seiche	0	0	40K	0

47 <a href="#">Nassau Co</a>	04/15/07	Coastal Flood	0	0	0	0
48 <a href="#">Queens &amp; Richmond Co. (Staten Island)</a>	04/15/07	Coastal Flood	0	0	0	0
49 <a href="#">Suffolk Co.</a>	04/15/07	Coastal Flood	0	0	0	0
50 <a href="#">Bronx &amp; Westchester Co.</a>	04/15/07	Coastal Flood	0	0	0	0
51 <a href="#">Kings Co. (Brooklyn)</a>	04/16/07	Coastal Flood	0	0	0	0
52 <a href="#">Suffolk Co.</a>	04/16/07	Coastal Flood	0	0	0	0
53 <a href="#">Nassau Co.</a>	04/16/07	Coastal Flood	0	0	0	0
54 <a href="#">Suffolk Co.</a>	04/16/07	Coastal Flood	0	0	26.0M	0
55 <a href="#">Nassau Co.</a>	04/17/07	Coastal Flood	0	0	0	0
56 <a href="#">Nassau Co.</a>	04/18/07	Coastal Flood	0	0	0	0
57 <a href="#">Suffolk Co. (NW)</a>	12/16/07	Coastal Flood	0	0	0	0
58 <a href="#">Suffolk Co. (SE)</a>	12/16/07	Coastal Flood	0	0	7.0M	0
59 <a href="#">Nassau Co.</a>	04/07/08	Coastal Flood	0	0	0	0
60 <a href="#">Nassau Co. (Kings Point)</a>	10/28/08	Coastal Flood	0	0	0	0
61 <a href="#">Suffolk Co. (Freeport)</a>	07/23/09	Coastal Flood	0	0	0	0
62 <a href="#">Suffolk Co. (Freeport)</a>	07/23/09	Coastal Flood	0	0	0	0
63 <a href="#">Nassau Co. (Freeport)</a>	10/16/09	Coastal Flood	0	0	0	0
64 <a href="#">Nassau Co. (Brookville Blvd &amp; Rockaway Blvd)</a>	10/16/09	Coastal Flood	0	0	0	0

65 <a href="#">Nassau Co. (Atlantic Beach)</a>	10/18/09	Coastal Flood	0	0	0	0
66 <a href="#">Suffolk Co. (Lindenhurst)</a>	10/18/09	Coastal Flood	0	0	0	0
67 <a href="#">Suffolk Co. (Shelter Island)</a>	10/18/09	Coastal Flood	0	0	1K	0
68 <a href="#">Nassau Co. (Freeport)</a>	11/13/09	Coastal Flood	0	0	0	0
69 <a href="#">Nassau Co. (Freeport)</a>	11/14/09	Coastal Flood	0	0	0	0
70 <a href="#">Suffolk Co. (Lindenhurst)</a>	11/14/09	Coastal Flood	0	0	0	0
71 <a href="#">Suffolk Co.(W. Hampton) Dune Rd</a>	11/14/09	Coastal Flood	0	0	0	0
<b>TOTALS:</b>			21	0	93.5M	0

### Coastal Erosion

Hurricanes, tropical storms, severe storms, and high wind events have played important roles in shaping the present-day shoreline, as a result of the resulting erosion and movement of sand. The desire to develop housing along the coastline has placed many New Yorkers in areas of high vulnerability due to the lack of hurricane protection and the erosion of supportive and protective landforms. Long Island is especially vulnerable to erosion due to its composition of a loose mixture of sand and gravel and its location facing the ocean in direct opposition to the prevailing wind and water currents moving up the Atlantic Coast. DEC has estimated that a significant portion of Long Island's coastline is in high erosion hazard areas.

Storm-induced shore erosion is also a major problem along the Great Lakes shorelines. Caused primarily by storm-induced wave action and associated long shore currents, the problem becomes critical when high lake levels have submerged the beaches which protect adjoining upland areas that are highly erosion-prone. Raised above the beaches, wave forces can work directly on the toe of bluffs and dunes, resulting in rapid erosion. New York State has more than 1000 miles of coastline bordering the Great Lakes and its connecting rivers. Of these, some 200 miles are subject to significant erosion, with the most critical areas lying along the south shore of Lake Ontario. Property damage caused by erosion of Lake Ontario's shoreline during high water periods has been estimated in the millions of dollars. Lake Erie's historical high water levels were reached in the mid-1980's, a period which saw much erosion and damage.

While all shore lines are subject to wind, water and gravitational forces of erosion, some shorelines are at greater risk than others. New York State's Coastal Erosion Hazard Area (CEHA) program was established both to protect lives and property from the threat of coastal erosion and to protect the natural protective features that mitigate or slow the forces of coastal erosion.

New York State currently has 86 municipalities under the CEHA program where coastal erosion is of significant concern. These communities are identified in **Table 3-8**.

**New York State Department of Environmental Conservation  
Coastal Erosion Hazard Area (CEHA) Program  
Effective Dates of CEHA Programs, by Community  
6 NYCRR Part 505, Coastal Erosion Management Regulations  
(Information is current as of June 15, 2010)**

**NYSDEC REGION 1****Nassau County**

● Atlantic Beach (V)	09/14/89
● Bayville (V)	12/01/92
○ Centre Island (V)	09/25/92
● Glen Cove (C)	08/07/90
● Hempstead (T)	05/27/92
● Kings Point (V)	11/21/89
● Lattingtown (V)	10/05/89
○ Long Beach (C)	08/22/92
○ Oyster Bay (T)	08/22/92
● Sands Point (V)	02/27/89

**Suffolk County**

* Asharoken (V)	
● Babylon (T)	12/18/89
● Belle Terre (V)	09/28/89
● Brookhaven – N (T)	03/28/95
● Brookhaven – S (T)	06/14/01
○ East Hampton (T)	06/20/91
● East Hampton (V)	09/21/89
● Huntington (T)	01/23/90
○ Islip (T)	10/09/99
● Lloyd Harbor (V)	10/05/89
○ Nissequogue (V)	07/10/92
● Ocean Beach (V)	12/13/99
● Old Field (V)	02/01/93
● Port Jefferson (V)	06/13/89
● Quogue (V)	02/06/89
● Riverhead (T)	05/23/91
○ Sagaponack (V)	09/27/07
● Saltaire (V)	05/17/99
○ Shelter Island (T)	07/10/92
● Shoreham (V)	01/04/90
○ Smithtown (T)	07/10/92
● Southampton (T)	05/24/89
● Southampton (V)	02/06/89
● Southold (T)	06/20/91
● W. Hampton Dunes (V)	11/13/95
● Westhampton Beach (V)	05/24/89

**NYSDEC REGION 2****New York City Area**

○ Kings County	01/31/91
○ Queens County	01/31/91
○ Richmond County	01/31/91

**NYSDEC REGION 3****Westchester County**

○ Larchmont (V)	03/10/93
○ Mamaroneck (T)	03/10/93
○ Mamaroneck (V)	03/10/93
● New Rochelle (C)	12/08/89
○ Rye (C)	03/10/93

**NYSDEC REGION 6****Jefferson County**

● Ellisburg (T)	09/03/89
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**NYSDEC REGION 7****Cayuga County**

○ Fair Haven (V)	03/11/93
● Sterling (T)	12/24/91

**Oswego County**

○ Mexico (T)	08/10/91
○ New Haven (T)	03/11/93
● Oswego (C)	05/24/89
○ Oswego (T)	03/11/93
○ Richland (T)	08/10/91
○ Sandy Creek (T)	08/10/91
○ Scriba (T)	03/11/93

**NYSDEC REGION 8****Monroe County**

● Greece (T)	01/04/90
● Hamlin (T)	09/05/90
○ Irondequoit (T)	04/14/91
○ Parma (T)	04/14/91
○ Penfield (T)	04/14/91
● Rochester (C)	09/08/92
○ Webster (T)	04/14/91

**Orleans County**

○ Carlton (T)	10/20/91
● Kendall (T)	03/01/90
● Yates (T)	10/06/89

**Wayne County**

● Huron (T)	11/10/91
○ Ontario (T)	11/10/91
● Sodus (T)	03/10/00
○ Sodus Point (V)	11/10/91
○ Williamson (T)	11/10/91
○ Wolcott (T)	11/10/91

**NYSDEC REGION 9****Chautauqua County**

○ Dunkirk (C)	02/27/93
● Dunkirk (T)	08/03/89
○ Hanover (T)	07/17/93
○ Pomfret (T)	02/27/93
○ Portland (T)	02/27/93
○ Ripley (T)	02/27/93
● Sheridan (T)	06/05/92
○ Silver Creek (V)	07/17/93
○ Westfield (T)	02/27/93

**Erie County**

○ Brant (T)	05/08/91
○ Evans (T)	05/08/91
● Hamburg (T)	09/23/91

**Niagara County**

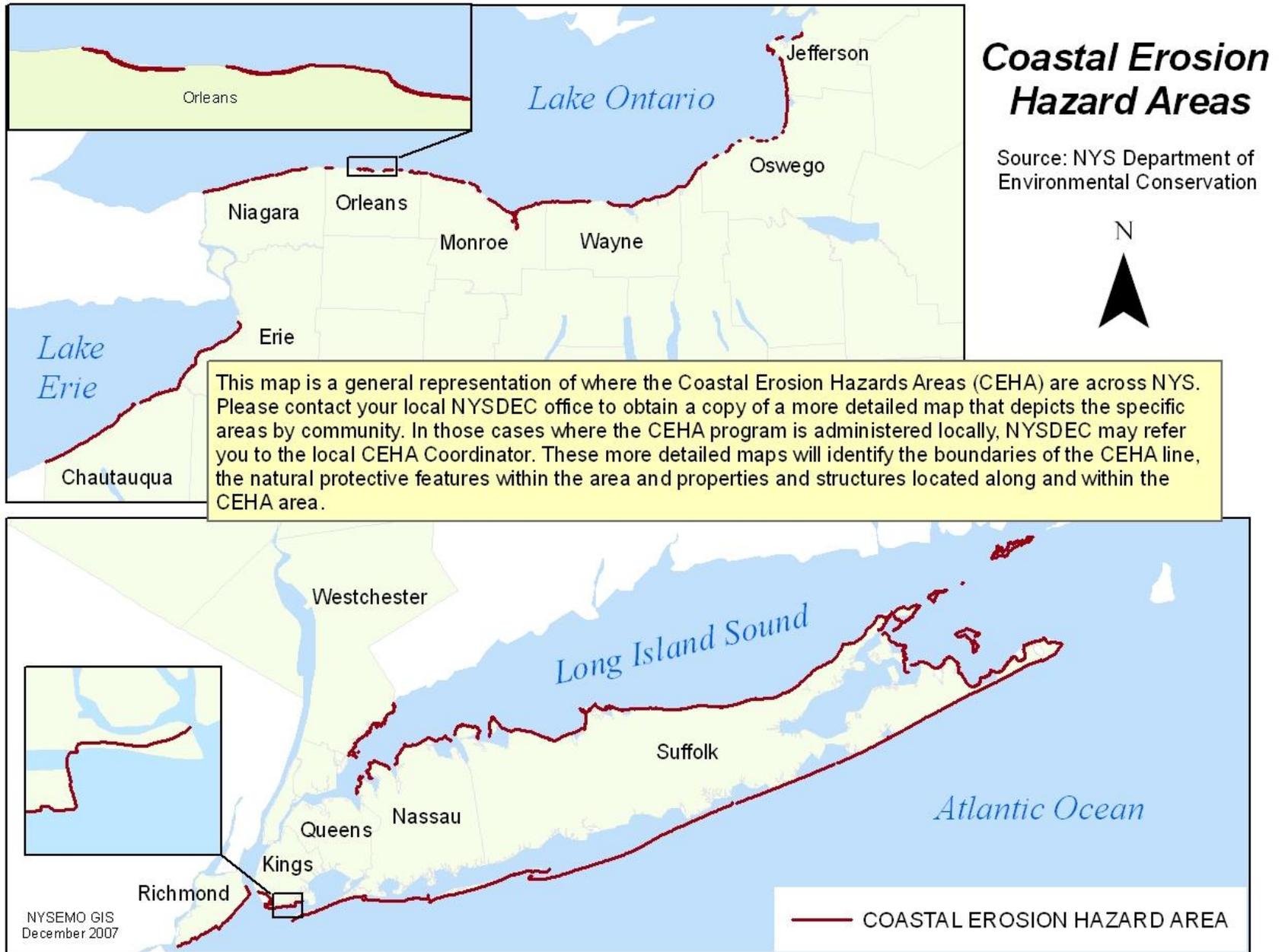
○ Newfane (T)	03/04/93
○ Porter (T)	05/08/91
○ Somerset (T)	03/04/93
● Wilson (T)	02/10/92
○ Wilson (V)	09/20/91

**LEGEND**

- Administered by the DEC.
  - Community administers and enforces its own local CEHA Program.
- \* Part 505 implementation has not been completed yet.

The following map provides additional information on NYS CEHA program. **Figure 3-7** highlights the areas in NYS where coastal erosion has been identified as a problem and where the CEHA regulations are in-place and detailed maps have been developed to delineate the hazard areas. In many communities detailed orthoimagery is available so that individual roads, structures, and land features can be identified. Please contact your local NYSDEC office to obtain a copy of the CEHA map that depicts the specific community you are interested in. In those cases where the CEHA program is administered locally, NYSDEC may refer you to the local CEHA Coordinator.

Figure 3-6



## **Affecting Conditions – Flood Hazard**

Variables that determine the overall flood hazard risk include: Natural - the weather or climatological and meteorological factors and the land or geographic features including topography and Human Caused – land use.

**Weather:** New York State exhibits a unique blend of weather (climatological and meteorological) features that influence the potential for flooding. Factors include temperature, which is affected by latitudes, elevation, proximity to water bodies and source of air masses; and precipitation which includes snowfall and rainfall. Precipitation intensities and effects are influenced by temperature, proximity to water bodies, and general frequency of storm systems.

**Temperature (snow pack and ice)** - A climate summary of New York State prepared by the New York State Climate Office, Department of Earth and Atmospheric Sciences at Cornell University, [http://nysc.eas.cornell.edu/climate\\_of\\_ny.html](http://nysc.eas.cornell.edu/climate_of_ny.html), reports “the greatest potential and frequency for floods occurs in the early spring when substantial rains combine with rapid snowmelt to produce a heavy runoff.” The depth of annual snow pack is recognized as a major factor affecting the potential for spring flooding. Annual spring floods can result from snowmelt, and the extent of flooding depends on the depth of winter snow pack and spring weather pattern. Deep snow pack is possible in most of New York State with the exception of the lower Hudson River Valley and Long Island. The highest potential for deep snow pack are those locations that receive the highest snowfall and the coldest temperatures including the Catskills and Adirondack Mountains, and the lake effect snow belt areas of central and western New York. Certain areas, including the Catskill Plateau, Tug Hill Plateau, and the Adirondack Mountains experience a higher total number of inches of annual snowfall and/or accumulate a deeper snow pack that tends to create a higher potential for flooding induced by rapid snowmelt during spring thaw. Additionally, this annual spring thaw, with the concurrent breakup of river ice, leads to the possibility of ice dams (jams) and can result in flooding.

**Precipitation** - The Cornell Climate Report also indicates that the geographic position of the State (Northeast U.S.) makes it vulnerable to frequent precipitation events. This is because nearly all storms and frontal systems moving eastward across the continent pass through, or are in close proximity to, New York State. Additionally, the potential for prolonged periods of heavy precipitation is increased because of the available moisture of the Atlantic Ocean. This heavy rain can quickly saturate the ground leading to increased runoff and flooding. The heavy rain makers New York State is subject to come in the form of coastal storms (Nor’easters, Tropical Storms, and Hurricanes) and thunderstorms.

There are two major types of coastal storm events that impact the State’s marine coastline and the communities located on its shores. Hurricanes and tropical storms are one major type. Originating in the warm waters of the South Atlantic these are high energy storm systems and their usual path, from south to north, puts Long Island’s south shore at great risk. They can produce both high winds and heavy rainfall. When one of these storms makes landfall coincident with high tide, the wind driven storm surge can overtop barrier dunes, threatening the areas behind them. Nor’easters can also cause flooding on our marine coasts. These storms form in the gap between a high and low pressure system and are sometimes referred to as “precipitation machines.” They bring sustained high winds and heavy snow or rain, and are often responsible for storm surges on the north shore of Long Island. These coastal storms including, nor’easters,

tropical storms, and hurricanes, can reach the inland and upland portions of the State bringing torrential rains.

Thunderstorms are also a problem for communities in New York State. Though localized, thunderstorms have the characteristic of releasing large amounts of precipitation in a short period of time, making them especially dangerous in the mountainous regions of New York where there is a very real possibility of flash flooding.

Variations in precipitation amounts at any given location and during any given month lend to the unpredictability of potential flooding. Average precipitation in New York State is estimated to be 90 billion gallons per day (bgd), or 40 inches per year. Across the State, the average annual rainfall varies from 30 to 50 inches per year with locally higher and lower amounts experienced. Variations from month to month are widely ranging from one inch to about six inches; in extreme cases, the variation is from less than one inch to ten inches or more. Almost any calendar month has the potential of receiving the lightest or heaviest monthly accumulation within a calendar year at a given location.

**Geography:** New York State exhibits a diverse blend of geo-physical features that influence the potential for flooding. These factors include topography, elevations, latitudes, and water bodies (including waterways).

**Water:** It is safe to say New York State has a significant exposure to water. In the interest of identifying the obvious factors, this is a major causal element of the flood hazard. According to the New York State Department of Environmental Conservation, Bureau of Flood Protection and Dam Safety, Division of Water, this water exposure includes the following;

- 52,337 miles Rivers and streams;
  - 7,849 lakes\*/ponds/reservoirs (790,782 acres \*not including Great Lakes);
  - 1,637 square miles of inland water, exclusive of the boundary water areas of Long Island Sound and New York Harbor which is 1,530 sq miles (includes NYS portion of Long Island Sound), Lake Ontario and Lake Erie;
  - 577 miles Great Lakes shoreline;
  - 117.5 miles Atlantic shoreline.
- 
- **Land** characteristics affecting the flood hazard can be described using the following classifications: the effects of elevation (altitude), latitudes, and topography.
  - **Elevations** in New York State range from 5,000 ft above sea level in the high peaks of the Adirondacks to sea level. Simply put, rising elevations can affect the flood hazard by having a tendency to increase precipitation amounts from storm systems; this effect is called orographic lift and it can increase the depth of snow pack leading to spring flooding events.
  - **Latitudes** of New York State include those subject to frequent cold weather as air masses are modified moving over the cold far northern reaches of North America. This cold air movement predominates the weather pattern six months out of the year resulting in large amounts of snowfall, particularly from lake effect (or enhanced) snow fall and increases the threat of spring floods as moisture is released from the deep snow pack.

- **Topography** variations, commonly referred to as steep slopes and hilly terrain are common in many areas of New York State. Simply put, steep slope features can cause large accumulations of water in the associated valleys or ravines especially during intense or long duration rainfalls.

**Human Caused:** Human use of land affects the hydraulics of effluent. Changes in land cover, including agriculture and development and re-development, can have a significant causal effect on the flood hazard potential. For instance, development leading to increased amounts of impervious surfaces such as roads, parking lots and buildings can increase rainwater runoff, and development in floodplains or wetlands can potentially result in an increased floodplain level.

### **Previous Flood Hazard Occurrences**

SOEM Mitigation staff researched several data sources for historical flood records including SOEM archives, FEMA statistics, Disaster Declaration data, and NOAA's National Climatic Data Center (NCDC) storm event database.

According to FEMA, nationwide 96 flood events classified as "significant" have occurred since 1978. A significant event is one with \$1,500 or more paid losses (NFIP). Nine of those significant flood events, or 1 in 10, has impacted New York State to one degree or another.

The NCDC Storm Events Database of NOAA includes records indicating 488 individual flood events occurred in New York State for the period April 1, 2007 through January 26, 2010 (latest update of the NCDC records). The combined total property damage for the 488 events is estimated at \$204.7 million. No crop damage losses were reported due to flooding over this same time period along with one injury and one death directly related to the flooding events.

Further analysis of this NCDC storm event data indicates of the 488 individual flood event records, approximately 343 or 70% are classified as "flash floods," 119 or 24% were characterized as "floods," and 25 or 5% were characterized as "coastal flood events."

**Table 3-9** presents a record of flood incidents for the period 1635 through 1994 as compiled through research from various sources including NYSOEM and partnering state agency archives. It should be noted that **Table 3-9** is not intended to be all inclusive while **Table 3-10** is the record of flood incidents between 2004 and 2007. **Table 3-10.1** is the most recent record of flooding occurring between April 1, 2007 through January 26, 2010 (latest update of the NCDC records). Please note that if you are using the electronic version of this report that each individual record on this list is a link to the NCDC data base. Placing your cursor on the event and then hitting the "Ctrl" button and left clicking your mouse will bring you to the NCDC data base record for that specific storm where you can obtain additional information about that storm event.

**Table 3-9  
Historical Incidents of Flooding (undeclared events)**

<b>Date</b>	<b>Location and Information (if available)</b>	<b>Date</b>	<b>Location and Information (if available)</b>
1635, August	Long Island, 1 <sup>st</sup> recorded hurricane in NY. Storm surge 14' above high tide.	1974, June	Western District Counties
1815, September	Long Island, "Great September Gale of 1815." Many structures damaged.	1974, July	Onondaga, Oswego, Oneida, Herkimer
1821, September	Long Island, Tropical Storm, 21 deaths.	1974, September	Westchester County
1865, March	Genesee River, central Rochester under water. One million \$ in damage. Recurrence interval > 100-yr.	1974, November	Monroe County
1869, April	Black River, Recurrence Interval 50 – 100-yr.	1974, December	Schoharie and Delaware Counties
1875, March	Genesee River, Ice Jam	1975, January	Wyoming County
1903, October	Delaware River, Recurrence Interval > 100-yr	1975, February	Chemung, Tioga, Steuben, Cattaraugus, Niagara, Chautauqua, Erie, Wyoming, Allegany Counties
1913, March	Hudson, Genesee, Black and Mohawk R., Recurrence Interval 25 to > 100yr.	1975, May	Delaware County
1936, March	Mohawk, Hudson and Susquehanna R., Recurrence Interval Approx. 100-yr.	1975, May	Allegany and Wyoming County
1938, September	Ausable R. and Southeastern NY. Hurricane related. Damages to So. Shore of L.I. >\$6million. Recurrence Interval 25 to 100-yr.	1975, June	Erie and Cattaraugus Counties
1944, September	Long Island, Tropical Storm related. Damages > \$800,000.	1975, July	Dutchess and Sullivan Counties
1948 Dec. – 1949 Jan.	Northeastern NY. Tropical Storm related. \$4 million damages. Recurrence Interval 25 > 100-yr.	1975, February	Chemung, Tioga, Steuben, Cattaraugus, Niagara, Chautauqua, Erie, Wyoming, Allegany Counties
1955, August	Southern NY Counties	1975, July	Rockland and Westchester Counties
1955, October	Southern NY Counties	1975, July	Chemung, Schenectady, Saratoga, Rensselaer, Albany, Washington, Greene, Delaware, Columbia, Dutchess, Sullivan, Putnam, Orange, Broome Co.
1956, March	Cattaraugus Co.	1975, August	Erie County
1957, December	Hudson	1975, August	Chautauqua County
1960, June	Broome Co.	1975, October	Otsego, Schoharie, Rensselaer, and Chenango Counties
1960, April	Ogdensburg	1975, October	Tioga, Washington, Oneida, Albany, Delaware, Broome, Chenango, Otsego
1960, February	Schenectady Co.	1975, November	Chautauqua and Erie Counties
1960, September	Long Island, Hurricane Donna, \$1.9 million in damages.	1976, January	Ulster, Dutchess, Washington, Rensselaer, Westchester, Orange, Saratoga, Jefferson, Sullivan Counties
1962, March	Suffolk Co.(Floods, High Tides)PL875	1976, January	Otsego County
1963, August	Erie Co.	1976, February	Tioga, Allegany, Chautauqua, Greene, Broome, Delaware, Columbia, Chemung, Cattaraugus, Counties
1963, March	Chautauqua Co.	1976, March	Allegany and Chautauqua Counties
1963, August	Erie Co. PL875	1976, April	Fulton and Warren Counties
1964, March	Central NY State	1976, April	Wayne, Saratoga, Chenango Co.
1964, July	Rensselaer Co.	1976, May	Oswego County
1966, February	Chautauqua County	1976, June	Rockland, Otsego, Delaware,

**Table 3-9  
Historical Incidents of Flooding (undeclared events)**

<b>Date</b>	<b>Location and Information (if available)</b>	<b>Date</b>	<b>Location and Information (if available)</b>
			Chenango, Schoharie Co.'s
1966, September	Fire Island (Suffolk Co.) High Tide	1976, June	Genesee County
1967, September	Cattaraugus and Allegany Co. PL875, Two deaths, several million \$ damages.	1976, June	Chemung, Steuben, Wayne, Schuyler
1969, February	Delaware County	1976, July	Erie County
1969, April	Franklin County	1976, July	Cortland, Broome, Warren, Tompkins, St. Lawrence Counties
1969, May	Dexter and Jefferson Co.'s	1976, July	Erie County
1969, June	McGraw, Cortland County	1976, August	Chemung, Tioga, Broome Counties
1969, July	Sullivan County	1976, August	New York City, Nassau, Suffolk Co.'s
1969, August	Orange County	1977, April	No Information Available
1970, February	Eagle Bridge, Rensselaer County	1977, November	No Information Available
1970, February	Blenheim, Schoharie County	1978, March	No Information Available
1970, February	Hazel, Sullivan Co. and West Seneca, Erie Co.	1980, May	No Information Available
1970, February	Prattsville, Gilboa Reservoir, Greene Co. and Rockdale, Dutchess Co.	1981, February	Delaware River
1970, April	Wallkill, Orange County	1981, May	No Information Available
1970, April	Milford, Town Goodyear Lake Otsego Co	1986, September	Chautauqua and Cattaraugus Co.'s
1970, July	Schuyler, Tompkins, Broome, and Delaware Counties	1989, August	Peekskill, City \$3 Mil.
1970, July	Cattaraugus County	1990, August	Westchester Co. \$3.5 Mil.
1970, October	Schuyler County	1990, August	Putnam Co. \$ 1.5
1970, October	Sullivan County	1993, May	Central New York \$6.1 Mil.
1971, August	Erie, Monroe, Onondaga, and Oneida Co.	1993, May	Great Lakes Region \$ 1 Mil.
1971, August	Wayne, Seneca, Cayuga, Tompkins Co.	1994, February	Herkimer Co. (ice jam flood) \$ 687K
1971, September	Eastern Counties	1994, August	Chemung Co. \$ 7 Mil.
1972, March	Prattsville, Greene Co.		
1972, March	Menands, Albany Co.		
1972, March	Sunset Bay, Chautauqua Co.		
1972, March	Town of Seneca, Erie Co.		
1972, March	Waterford, Saratoga Co.		
1972, May	Herkimer, Montgomery, Rensselaer, Saratoga, and Schenectady Co.'s		
1972, May	Cicero, Onondaga Co.		
1972, June	Statewide Coastal Storm, Agnes		
1973, March	Village of Champlain, Clinton Co.		
1973, April	Genesee, Livingston, Monroe, Ontario, and Wyoming Co.		
1973, June	Plattsburgh, Clinton Co.		
1973, June	Columbia, Delaware, Dutchess, Rensselaer, Sullivan, Ulster Co.'s		
1973, December	Albany, Broome, Columbia, Delaware, Greene, Rensselaer, and Schenectady Co.		
1974, March	St. Lawrence County		
1974, May	Monroe and Orleans County		

Source: NY State Emergency Management Office and Department of Environmental Conservation Archives

**Table 3-10  
Incidents of Flooding (undeclared events) 2004 - 2007**

**PrD: Property Damage  
CrD: Crop Damage**

Location or County	Date	Type	PrD	CrD
1 St. Lawrence County (St.Regis R.)	01/2004	Flood	10K	0
2 Franklin County (Salmon R.)	01/2004	Flood	30K	0
3 Chenango Bridge/Broome Co (Chenango R.)	03/2004	Flash Flood	50K	0
4 Broome, Chenango, Cortland, Tioga (Susquehanna and the Tioughnioga and Chenango Rivers)	03/2004	Flood	40K	0
5 Clinton County (Great Chazy R.)	03/2004	Flood	20K	0
6 Cortland/Cortland Co(Tioughnioga R)	03/2004	Flood	5K	0
7 De Ruyter / Madison Co.	05/2004	Flash Flood	20K	0
8 Conesus / Livingston Co.	05/20/2004	Flash Flood	200K	0
9 Sodus / Wayne Co.	05/24/2004	Flash Flood	10K	0
10 Irondequoit / Monroe Co.	05/24/2004	Flash Flood	10K	0
11 Mt Morris / Livingston Co.	05/25/2004	Flash Flood	10K	0
12 Guilford / Chenango Co.	05/26/2004	Flash Flood	25K	0
13 Erin / Chemung Co.	07/07/2004	Flash Flood	5K	0
14 Spencer / Tioga Co.	07/07/2004	Flash Flood	150K	0
15 Theresa / Jefferson Co.	07/12/2004	Flash Flood	25K	0
16 Seneca County (North Portion)	07/14/2004	Flash Flood	5K	0
17 Addison / Steuben Co.	07/14/2004	Flash Flood	10K	0
18 New Hartford / Oneida Co.	07/17/2004	Flash Flood	40K	0
19 Addison / Steuben Co.	07/17/2004	Flash Flood	20K	0
20 Ray Brook / Essex Co.	07/18/2004	Flash Flood	20K	0
21 St. Lawrence County (Countywide)	07/18/2004	Flood	5K	0
22 Bridgewater / Oneida Co.	07/18/2004	Flash Flood	20K	0
23 Lewiston / Niagara Co.	07/20/2004	Flash Flood	15K	0
24 Sullivan County (Northeast Portion)	07/23/2004	Flash Flood	50K	0
25 Hamilton / Madison Co.	07/28/2004	Flash Flood	10K	0
26 Exeter Center / Otsego Co.	07/28/2004	Flash Flood	10K	0
27 Chenango County (Chenango R.)	07/28/2004	Flood	10K	0
28 Barryville / Sullivan Co.	08/12/2004	Flash Flood	500K	0

29 Livingston Manor / Sullivan Co.	08/12/2004	Flash Flood	20K	0
30 Elmira / Chemung Co. (Chemung R)	08/30/2004	Flash Flood	5K	0
31 Scott / Cortland Co.	08/30/2004	Flash Flood	5K	0
32 Canaan / Columbia Co.	08/30/2004	Flash Flood	280K	0
33 Moravia / Cayuga Co.	08/30/2004	Flash Flood	20K	0
34 Essex County (Countywide)	08/30/2004	Flood	20K	0
35 Elmira/Chemung Co (Chemung R.)	09/09/2004	Flood	500K	0
36 Elizabethtown/Essex Co(Bouquet R)	09/09/2004	Flood	5K	0
37 Chemung/Chemung Co(ChemungR)	09/10/2004	Flood	50K	0
38 Chemung County (Countywide)	09/17/2004	Flash Flood	1.0M	0
39 Otsego County (SE Portion)	09/18/2004	Flash Flood	1.0M	0
40 Elmira/Chemung Co (Chemung R.)	09/18/2004	Flood	100K	0
41 Fishes Eddie/Delaware Co. (Delaware R.)	09/18/2004	Flood	1.0M	0
42 Chemung/Chemung Co (Chemung R)	09/18/2004	Flood	100K	0
43 Broome County (Countywide)	11/28/2004	Flash Flood	50K	0
44 Delaware County (Countywide)	11/28/2004	Flash Flood	20K	0
45 Madison County (Countywide)	11/28/2004	Flash Flood	10K	0
46 Buffalo/Erie Co. (Cazenovia Creek)	12/31/2004	Flood	3K	0
47 Amsterdam / Montgomery Co.	01/14/2005	Flash Flood	10K	0
48 Olean/Cattaraugus Co (Allegany R.)	01/14/2005	Flood	2K	0
49 Tompkins County (Fall Creek)	01/29/2005	Flood	100K	0
50 Gilbertsville / Otsego Co.	03/28/2005	Flash Flood	5K	0
51 Tioga County (Owego Cr.)	03/28/2005	Flash Flood	50K	0
52 Waverly/Tioga Co (Susquehanna R)	03/28/2005	Flood	20K	0
53 Delaware County (Beaverkill R.)	03/28/2005	Flood	10K	0
54 Bainbridge/Chenango Co. (Susquehanna R.)	03/28/2005	Flood	10K	0
55 Greene County (Countywide)	03/28/2005	Flood	100K	0
56 Conklin/Broome Co (Susquehanna R)	03/29/2005	Flood	20K	0
57 Vestal/Broome Co (Susquehanna R)	03/29/2005	Flood	20K	0
58 Bloomingburg /Sullivan Co.	03/29/2005	Flash Flood	10K	0
59 Columbia County (Countywide)	03/29/2005	Flood	100K	0
60 Bainbridge/Chenango Co. (Susquehanna R.)	03/31/2005	Flood	5K	0
61Cortland/Cortland Co(Tioughnioga R)	03/31/2005	Flood	5K	0
62Sherburne/Chenango Co(Chenango R)	03/31/2005	Flood	5K	0
63 Perry Mills/Clinton Co (Gr Chazy R.)	04/01/2005	Flood	5K	0

64 Seneca County ( Countywide)	04/02/2005	Flash Flood	50K	0
65 Tompkins Co (Countywide – Taughannock Cr.)	04/02/2005	Flash Flood	200K	0
66 Schyler County (Countywide)	04/02/2005	Flash Flood	50K	0
67 Chemung County (Countywide)	04/02/2005	Flash Flood	100K	0
68 Yates County (Countywide)	04/02/2005	Flash Flood	100K	0
69 DeWitt, East Syracuse, Manlius, and La Fayette / Onondaga Co.	04/02/2005	Flash Flood	50K	0
70 Kirkland/Oneida Co. (Oriskany Cr.)	04/02/2005	Flash Flood	5K	0
71 Steuben Co (SE Portion- Corning, Campbell, Lindley, and Prattsburg)	04/02/2005	Flash Flood	50K	0
72 Syracuse/Onondaga Co(OnondagaCr)	04/02/2005	Flood	50K	0
73 Elmira/Chemung Co. (Chemung R.)	04/02/2005	Flood	50K	0
74 Chemung/Chemung Co (Chemung R)	04/03/2005	Flood	100K	0
75 Essex Co. (E. Portion–Ausable R)	04/03/2005	Flood	6K	0
76 Champlain/Clinton Co (Gr Chazy R)	04/24/2005	Flood	1K	0
77 Essex Co. (E. Portion - Ausable, Bouquet and Putnam Creek)	04/24/2005	Flood	25K	0
78 Essex County (Ausable R.)	04/27/2005	Flood	2K	0
79 Olean / Cattaraugus Co.	06/08/2005	Flash Flood	15K	0
80 Essex Co. (E. Portion – Towns of Crown Point and Moriah)	06/09/2005	Flash Flood	200K	0
81 Varysburg / Wyoming Co.	06/09/2005	Flash Flood	30K	0
82 Orchard Park / Erie Co.	06/09/2005	Flash Flood	200K	0
83 Livonia / Livingston Co.	06/10/2005	Flash Flood	25K	0
84 Cheektowaga / Erie Co.	06/10/2005	Flash Flood	25K	0
85 McGraw/Cortland (Mosquito Cr.)	06/10/2005	Flash Flood	50K	0
86 Bradford / Steuben Co.	06/10/2005	Flash Flood	100K	0
87 Monterey / Schuyler Co.	06/10/2005	Flash Flood	50K	0
88 Barton / Tioga Co.	06/10/2005	Flash Flood	20K	0
89 Big Flats / Chemung Co.	06/10/2005	Flash Flood	20K	0
90 Greece / Monroe Co.	06/10/2005	Flash Flood	20K	0
91 Chestertown / Warren Co.	06/13/2005	Flash Flood	6.5M	0
92 Livonia / Livingston Co.	06/13/2005	Flash Flood	25K	0
93 Essex County (East Portion)	06/15/2005	Flash Flood	50K	0
94 Essex County (Countywide)	06/16/2005	Flash Flood	630K	0
95 Clinton County (East Portion)	06/16/2005	Flash Flood	230K	0

96 South Bristol / Ontario Co.	06/29/2005	Flash Flood	25K	0
97 Centerville / Allegany Co.	06/29/2005	Flash Flood	15K	0
98 West Fort Ann / Washington Co. (Hadlock Pd. Dam Breach)	07/02/2005	Flash Flood	5.0M	0
99 Syracuse, DeWitt, & Mattydale / Onondaga Co.	07/14/2005	Flash Flood	500K	0
100 Turin / Lewis Co. (Fish Cr.)	07/14/2005	Flash Flood	25K	0
101 Chili Center / Monroe Co.	07/14/2005	Flash Flood	50K	0
102 St. Lawrence Co. (SW Portion)	07/17/2005	Flash Flood	75K	0
103 Boonville / Oneida Co.	07/17/2005	Flash Flood	20K	0
104 Constableville / Lewis Co.	07/17/2005	Flash Flood	10K	0
105 St. Lawrence Co. (S Portion)	09/16/2005	Flash Flood	500K	0
106 Antwerp / Jefferson Co.	09/16/2005	Flash Flood	15K	0
107 Sullivan Co. (SE Portion – Westbrookville)	10/08/2005	Flash Flood	50K	0
108 Nassau Co. (Countywide)	10/14/2005	Flash Flood	11.0M	0
109 Suffolk Co. (Countywide)	10/14/2005	Flash Flood	11.0M	0
110 Waverly/Tioga Co (Susquehanna R)	10/25/2005	Flood	20K	0
111 Steuben Co. (Countywide)	11/29/2005	Flood	10K	0
112 Wellsville / Allegany Co.	11/29/2005	Flash Flood	20K	0
113 Chemung Co. (Urban flooding)	11/29/2005	Flood	10K	0
114 Watkins Glen / Schuyler Co.	11/29/2005	Flood	10K	0
115 Cooks Falls/Delaware Co (Beaverkill R)	11/30/2005	Flood	10K	0
116 Elmira / Chemung Co. (Chemung R)	11/30/2005	Flood	5K	0
117 Waverly/Tioga Co (Susquehanna R)	11/30/2005	Flood	20K	0
118 Waverly/Tioga Co (Susquehanna R)	12/01/2005	Flood	5K	0
119 Essex County (E Portion)	01/18/2006	Flood	25K	0
120 St. Lawrence County (Countywide)	01/18/2006	Flood	2K	0
121Sherburne/Chenango Co (ChenangoR)	01/18/2006	Flood	10K	0
122 Ausable Forks/Essex Co(Ausable R)	01/18/2006	Flood	2K	0
123 Barton / Tioga Co. (Susquehanna R)	01/18/2006	Flood	10K	0
124 Vestal/Broome Co (Susquehanna R)	01/18/2006	Flood	10K	0
125Conklin/Broome Co(Susquehanna R)	01/18/2006	Flood	20K	0
126 Cooks Falls/Delaware Co. (Beaverkill Cr.)	01/18/2006	Flood	10K	0
127 Perry Mills to Champlain / Clinton Co. (Great Chazy R.)	01/19/2006	Flood	5K	0
128 Bainbridge/Chenango Co (Susquehanna R)	01/19/2006	Flood	10K	0
129 Homer / Cortland Co.	03/13/2006	Flash Flood	50K	0

130Cortland/Cortland Co(Tioughnioga R)	03/14/2006	Flood	10K	0
131 Van Buren / Onondaga Co.	04/15/2006	Flash Flood	10K	0
132 Wampsville / Madison Co.	04/15/2006	Flash Flood	10K	0
133 Sullivan / Madison Co.	04/15/2006	Flash Flood	25K	0
134 Schroon Lake / Essex Co.	05/30/2006	Flash Flood	100K	0
135 Woodhull / Steuben Co.	05/30/2006	Flash Flood	10K	0
136 Troupsburg / Steuben Co.	05/30/2006	Flash Flood	10K	0
137 Addison / Steuben Co.	05/31/2006	Flash Flood	10K	0
138 Bath / Steuben Co.	06/01/2006	Flash Flood	50K	0
139 Jasper / Steuben Co.	06/26/2006	Flash Flood	5K	0
140 Pottersville / Warren Co. (Fish Cr.)	06/26/2006	Flash Flood	40K	0
141 Essex County (Countywide)	06/26/2006	Flood	25K	0
142 Bath / Steuben Co	06/27/2006	Flash Flood	5K	0
143 Burdett / Schuyler Co.	06/27/2006	Flash Flood	15K	0
144 Cortland County (Countywide)	06/27/2006	Flash Flood	25K	0
145 Caroline / Tompkins Co.	06/27/2006	Flash Flood	50K	0
146 Madison County (N Portion)	06/27/2006	Flash Flood	200K	0
147 Chemung County (E Portion)	06/27/2006	Flash Flood	5K	0
148 Addison / Steuben Co.	06/27/2006	Flash Flood	5K	0
149 Madison Co (Countywide including Georgetown, Lebanon, Hamilton, and DeRuyter)	06/27/2006	Flash Flood	25.0M	0
150 Keene / Essex Co. (E. Br Ausable R)	06/28/2006	Flood	5K	0
151 Cortland / Cortland Co.	07/10/2006	Flash Flood	2K	0
152 Albion / Orleans Co.	07/12/2006	Flash Flood	200K	500K
153 Rochester / Monroe Co.	07/12/2006	Flash Flood	500K	0
154 Conquest / Cayuga Co.	07/12/2006	Flash Flood	300K	150K
155 Rose / Wayne Co.	07/12/2006	Flash Flood	1.5M	200K
156 Liverpool / Onondaga Co.	07/12/2006	Flash Flood	1K	0
157 Baldwinsville / Onondaga Co.	07/12/2006	Flash Flood	2K	0
158 Cicero / Onondaga Co. (Volmer Cr.)	07/12/2006	Flash Flood	20K	0
159 Auburn / Cayuga Co.	07/12/2006	Flash Flood	10K	0
160 Baldwinsville / Onondaga Co.	07/12/2006	Flash Flood	5K	0
161 Auburn / Cayuga Co.	07/12/2006	Flash Flood	1K	0
162 Liverpool / Onondaga Co.	07/12/2006	Flash Flood	1K	0
163 Morrisville / Madison Co.	07/12/2006	Flash Flood	5K	0

164 Utica / Oneida Co.	07/12/2006	Flash Flood	5K	0
165 Moravia / Cayuga Co.	07/12/2006	Flash Flood	2K	0
166 Sauquoit / Oneida Co.	07/12/2006	Flash Flood	10K	0
167 New Hartford / Oneida Co.	07/12/2006	Flash Flood	2K	0
168 Cuyler / Cortland Co.	07/12/2006	Flash Flood	1K	0
169 DeRuyter / Madison Co.	07/12/2006	Flash Flood	1K	0
170 Vienna / Oneida Co.	07/21/2006	Flash Flood	1K	0
171 Bainbridge / Chenango Co.	07/22/2006	Flash Flood	2K	0
172 Richfield Springs / Otsego Co.	07/22/2006	Flash Flood	5K	0
173 Guilford / Chenango Co.	07/22/2006	Flash Flood	2K	0
174 Norwich / Chenango Co.	07/22/2006	Flash Flood	2K	0
175 Oxford / Chenango Co.	07/22/2006	Flash Flood	2K	0
176 Smyrna / Chenango Co.	07/22/2006	Flash Flood	2K	0
177 Camden / Oneida Co. (NW Portion)	07/25/2006	Flash Flood	5K	0
178 McDonough / Chenango Co.	07/28/2006	Flash Flood	2K	0
179 Cortland / Cortland Co.	07/28/2006	Flash Flood	4K	0
180 McGraw / Cortland Co.	07/28/2006	Flash Flood	3K	0
181 Kenmore / Erie Co.	07/28/2006	Flash Flood	100K	0
182 Lockport / Niagara Co.	07/28/2006	Flash Flood	100K	0
183 Sodus / Wayne Co.	07/28/2006	Flash Flood	100K	0
184 Fair Haven / Cayuga Co.	07/28/2006	Flash Flood	50K	0
185 Hannibal / Oswego Co.	07/28/2006	Flash Flood	100K	0
186 Groton / Tompkins Co.	07/28/2006	Flash Flood	3K	0
187 Cortland / Cortland Co.	07/28/2006	Flash Flood	2K	0
189 Vermontville / Franklin Co.	08/01/2006	Flash Flood	25K	0
190 Bloomingdale / Essex Co.	08/01/2006	Flash Flood	100K	0
191 Rome / Oneida Co.	11/16/2006	Flash Flood	25K	0K
192 Cortland / Cortland Co.	11/16/2006	Flash Flood	25K	0K
193 Ithaca / Tompkins Co.	11/16/2006	Flash Flood	25K	0K
194 Auburn / Cayuga Co.	11/16/2006	Flash Flood	10K	0K
195 Cazenovia / Madison Co.	11/16/2006	Flash Flood	10K	0K
196 Utica / Oneida Co.	11/16/2006	Flash Flood	20K	0K
197 Boonville / Oneida Co.	11/16/2006	Flash Flood	10K	0K
198 Monticello / Sullivan Co.	11/16/2006	Flash Flood	5K	0K
199 Eaton / Madison Co.	11/16/2006	Flash Flood	10K	0K

200 Churchville / Monroe Co.	03/14/2007	Flood	25K	0K
201 Ebenezer / Erie Co.	03/14/2007	Flood	25K	0K
202 Lancaster / Erie Co.	03/14/2007	Flood	50K	0K
203 West Seneca / Erie Co.	03/14/2007	Flood	25K	0K
204 Oneida / Madison Co. (Oneida Cr.)	03/14/2007	Flood	5K	0K
205Sherburne/Chenango Co (Chenango R)	03/14/2007	Flood	10K	0K
206 Batavia / Genesee Co.	03/15/2007	Flood	125K	0K
207 Garbutt / Monroe Co.	03/15/2007	Flood	25K	0K
208 Salamanca / Cattaraugus Co.	03/15/2007	Flood	50K	0K
209 Olean / Cattaraugus Co.	03/15/2007	Flood	100K	0K
210 Portageville / Wyoming Co.	03/15/2007	Flood	25K	0K
211 Silver Creek / Chautauqua Co.	03/15/2007	Flood	75K	0K
212Cortland/Cortland Co (Tioughnioga R)	03/15/2007	Flood	10K	0K
213 Williamsville / Erie Co.	03/15/2007	Flood	25K	0K
214 Bainbridge/Chenango Co (Susquehanna R)	03/15/2007	Flood	10K	0K
215 Barton / Tioga Co. (Chemung R.)	03/15/2007	Flood	5K	0K
216 Perrys Mills to Champlain / Essex Co. (Gr Chazy R.)	03/15/2007	Flood	25K	0K
217 Ausable Forks/Essex Co(Ausable R)	03/15/2007	Flood	25K	0K
218 Wellsville / Allegany Co.	03/15/2007	Flood	25K	0K
219 Elmira/Chemung Co. (Chemung R.)	03/15/2007	Flood	5K	0K
220 Vestal/Broome Co (Susquehanna R)	03/15/2007	Flood	5K	0K
221 Rapids/Niagara Co. (Tonawanda Cr)	03/16/2007	Flood	25K	0K
222Conklin/Broome Co(Susquehanna R)	03/16/2007	Flood	250K	0K
223Conklin/Broome Co(Susquehanna R)	03/25/2007	Flood	10K	0K
224Cortland/Cortland Co (Tioughnioga R)	03/26/2007	Flood	10K	0K
225 Bainbridge/Chenango Co. (Susquehanna R.)	03/27/2007	Flood	5K	0K
<b>TOTAL:</b>			<b>\$72.7M</b>	<b>\$1.0M</b>

Source: NOAA website, <http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms>

**Table 3-10.1  
Incidents of Flooding (both declared and  
undeclared) in  
New York between 04/01/2007 and 01/26/2010**

**Dth:** Deaths  
**Inj:** Injuries  
**PrD:** Property Damage  
**CrD:** Crop Damage

<b>Location</b>	<b>Date</b>	<b>Type</b>	<b>Dth</b>	<b>Inj</b>	<b>PrD</b>	<b>CrD</b>
1 <a href="#">Bronx Co.</a>	04/15/07	Flood	0	0	0	0
2 <a href="#">Kings Co. (Brooklyn)</a>	04/15/07	Flood	0	0	0	0
3 <a href="#">New York Co.</a>	04/15/07	Flood	0	0	0	0
4 <a href="#">Richmond Co.</a>	04/15/07	Flood	0	0	0	0
5 <a href="#">Rockland Co. (Piermont)</a>	04/15/07	Flood	0	0	0	0
6 <a href="#">Nassau Co. (JFK)</a>	04/15/07	Flood	0	0	0	0
7 <a href="#">Westchester Co. (Harrison)</a>	04/15/07	Flood	0	0	0	0
8 <a href="#">Putnam Co. (Putnam Lake)</a>	04/15/07	Flood	0	0	0	0
9 <a href="#">Ulster Co. (Walker Vly)</a>	04/15/07	Flood	0	0	3.2M	0
10 <a href="#">Nassau Co</a>	04/15/07	Coastal Flood	0	0	0	0
11 <a href="#">Queens &amp; Richmond Co. (Staten Island)</a>	04/15/07	Coastal Flood	0	0	0	0
12 <a href="#">Suffolk Co.</a>	04/15/07	Coastal Flood	0	0	0	0
13 <a href="#">Greene Co. (Coxsackie)</a>	04/15/07	Flood	0	0	0	0
14 <a href="#">Columbia Co.(Kinderhook)</a>	04/15/07	Flood	0	0	2.0M	0
15 <a href="#">Bronx &amp; Westchester Co.</a>	04/15/07	Coastal Flood	0	0	0	0
16 <a href="#">Orange Co (Washingtonville)</a>	04/15/07	Flood	0	0	0	0
17 <a href="#">Delaware Co. (Cooks Falls)</a>	04/16/07	Flood	0	0	0	0
18 <a href="#">Sullivan Co. (Bridgeville)</a>	04/16/07	Flood	0	0	0	0
19 <a href="#">Dutchess Co. (Hyde Park)</a>	04/16/07	Flood	0	0	5.7M	0
20 <a href="#">Kings Co. (Brooklyn)</a>	04/16/07	Coastal Flood	0	0	0	0
21 <a href="#">Albany Co. (Coeymans)</a>	04/16/07	Flood	1	1	0	0
22 <a href="#">Orange Co. (Gardnertown)</a>	04/16/07	Flood	0	0	0	0
23 <a href="#">Suffolk Co.</a>	04/16/07	Coastal Flood	0	0	0	0
24 <a href="#">Schoharie Co. (North Blenheim)</a>	04/16/07	Flood	0	0	0	0

25 <a href="#">Nassau Co.</a>	04/16/07	Coastal Flood	0	0	0	0
26 <a href="#">Suffolk Co.</a>	04/16/07	Coastal Flood	0	0	26.0M	0
27 <a href="#">Nassau Co.</a>	04/17/07	Coastal Flood	0	0	0	0
28 <a href="#">Broome Co. (Conklin)</a>	04/18/07	Flood	0	0	0	0
29 <a href="#">Nassau Co.</a>	04/18/07	Coastal Flood	0	0	0	0
30 <a href="#">Chenango Co. (Bainbridge)</a>	04/19/07	Flood	0	0	0	0
31 <a href="#">Warren Co. (Bolton Landing)</a>	04/20/07	Flood	0	0	0	0
32 <a href="#">Clinton &amp; Essex Co.</a>	04/20/07	Lake Flood	0	0	10K	0
33 <a href="#">Chemung Co (Waverly)</a>	04/20/07	Flood	0	0	0	0
34 <a href="#">Washington Co. (Middle Falls)</a>	04/23/07	Flood	0	0	0	0
35 <a href="#">Rensselaer Co. (Schaghticoke)</a>	04/23/07	Flood	0	0	0	0
36 <a href="#">Saratoga Co. (Schuylerville)</a>	04/23/07	Flood	0	0	0	0
37 <a href="#">Herkimer Co. (Grant)</a>	04/24/07	Flood	0	0	0	0
38 <a href="#">Bronx Co. (Fordham)</a>	04/27/07	Flash Flood	0	0	0	0
39 <a href="#">Queens Co. (Richmond Hill)</a>	04/27/07	Flash Flood	0	0	0	0
40 <a href="#">New York Co. (Central Park)</a>	04/27/07	Flash Flood	0	0	0	0
41 <a href="#">Westchester Co. (Yonkers)</a>	04/27/07	Flash Flood	0	0	0	0
42 <a href="#">Ontario Co. (Honeoye)</a>	06/03/07	Flash Flood	0	0	15K	0
43 <a href="#">Ontario Co. (Bristol)</a>	06/03/07	Flash Flood	0	0	75K	0
44 <a href="#">St. Lawrence Co. (Balmat)</a>	06/03/07	Flash Flood	0	0	25K	0
45 <a href="#">Kings Co. (Brooklyn)</a>	06/04/07	Flash Flood	0	0	0	0
46 <a href="#">Westchester Co. (Yorktown)</a>	06/04/07	Flash Flood	0	0	0	0
47 <a href="#">Nassau Co. (Valley Stream)</a>	06/04/07	Flash Flood	0	0	0	0
48 <a href="#">New York Co. (Central Park)</a>	06/04/07	Flash Flood	0	0	0	0
49 <a href="#">Queens Co. (Flushing)</a>	06/04/07	Flash Flood	0	0	0	0
50 <a href="#">Bronx Co.</a>	06/04/07	Flash Flood	0	0	0	0
51 <a href="#">Delaware Co. (Downsville)</a>	06/19/07	Flash Flood	0	0	25K	0
52 <a href="#">Ulster Co. (Turnwood)</a>	06/19/07	Flash Flood	0	0	25K	0
53 <a href="#">Delaware Co. (Colchester)</a>	06/19/07	Flash Flood	4	0	30.0M	0
54 <a href="#">Sullivan Co. [Rockland (T)]</a>	06/19/07	Flash Flood	0	0	300K	0
55 <a href="#">Delaware Co. (Cooks Falls)</a>	06/20/07	Flood	0	0	0	0
56 <a href="#">Westchester Co. (White Plains)</a>	06/27/07	Flash Flood	0	0	0	0

57 Rensselaer Co. (Lansingburg)	06/27/07	Flash Flood	0	0	0	0
58 Albany Co. (Albany)	06/27/07	Flash Flood	0	0	0	0
59 Albany Co. (Watervliet)	06/27/07	Flash Flood	0	0	0	0
60 Albany Co. (Colonie)	06/27/07	Flash Flood	0	0	0	0
61 Queens Co. (Flushing)	06/27/07	Flash Flood	0	0	0	0
62 Nassau Co. (Syosset)	06/28/07	Flash Flood	0	0	0	0
63 Schenectady Co. (Schenectady)	07/09/07	Flash Flood	0	0	5K	0
64 Franklin Co. (Whippleville)	07/09/07	Flash Flood	0	0	25K	0
65 Franklin Co. (Malone)	07/09/07	Flash Flood	0	0	50K	0
66 Albany Co. (Albany)	07/09/07	Flash Flood	0	0	25K	0
67 Franklin Co. (Owls Head)	07/09/07	Flash Flood	0	0	25K	0
68 New York Co.(West Side Hwy)	07/11/07	Flash Flood	0	0	0	0
69 Dutchess Co (Stanfordville)	07/11/07	Flash Flood	0	0	1K	0
70 New York Co. (Central Park)	07/18/07	Flash Flood	0	0	0	0
71 Queens Co. (Flushing)	07/18/07	Flash Flood	0	0	0	0
72 Kings Co. (Coney Is)	07/18/07	Flash Flood	0	0	0	0
73 Queens Co. (Bayside)	07/18/07	Flash Flood	0	0	0	0
74 Nassau Co. (Elmont)	07/18/07	Flash Flood	0	0	0	0
75 Suffolk Co. (Huntington)	07/18/07	Flash Flood	0	0	0	0
76 Queens Co.(Little Neck)	07/18/07	Flash Flood	0	0	0	0
77 Kings Co. (Belt Parkway)	07/18/07	Flash Flood	0	0	0	0
78 Nassau Co(Roslyn Exit 39 LIE)	07/18/07	Flash Flood	0	0	0	0
79 Suffolk Co. (Patchogue)	07/18/07	Flash Flood	0	0	0	0
80 Fulton Co. (Mayfield)	07/27/07	Flash Flood	0	0	1K	0
81 Clinton Co. (Dannemora)	07/28/07	Flash Flood	0	0	45K	0
82 Clinton Co.(Mooers)	07/28/07	Flash Flood	0	0	30K	0
83 Oneida Co. (Verona)	08/03/07	Flood	0	0	1K	0
84 Kings Co. (Brooklyn-BQE)	08/08/07	Flash Flood	0	0	0	0
85 New York Co. (Central Park)	08/08/07	Flash Flood	0	0	0	0
86 Queens Co. (Hollis-GCP)	08/08/07	Flash Flood	0	0	0	0
87 Nassau Co. (New Hyde Park)	08/08/07	Flash Flood	0	0	0	0
88 Bronx Co. (Wakefield)	08/08/07	Flash Flood	0	0	0	0

89 Tompkins Co. (McKinneys Point)	08/24/07	Flash Flood	0	0	1K	0
90 Montgomery Co. (Amsterdam)	09/27/07	Flash Flood	0	0	5K	0
91 Nassau Co. (Lake View & Valley Stream)	10/11/07	Flash Flood	0	0	0	0
92 Nassau Co. (Plainview)	10/11/07	Flash Flood	0	0	0	0
93 Kings Co. (Coney Island)	10/11/07	Flash Flood	0	0	0	0
94 Queens Co. (Auburndale)	10/11/07	Flash Flood	0	0	0	0
95 Bronx Co. (Williams Bridge)	10/11/07	Flash Flood	0	0	0	0
96 New York Co. (Central Park)	10/11/07	Flash Flood	0	0	0	0
97 Westchester Co. (Thornwood)	10/11/07	Flash Flood	0	0	0	0
98 Nassau Co. (Island Park)	10/19/07	Flash Flood	0	0	0	0
99 Suffolk Co. (Melville)	10/19/07	Flash Flood	0	0	0	0
100 Nassau Co. (Mineola)	10/19/07	Flash Flood	0	0	0	0
101 Suffolk Co. (NW)	12/16/07	Coastal Flood	0	0	0	0
102 Suffolk Co. (SE)	12/16/07	Coastal Flood	0	0	7.0M	0
103 Erie Co. (East Seneca)	12/23/07	Flood	0	0	25K	0
104 Erie Co. (Lancaster)	12/23/07	Flood	0	0	20K	0
105 Rockland Co. (Tallman)	12/23/07	Flood	0	0	0	0
106 Erie Co. (Ebenezer)	12/23/07	Flood	0	0	20K	0
107 Erie Co. (Buffalo)	01/30/08	Flash Flood	0	0	500K	0
108 Niagara Co. (Wheatfield)	01/30/08	Flash Flood	0	0	250K	0
109 Orange Co. (Cornwall)	02/01/08	Flash Flood	0	0	0	0
110 Westchester Co. (Mt Vernon)	02/01/08	Flash Flood	0	0	0	0
111 Ulster Co. (New Paltz)	02/13/08	Flood	0	0	1K	0
112 Rensselaer Co. (Buskirk)	02/13/08	Flood	0	0	1K	0
113 Ulster Co. (Dashville)	02/18/08	Flood	0	0	1K	0
114 Columbia Co. (Kinderhook)	03/05/08	Flood	0	0	5K	0
115 Greene Co. (New Baltimore)	03/05/08	Flood	0	0	9K	0
116 Albany Co. (Colonie)	03/05/08	Flood	0	0	100K	0
117 Schenectady Co. (Niskayuna) Aqueduct	03/05/08	Flood	0	0	10K	0
118 Washington Co. (No Hebron)	03/05/08	Flood	0	0	1K	0
119 Warren Co. (Glens Falls)	03/05/08	Flood	0	0	1K	0

120 Rensselaer Co.(Rensselaer)	03/05/08	Flood	0	0	1K	0
121 Dutchess Co(Pleasant Valley)	03/05/08	Flood	0	0	1K	0
122 Ulster Co. (New Paltz)	03/05/08	Flood	0	0	1K	0
123 Saratoga Co. (Bemis Heights)	03/05/08	Flood	0	0	1K	0
124 Schoharie Co. (Fultonham)	03/05/08	Flood	0	0	1K	0
125 Ulster Co. (Ulsterville)	03/08/08	Flood	0	0	10K	0
126 Greene Co. (Coxsackie)	03/08/08	Flood	0	0	10K	0
127 Columbia Co. (Ancramdale)	03/08/08	Flood	0	0	10K	0
128 Orange Co. (Middletown)	03/08/08	Flash Flood	0	0	0	0
129 Dutchess Co. (Pawling)	03/08/08	Flood	0	0	10K	0
130 Orange Co. (Montgomery)	03/08/08	Flash Flood	0	0	0	0
131 Orange Co.(Mechanicstown)	03/08/08	Flash Flood	0	0	0	0
132 Orange Co. (Montgomery)	03/08/08	Flash Flood	0	0	0	0
133 Sullivan Co. (Bloomingburg)	03/08/08	Flood	0	0	0	0
134 Broome Co. (Binghamton)	03/08/08	Flash Flood	0	0	0	0
135 Chenango Co. (Greene)	03/08/08	Flash Flood	0	0	0	0
136 Delaware Co. (Colchester)	03/08/08	Flash Flood	0	0	0	0
137 Delaware Co. (Hamden)	03/08/08	Flash Flood	0	0	0	0
138 Oneida Co. (Kirkland)	03/08/08	Flash Flood	0	0	0	0
139 Oneida Co. (Whitesboro)	03/08/08	Flash Flood	0	0	0	0
140 Westchester Co.(Mt Vernon)	03/08/08	Flood	0	0	0	0
141 Orange Co. (Allard Corners)	03/08/08	Flood	0	0	0	0
142 Delaware Co. (Walton)	03/08/08	Flood	0	0	0	0
143 Nassau Co.	04/07/08	Coastal Flood	0	0	0	0
144 Warren Co. (Schroon River)	04/09/08	Flood	0	0	0	0
145 Saratoga Co. (Hadley)	04/09/08	Flood	0	0	225K	0
146 Fulton Co. (Sacandaga Park)	04/09/08	Flood	0	0	0	0
147 Washington Co.(Whitehall)	04/09/08	Flood	0	0	0	0
148 Suffolk Co. (Halesite)	05/27/08	Flash Flood	0	0	0	0
149 Steuben Co. (Atlanta)	06/13/08	Flash Flood	0	0	0	0
150 Queens Co. (Woodhaven) Union TnPk.	06/14/08	Flash Flood	0	0	0	0

151 Queens Co.(Woodhaven) Cooper Ave.	06/14/08	Flash Flood	0	0	0	0
152 Queens Co. (Woodhaven) 77 <sup>th</sup> &85 <sup>th</sup> Ave	06/14/08	Flash Flood	0	0	0	0
153 Westchester Co. (Chauncey)	06/14/08	Flash Flood	0	0	0	0
154 Queens Co. (Auburndale)	06/14/08	Flash Flood	0	0	0	0
155 Queens Co.(Richmond Hill)	06/14/08	Flash Flood	0	0	0	0
156 Queens Co. (Hollis)	06/14/08	Flash Flood	0	0	0	0
157 Queens Co.(Richmond Hill) Kew Gardens Interchange	06/14/08	Flash Flood	0	0	0	0
158 Queens Co. (LIE)	06/14/08	Flash Flood	0	0	0	0
159 Queens Co. (Woodhull Ave)	06/14/08	Flash Flood	0	0	0	0
160 Queens Co. (Flushing)	06/14/08	Flash Flood	0	0	0	0
161 Queens Co. (Bayside)	06/14/08	Flash Flood	0	0	0	0
162 Queens Co. (Auburndale – Jewel Ave & 116 <sup>th</sup> St.)	06/14/08	Flash Flood	0	0	0	0
163 Queens Co. (Auburndale – 172 <sup>nd</sup> St & 78 <sup>th</sup> Ave.)	06/14/08	Flash Flood	0	0	0	0
164 Washington Co.(S.Granville)	06/14/08	Flash Flood	0	0	0	0
165 Queens Co. (Queens Village)	06/14/08	Flash Flood	0	0	0	0
166 Queens Co. (188 <sup>th</sup> St.& Jamaica)	06/14/08	Flash Flood	0	0	0	0
167 Queens Co. (Auburndale – 182 <sup>nd</sup> St & 69 <sup>th</sup> Ave)	06/14/08	Flash Flood	0	0	0	0
168 Queens Co. (Auburndale – LIE between Exit 25 & 26)	06/14/08	Flash Flood	0	0	0	0
169 Queens Co. (Bayside – Clearview Exp. & 35 <sup>th</sup> Ave.)	06/14/08	Flash Flood	0	0	0	0
170 Queens Co. (Bayside – Clearview Exp. & Northern Boul.)	06/14/08	Flash Flood	0	0	0	0
171 Queens Co. (Rosedale)	06/14/08	Flash Flood	0	0	0	0
172 Westchester Co. (Elmsford)	06/14/08	Flash Flood	0	0	0	0
173 Queens Co. (Richmond Hill – Grand Central Park. Exit 13)	06/14/08	Flash Flood	0	0	0	0
174 Westchester Co. (Scarsdale)	06/14/08	Flash Flood	0	0	0	0
175 Bronx Co. (Fordham)	06/22/08	Flash Flood	0	0	0	0
176 Westchester Co. (Chappaqua)	07/01/08	Flash Flood	0	0	0	0

177 Westchester Co. (Mt Kisco)	07/05/08	Flash Flood	0	0	0	0
178 Rensselaer Co. (Bucks Corner – Plank Rd. near Rt. 41)	07/09/08	Flash Flood	0	0	5K	0
179 Nassau Co. (Wantagh)	07/23/08	Flash Flood	0	0	0	0
180 Broome Co.(Harpursville)	07/23/08	Flash Flood	0	0	2K	0
181 Broome Co. (Kirkwood)	07/23/08	Flash Flood	0	0	3K	0
182 Broome Co. (Sanitaria Spgs)	07/23/08	Flash Flood	0	0	2K	0
183 Sullivan Co.(Rockland–Rt. 206)	07/23/08	Flash Flood	0	0	15.0M	0
184 Delaware Co. (Colchester)	07/23/08	Flash Flood	0	0	10.0M	0
185 Erie Co.(Gates Center)	07/23/08	Flash Flood	0	0	35K	0
186 Schoharie Co. (Schoharie)	07/23/08	Flash Flood	0	0	50K	0
187Montgomery Co.(Cranesville)	07/23/08	Flash Flood	0	0	300K	0
188 Schenectady Co. (Schenectady)	07/23/08	Flash Flood	0	0	2.0M	0
189 Saratoga Co. (Charlton)	07/23/08	Flash Flood	0	0	0	0
190 Albany Co. (Knox)	07/23/08	Flash Flood	0	0	25K	0
191 Washington Co. (Ft Ann)	07/23/08	Flash Flood	0	0	0	0
192 Orange Co. (Highland Falls)	07/23/08	Flash Flood	0	0	0	0
193 Saratoga Co. (East Galway)	07/23/08	Flood	0	0	0	0
194 Schenectady Co. (Gifford)	07/23/08	Flood	0	0	0	0
195 Putnam Co. (Lake Mahopac)	07/23/08	Flash Flood	0	0	0	0
196Westchester Co(N Tarrytown)	07/23/08	Flash Flood	0	0	0	0
197 Montgomery Co(Cranesville)	07/23/08	Flood	0	0	0	0
198 Orange Co. (Cornwall)	07/23/08	Flash Flood	0	0	0	0
199 Sullivan Co. (Liberty)	07/24/08	Flash Flood	0	0	5K	0
200 Steuben Co. (Cohocton)	07/24/08	Flash Flood	0	0	15K	0
201 Livingston Co. (Springwater)	07/24/08	Flash Flood	0	0	200K	0
202 Jefferson Co.(Rural Hill)	07/24/08	Flash Flood	0	0	50K	0
203 Erie Co. (Wales Center)	07/24/08	Flash Flood	0	0	20K	0
204 Jefferson Co. (Ellisburg - Mannsville Arpt )	07/24/08	Flash Flood	0	0	75K	0
205 Suffolk Co. (Oakdale)	07/27/08	Flash Flood	0	0	0	0
206 Suffolk Co. (Riverhead-Calverton)	07/27/08	Flash Flood	0	0	0	0

207 Suffolk Co. (Shirley)	07/27/08	Flash Flood	0	0	0	0
208 Nassau Co. (Farmingdale)	07/27/08	Flash Flood	0	0	0	0
209 Suffolk Co. (Commack-Northern State Pkwy Exit 45 )	07/27/08	Flash Flood	0	0	0	0
210 Nassau Co. (Jericho)	07/27/08	Flash Flood	0	0	0	0
211 Suffolk Co. (Melville)	07/27/08	Flash Flood	0	0	0	0
212Putnam Co (Mahopac -Crafts)	07/27/08	Flash Flood	0	0	0	0
213Richmond Co(Pleasant Plains)	07/27/08	Flash Flood	0	0	0	0
214 Suffolk Co. (So. Hampton-Art Vlg.)	08/02/08	Flash Flood	0	0	0	0
215 Wyoming Co. (Castile)	08/05/08	Flash Flood	0	0	45K	0
216 Suffolk Co. (Halesite)	08/06/08	Flash Flood	0	0	0	0
217Westchester Co (Port Chester)	08/06/08	Flash Flood	0	0	0	0
218 Nassau Co. (Jericho) No. State Pkwy Exit 35 &36	08/07/08	Flash Flood	0	0	0	0
219 Suffolk Co. (Halesite) Rt. 110	08/07/08	Flash Flood	0	0	0	0
220 Albany Co. (Albany)	08/07/08	Flash Flood	0	0	250K	0
221 Suffolk Co. (Deerfield)	08/07/08	Flash Flood	0	0	0	0
222Chautauqua Co(Findley Lake)	08/07/08	Flash Flood	0	0	20K	0
223 Erie Co. (Depew)	08/10/08	Flash Flood	0	0	15K	0
224 Delaware Co.(Hancock)	08/10/08	Flash Flood	0	0	0	0
225 Schuyler Co. (Tyrone)	08/10/08	Flash Flood	0	0	0	0
226 New York Co. (W. 31 <sup>st</sup> St.)	08/11/08	Flash Flood	0	0	0	0
227 Nassau Co. (Harbor Hills)	08/11/08	Flash Flood	0	0	0	0
228 Queens Co. (Bayside - Flushing Arpt ) 212th St.& Bell Boul	08/11/08	Flash Flood	0	0	0	0
229 Nassau Co. (Flower Hill - Manhasset )	08/11/08	Flash Flood	0	0	0	0
230 Rockland Co. (Upper Nyack)	08/11/08	Flash Flood	0	0	0	0
231 Orange Co. (Warwick)	08/11/08	Flash Flood	0	0	0	0
232 Nassau Co. (Bayville)	08/11/08	Flash Flood	0	0	0	0
233 Nassau Co. (Mill Neck -Locust Valley)	08/11/08	Flash Flood	0	0	0	0
234 Suffolk Co. (Huntington-Halesite)	08/11/08	Flash Flood	0	0	0	0
235 Montgomery Co. (Glen )	08/11/08	Flash Flood	0	0	5K	0

236 Rensselaer Co. (Rensselaer)	08/11/08	Flash Flood	0	0	4.0M	0
237 Dutchess Co. (Fairview)	08/11/08	Flash Flood	0	0	0	0
238 Columbia Co. (Chatham )	08/11/08	Flash Flood	0	0	45K	0
239 Albany Co. (Newtonville)	08/11/08	Flash Flood	0	0	0	0
240 Rensselaer Co. (Melrose)	08/11/08	Flash Flood	0	0	0	0
241 Herkimer Co. (Middleville)	08/11/08	Flash Flood	0	0	10K	0
242 Nassau Co. (Mineola –Albertson-LIE Exit 37)	08/14/08	Flash Flood	0	0	0	0
243 Queens Co. (Cross Isl.Pkwy.& Union Tpke)	08/14/08	Flash Flood	0	0	0	0
244 Nassau Co. (Mineola)	08/14/08	Flash Flood	0	0	0	0
245 Nassau Co. (Manhasset)	08/14/08	Flash Flood	0	0	0	0
246 Nassau Co. (Syosset) Jericho Tpke	08/15/08	Flash Flood	0	0	0	0
247 Suffolk Co. (Sound Beach & Rocky Point)	08/15/08	Flash Flood	0	0	0	0
248 Nassau Co. (Port Washington - Sands Pt )	08/15/08	Flash Flood	0	0	0	0
249 Suffolk Co.(Lake Ronkonkoma – Five Corners)	08/15/08	Flash Flood	0	0	0	0
250 Suffolk Co. (Ronkonkoma-Nesconset)	08/15/08	Flash Flood	0	0	0	0
251 Rockland Co. (West Nyack-Nanuet)	08/15/08	Flash Flood	0	0	0	0
252 Westchester Co. (Yonkers) Dunwoodie-Saw Mill Pkwy	08/15/08	Flash Flood	0	0	0	0
253 Westchester Co. (Chauncey-Broadway /Hastings-on-Hudson)	08/15/08	Flash Flood	0	0	0	0
254 Westchester Co. (Mt Vernon)	08/15/08	Flash Flood	0	0	0	0
255 Bronx Co. (Williams Bridge-Bronx R. Pkwy. & E. 233 <sup>rd</sup> St.)	08/15/08	Flash Flood	0	0	0	0
256 Westchester Co. (Bronxville)	08/15/08	Flash Flood	0	0	0	0
257 Nassau Co. (Laffingtown)	08/15/08	Flash Flood	0	0	0	0
258 Westchester Co. (Scarsdale-New Rochelle)	08/15/08	Flash Flood	0	0	0	0
259 New York Co. (Henry Hudson Br.)	08/15/08	Flash Flood	0	0	0	0
260 Westchester Co. (Dunwoodie-Saw Mill&Cross Co.Pkwy)	08/15/08	Flash Flood	0	0	0	0

261 Westchester Co. (Pelham) Fleetwood - Hutchinson R. Pkwy	08/15/08	Flash Flood	0	0	0	0
262 Suffolk Co. (Halesite)	08/15/08	Flash Flood	0	0	0	0
263 Orange Co. (Highland Falls)	09/06/08	Flash Flood	0	0	0	0
264 Putnam Co. (Carmel -Crafts)	09/06/08	Flash Flood	0	0	0	0
265 Westchester Co.(Tuckahoe)	09/06/08	Flash Flood	0	0	0	0
266 Westchester Co.(Bronxville)	09/06/08	Flash Flood	0	0	0	0
267 Kings Co. (BQE&Broadway)	09/06/08	Flash Flood	0	0	0	0
268 Queens Co. (Bayside)	09/06/208	Flash Flood	0	0	0	0
269 Queens Co. (Springfield Gardens-147 <sup>th</sup> Ave.)	09/06/08	Flash Flood	0	0	0	0
270 Queens Co. (Woodside)	09/06/08	Flash Flood	0	0	0	0
271 Nassau Co. (Levittown)	09/06/08	Flash Flood	0	0	0	0
272 Bronx Co. (3 <sup>rd</sup> Ave& E.182 <sup>nd</sup> St.)	09/06/08	Flash Flood	0	0	0	0
273 Suffolk Co. (Halesite)	09/06/08	Flash Flood	0	0	0	0
274 Bronx Co. (E. Tremont) Bronx R. Pkwy & E.233 <sup>rd</sup> St.	09/06/08	Flash Flood	0	0	0	0
275 Westchester Co (Yonkers) Warburton Ave	09/06/08	Flash Flood	0	0	0	0
276 Westchester Co. (Hawthorne) Saw Mill Pkwy Exit 25&27	09/06/08	Flash Flood	0	0	0	0
277 Richmond Co. (Port Richmond)	09/06/08	Flash Flood	0	0	0	0
278 Rockland Co. (West Nyack)	09/06/08	Flash Flood	0	0	0	0
279 Bronx CO. (Bronx R. Pkwy.& 236 <sup>th</sup> St.)	09/06/08	Flash Flood	0	0	0	0
280 Kings Co. (Belt Pkwy& Flatbush Ave.)	09/06/08	Flash Flood	0	0	0	0
281 Westchester Co.(Mt. Vernon) Sprain Brook & Bronx R. Pkwy	09/06/08	Flash Flood	0	0	0	0
282 Westchester Co. (Hawthorne)	09/06/08	Flash Flood	0	0	0	0
283 Westchester Co.( Mt Vernon) Hutchinson Pkwy & E. Lincoln Ave.	09/06/08	Flash Flood	0	0	0	0
284 Kings Co.(Belt Pkwy-Bensonhurst)	09/06/08	Flash Flood	0	0	0	0
285 Dutchess Co. (Pawling)	09/06/08	Flood	0	0	0	0
286 Rockland Co. (Tappan)	09/06/08	Flash Flood	0	0	0	0
287 Westchester Co. (E. Chester)	09/06/08	Flash Flood	0	0	0	0
288 Orange Co. (Cornwall)	09/09/08	Flash Flood	0	0	0	0

289 Nassau Co. (Kings Point)	10/28/08	Coastal Flood	0	0	0	0
290 Dutchess Co.(Wappingers Falls)	12/12/08	Flood	0	0	10K	0
291 Greene Co. (Catskill)	12/12/08	Flood	0	0	1K	0
292 Nassau Co. (Elmont)	12/12/08	Flood	0	0	0	0
293Suffolk Co (Shinnecock Hills)	12/12/08	Flood	0	0	0	0
294 Ulster Co. (New Paltz)	12/12/08	Flood	0	0	8K	0
295 Washington Co. (Salem)	12/12/08	Flood	0	0	2K	0
296 Columbia Co. (Hudson)	12/12/08	Flood	0	0	2K	0
297 Erie Co. (West Seneca)	12/27/08	Flood	0	0	50K	0
298 Erie Co. (Marilla)	12/27/08	Flood	0	0	50K	0
299 Erie Co. (Elma)	12/27/08	Flood	0	0	50K	0
300 Genesee Co. (Batavia)	12/27/08	Flood	0	0	50K	0
301 Erie Co. (Bowmansville)	12/28/08	Flood	0	0	50K	0
302 Monroe Co. (Wheatland Center)	12/28/08	Flood	0	0	50K	0
303 Monroe Co. (Churchville)	12/28/08	Flood	0	0	50K	0
304 Erie Co. (Swifts Mills)	12/28/08	Flood	0	0	50K	0
305 Genesee Co. (Batavia)	02/12/09	Flood	0	0	15K	0
306 Monroe Co. (Garbutt)	02/12/09	Flood	0	0	20K	0
307 Monroe Co. (West Chili)	02/12/09	Flood	0	0	25K	0
308 Erie Co. (Millersport)	02/12/09	Flood	0	0	25K	0
309 Erie Co. (Bowmansville)	02/12/09	Flood	0	0	40K	0
310 Herkimer Co. (Jacksonburg)	03/07/09	Flood	0	0	0	0
311 Erie Co. (West Seneca)	03/07/09	Flood	0	0	10K	0
312 Montgomery Co. (St Johnsville)	03/08/09	Flood	0	0	0	0
313 Erie Co. (Ebenezer)	03/08/09	Flood	0	0	10K	0
314 Erie Co. (Lancaster)	03/08/09	Flood	0	0	10K	0
315 Genesee Co. (Batavia)	03/08/09	Flood	0	0	10K	0
316Schenectady Co(Schenectady)	03/08/09	Flood	0	0	0	0
317 Erie Co. (North Bailey)	03/09/09	Flood	0	0	10K	0
318 Monroe Co. (Churchville)	03/09/09	Flood	0	0	10K	0
319 Monroe Co. (Scottsville)	03/09/09	Flood	0	0	10K	0
320 Niagara Co. (Rapids)	03/10/09	Flood	0	0	10K	0

321 Cattaraugus Co. (Allegany)	03/11/09	Flood	0	0	10K	0
322 Dutchess Co.(Wappingers Falls)	05/24/09	Flash Flood	0	0	0	0
323 Washington Co. (Putnam)	06/15/09	Flash Flood	0	0	1K	0
324 Westchester Co.(Thornwood)	06/18/09	Flash Flood	0	0	0	0
325 Chautauqua Co. (Ashville)	06/20/09	Flash Flood	0	0	10K	0
326 Suffolk Co. (East Islip)	06/20/09	Flash Flood	0	0	0	0
327 Otsego Co. (Otego)	06/25/09	Flash Flood	0	0	100K	0
328 Orange Co. (Washington Hgts.)	06/26/09	Flash Flood	0	0	0	0
329 Montgomery Co. (Canajoharie)	06/30/09	Flash Flood	0	0	0	0
330 Orange Co. (Ridgebury)	06/30/09	Flash Flood	0	0	0	0
331 Orange Co. (Mechanicstown)	06/30/09	Flash Flood	0	0	0	0
332 Ulster Co. (Marbletown)	06/30/09	Flood	0	0	0	0
333 Suffolk Co. (Centerville)	07/01/09	Flood	0	0	0	0
334 Suffolk Co. (Fishers Is)	07/01/09	Flash Flood	0	0	0	0
335 Schenectady Co. (Glenville)	07/01/09	Flash Flood	0	0	0	0
336 Schenectady Co. (Mariaville)	07/01/09	Flash Flood	0	0	0	0
337 Albany Co. (Loudonville)	07/01/09	Flash Flood	0	0	0	0
338Schenectady Co(Schenectady)	07/01/09	Flash Flood	0	0	0	0
339 Albany Co. (Cohoes)	07/01/09	Flash Flood	0	0	50K	0
340 Rensselaer Co. (Troy)	07/01/09	Flash Flood	0	0	0	0
341 Albany Co. (Roessleville)	07/01/09	Flash Flood	0	0	0	0
342 Albany Co. (Latham)	07/01/09	Flash Flood	0	0	50K	0
343 Washington Co. (Easton)	07/01/09	Flash Flood	0	0	0	0
344 Saratoga Co. (Bemis Hgts.)	07/01/09	Flash Flood	0	0	0	0
345 Rensselaer Co. (Hemstreet Park)	07/01/09	Flash Flood	0	0	0	0
346 Orange Co(Mountainville)	07/01/09	Flash Flood	0	0	0	0
347 Nassau Co (S.Hempstead)	07/07/09	Flash Flood	0	0	0	0
348 Suffolk Co.(N. Babylon)	07/07/09	Flash Flood	0	0	0	0
349 Cattaraugus Co. (Perrysburg)	07/11/09	Flash Flood	0	0	15K	0
350 Erie Co. (Collins)	07/11/09	Flash Flood	0	0	25K	0
351 Columbia Co. (Barton Corners)	07/16/09	Flash Flood	0	0	0	0
352 Yates Co. (Italy)	07/21/09	Flash Flood	0	0	3K	0

353 Suffolk Co. (Freeport)	07/23/09	Coastal Flood	0	0	0	0
354 Suffolk Co. (Freeport)	07/23/09	Coastal Flood	0	0	0	0
355 Orange Co.(Mechanicstown)	07/26/09	Flash Flood	0	0	0	0
356 New York Co. (Central Park)	07/26/09	Flash Flood	0	0	0	0
357 New York Co. (New York)	07/26/09	Flash Flood	0	0	0	0
358 Columbia Co. (Austerlitz)	07/27/09	Flash Flood	0	0	0	0
359 Columbia Co.(State Line)	07/27/09	Flash Flood	0	0	0	0
360 Columbia Co. (Austerlitz)	07/27/09	Flash Flood	0	0	0	0
361 Columbia Co.(Stuyvesant)	07/29/09	Flash Flood	0	0	0	0
362 New York Co.(NewYork)	07/29/09	Flash Flood	0	0	0	0
363 Richmond Co (Willowbrook)	07/29/09	Flash Flood	0	0	0	0
364 Saratoga Co. (Edinburg)	07/29/09	Flash Flood	0	0	0	0
365 New York Co.(NewYork)	07/29/09	Flash Flood	0	0	0	0
366Rensselaer Co (Schodack Ctr)	07/29/09	Flash Flood	0	0	0	0
367 Greene Co. (WCoxsackie)	07/29/09	Flash Flood	0	0	0	0
368 Bronx Co. (Bronx)	07/29/09	Flash Flood	0	0	0	0
369 New York Co(New York)	07/29/09	Flash Flood	0	0	0	0
370 Columbia Co(Stuyvesant)	07/29/09	Flash Flood	0	0	4.5M	0
371 Columbia Co(Stuyvesant)	07/29/09	Flood	0	0	0	0
372 Rensselaer Co (Stephentown Center)	07/29/09	Flood	0	0	0	0
373 Sullivan Co. (Livingston Manor)	07/30/09	Flash Flood	0	0	0	0
374 Sullivan Co (WhiteSulphurSpgs)	07/30/09	Flash Flood	0	0	0	0
375 Sullivan Co(Jeffersonville)	07/30/09	Flash Flood	0	0	0	0
376 Saratoga Co (BemisHgts)	07/31/09	Flash Flood	0	0	0	0
377 Albany Co(Voorheesville)	07/31/09	Flash Flood	0	0	0	0
378 Washington Co. (E.Whitehall)	07/31/09	Flash Flood	0	0	0	0
379 Sullivan Co. (Jeffersonville)	07/31/09	Flash Flood	0	0	20K	0
380 Greene Co. (Catskill)	07/31/09	Flash Flood	0	0	0	0
381 Columbia Co. (Chatham)	07/31/09	Flash Flood	0	0	0	0
382 Columbia Co. (Chatham)	07/31/09	Flood	0	0	0	0
383 Rensselaer Co.(Stephentown)	07/31/09	Flash Flood	0	0	0	0

384 Columbia Co. (Ghent)	07/31/09	Flash Flood	0	0	0	0
385 Greene Co. (New Baltimore)	07/31/09	Flash Flood	0	0	0	0
386 Greene Co. (Catskill)	07/31/09	Flood	0	0	0	0
387 Columbia Co (Lorenz Pk)	07/31/09	Flood	0	0	0	0
388 Columbia Co.(Claverack)	07/31/09	Flood	0	0	0	0
389 Sullivan Co (Jeffersonville)	08/02/09	Flash Flood	0	0	5K	0
390 Erie Co. (North Boston)	08/04/09	Flash Flood	0	0	35K	0
391 Chautauqua Co. (Jamestown)	08/09/09	Flash Flood	0	0	30K	0
392 Chautauqua Co. (Lakewood)	08/09/09	Flash Flood	0	0	25K	0
393 Wayne Co.(Williamson) Sodus Arp	08/09/09	Flash Flood	0	0	25K	0
394 Chautauqua Co. (Silver Crk.)	08/09/09	Flash Flood	0	0	30.0M	0
395 Cattaraugus Co. (Gowanda)	08/09/09	Flash Flood	1	1	45.0M	0
396 Erie Co. (Helmuth)	08/09/09	Flash Flood	0	0	15.0M	0
397 Onondaga Co. (Skaneateles)	08/09/09	Flash Flood	0	0	15K	0
398 Sullivan Co. (Roscoe)	08/09/09	Flash Flood	0	0	5K	0
399 Erie Co. (Sardinia)	08/09/09	Flash Flood	0	0	100K	0
400 Chautauqua Co. (Silver Ck.)	08/09/09	Flash Flood	0	0	250K	0
401 Cattaraugus Co. (West Perrysburg)	08/09/09	Flash Flood	0	0	250K	0
402 Cortland Co. (Marathon)	08/10/09	Flash Flood	0	0	1K	0
403 Chenango Co. (Coventry)	08/10/09	Flash Flood	0	0	2K	0
404 Chenango Co. (Greene)	08/10/09	Flash Flood	0	0	1K	0
405 Sullivan Co. (Livingston Manor)	08/10/09	Flash Flood	0	0	2K	0
406 Chautauqua Co. (Jamestown W.)	08/10/09	Flash Flood	0	0	25K	0
407 Niagara Co. (Lockport)	08/10/09	Flash Flood	0	0	15K	0
408 Chenango Co. (Greene)	08/10/09	Flash Flood	0	0	5K	0
409 Wayne Co. (Clyde) Aero Park Arpt	08/10/09	Flash Flood	0	0	30K	0
410 Livingston Co. (Dansville)	08/12/2009	Flash Flood	0	0	25K	0
411 Steuben Co. (Canisteo)	08/12/09	Flash Flood	0	0	5K	0
412 Allegany Co. (Andover)	08/12/09	Flash Flood	0	0	35K	0
413 Orange Co. (Winona Lake)	08/12/09	Flash Fld	0	0	0	0
414 Orange Co. (Highland Falls)	08/12/09	Flash Flood	0	0	0	0
415 Broome Co. (Binghamton)	08/18/09	Flash Flood	0	0	2K	0

416 <a href="#">Broome Co. (Endicott)</a>	08/18/09	Flash Flood	0	0	2K	0
417 <a href="#">Broome Co. (Johnson City)</a>	08/18/09	Flash Flood	0	0	1K	0
418 <a href="#">Broome Co. (Endicott)</a>	08/18/09	Flash Flood	0	0	2K	0
419 <a href="#">Albany Co. (Albany)</a>	08/21/09	Flash Flood	0	0	0	0
420 <a href="#">Columbia Co. (Hudson)</a>	08/21/09	Flash Flood	0	0	0	0
421 <a href="#">Westchester Co. (Chauncey)</a>	08/22/09	Flash Flood	0	0	0	0
422 <a href="#">Herkimer Co. (Millers Mills)</a>	08/22/09	Flash Flood	0	0	0	0
423 <a href="#">Herkimer Co. (Columbia Center)</a>	08/22/09	Flash Flood	0	0	0	0
424 <a href="#">Herkimer Co. (Mohawk)</a>	08/22/09	Flash Flood	0	0	0	0
425 <a href="#">Herkimer Co.(Herkimer)</a> <a href="#">Lamanna</a> <a href="#">Arp</a>	08/22/09	Flash Flood	0	0	0	0
426 <a href="#">Rockland Co. (Mt Ivy)</a>	08/23/09	Flash Flood	0	0	0	0
427 <a href="#">Westchester Co. (Fleetwood)</a>	08/23/09	Flash Flood	0	0	0	0
428 <a href="#">Westchester Co. (Country Ridge Estate)</a>	08/23/09	Flash Flood	0	0	0	0
429 <a href="#">Westchester Co. (Rye)</a>	08/23/09	Flash Flood	0	0	0	0
430 <a href="#">Westchester Co. (Fleetwood)</a>	08/23/09	Flash Flood	0	0	0	0
431 <a href="#">Nassau Co. (Freeport)</a>	10/16/09	Coastal Flood	0	0	0	0
432 <a href="#">Nassau Co. (Brookville Blvd &amp; Rockaway Blvd)</a>	10/16/09	Coastal Flood	0	0	0	0
433 <a href="#">Nassau Co. (Atlantic Beach)</a>	10/18/09	Coastal Flood	0	0	0	0
434 <a href="#">Suffolk Co. (Lindenhurst)</a>	10/18/09	Coastal Flood	0	0	0	0
435 <a href="#">Suffolk Co. (Shelter Island)</a>	10/18/09	Coastal Flood	0	0	1K	0
436 <a href="#">Westchester Co. (Peekskill)</a>	10/24/09	Flood	0	0	0	0
437 <a href="#">Richmond Co. (Pleasant Plains)</a>	10/24/09	Flood	0	0	0	0
438 <a href="#">Montgomery Co. (St. Johnsville)</a>	10/28/09	Flood	0	0	0	0
439 <a href="#">Nassau Co. (Freeport)</a>	11/13/09	Coastal Flood	0	0	0	0
440 <a href="#">Nassau Co. (Freeport)</a>	11/14/09	Coastal Flood	0	0	0	0
441 <a href="#">Suffolk Co. (Lindenhurst)</a>	11/14/09	Coastal Flood	0	0	0	0
442 <a href="#">Suffolk Co.(W. Hampton)</a> <a href="#">Dune Rd</a>	11/14/09	Coastal Flood	0	0	0	0
443 <a href="#">Steuben Co. (Canisteo)</a>	01/25/10	Flash Flood	0	0	10K	0
444 <a href="#">Steuben Co. (North Urbana)</a>	01/25/10	Flash Flood	0	0	10K	0
445 <a href="#">Steuben Co. (Risingville)</a>	01/25/10	Flash Flood	0	0	10K	0

446	<a href="#">Erie Co. (Lancaster)</a>	01/25/10	Flood	0	0	10K	0
447	<a href="#">Broome Co. (Vestal) Tracy Crk.</a>	01/25/10	Flash Flood	0	0	50K	0
448	<a href="#">Broome Co.(Twin Orchard)</a>	01/25/10	Flash Flood	0	0	40K	0
449	<a href="#">Allegany Co. (Angelica)</a>	01/25/10	Flood	0	0	20K	0
450	<a href="#">Erie Co(Buffalo Airpark Arpt)</a>	01/25/10	Flood	0	0	10K	0
451	<a href="#">Chenango Co. (Afton)</a>	01/25/10	Flash Flood	0	0	50K	0
452	<a href="#">Chemung Co. (Lowman)</a>	01/25/10	Flash Flood	0	0	0	0
453	<a href="#">Oneida Co. (Rome)</a>	01/25/10	Flash Flood	0	0	0	0
454	<a href="#">Oneida Co. (So. Trenton)</a>	01/25/10	Flash Flood	0	0	0	0
455	<a href="#">Herkimer Co. (Ingham Mills)</a>	01/25/10	Flash Flood	0	0	0	0
456	<a href="#">Ulster Co. (Allaben)</a>	01/25/10	Flash Flood	0	0	0	0
457	<a href="#">Delaware Co. (Deposit)</a>	01/25/10	Flash Flood	0	0	0	0
458	<a href="#">Schoharie Co. (Summit)</a>	01/25/10	Flash Flood	0	0	0	0
459	<a href="#">Schoharie Co. (Livingstonville)</a>	01/25/10	Flash Flood	0	0	0	0
460	<a href="#">Greene Co. (South Cairo)</a>	01/25/10	Flash Flood	0	0	0	0
461	<a href="#">Albany Co. (Coeymans)</a>	01/25/10	Flash Flood	0	0	0	0
462	<a href="#">Broome Co. (Maine)</a>	01/25/10	Flash Flood	0	0	40K	0
463	<a href="#">Greene Co. (West Coxsackie)</a>	01/25/2010	Flash Flood	0	0	0	0
464	<a href="#">Greene Co. (Kiskatom)</a>	01/25/10	Flash Flood	0	0	0	0
465	<a href="#">Schoharie Co. (Warnerville)</a>	01/25/10	Flash Flood	0	0	0	0
466	<a href="#">Montgomery Co. (Fonda)</a>	01/25/10	Flash Flood	0	0	0	0
467	<a href="#">Greene Co. (Catskill)</a>	01/25/10	Flash Flood	0	0	0	0
468	<a href="#">Saratoga Co. (Malta Ridge)</a>	01/25/10	Flash Flood	0	0	0	0
469	<a href="#">Chenango Co. (Genegantslet)</a>	01/25/10	Flash Flood	0	0	50K	0
470	<a href="#">Schenectady Co. (Carman)</a>	01/25/10	Flash Flood	0	0	0	0
471	<a href="#">Ulster Co. (Mt Pleasant)</a>	01/25/10	Flash Flood	0	0	0	0
472	<a href="#">Ulster Co. (Sawkill)</a>	01/25/10	Flash Flood	0	0	0	0
473	<a href="#">Schenectady Co(Schenectady)</a>	01/25/10	Flash Flood	0	0	0	0
474	<a href="#">Essex Co. (Reber)</a>	01/25/10	Flood	0	0	0	0
475	<a href="#">Washington Co. (W. Hebron)</a>	01/25/10	Flash Flood	0	0	0	0
476	<a href="#">Schenectady Co (Braman Corners)</a>	01/25/10	Flash Flood	0	0	0	0
477	<a href="#">Cattaraugus Co. (Hinsdale)</a>	01/25/10	Flood	0	0	20K	0

478 <a href="#">Washington Co. (Ft Edward)</a>	01/25/10	Flash Flood	0	0	0	0
479 <a href="#">Washington Co. (W. Fort Ann)</a>	01/25/10	Flash Flood	0	0	0	0
480 <a href="#">Ulster Co. (Hurley)</a>	01/25/10	Flood	0	0	0	0
481 <a href="#">Schoharie Co. (Charlotteville)</a>	01/25/10	Flood	0	0	0	0
482 <a href="#">Essex Co. (Ausable Forks)</a>	01/25/10	Flood	0	0	5K	0
483 <a href="#">Wyoming Co. (Portage)</a>	01/25/10	Flood	0	0	20K	0
484 <a href="#">Ulster Co. (New Paltz)</a>	01/25/10	Flood	0	0	0	0
485 <a href="#">Herkimer Co. (Bolgeville)</a>	01/25/10	Flood	0	0	0	0
486 <a href="#">Fulton Co. (Lotville)</a>	01/26/10	Flood	0	0	0	0
487 <a href="#">Schenectady Co. (Wyatts)</a>	01/26/10	Flood	0	0	0	0
488 <a href="#">Franklin Co. (Ft Covington)</a>	01/26/10	Flood	0	0	25K	0
TOTAL			1	1	204.66M	0

**Table 3-11** lists historical major flood disaster declarations thru end of 2003. **Table 3-12** lists the flood disaster declarations of January 2004 thru July 2007.

**Table 3-12.1** lists the most recent flood disaster declarations of January 2007 thru April 2010.

<b>Table 3-11 Major Flood Disaster Declarations (1954 – 2003)</b>			
<b>Disaster No.</b>	<b>Type/Location</b>	<b>Date Declared</b>	<b>Damages</b>
<b>DR-26</b>	Hurricane Carol, Long Island	August 31, 1954	Property damage, road closures. Damages: Approximately \$3 million.
<b>DR-45</b>	Hurricane Diane, Southeastern N.Y.	August 12 -19, 1955.	Property damage, road closures, four (4) deaths. Damages in millions, but not quantified.
<b>DR-52</b>	Eastern Catskills and Lower Hudson Tributaries	October 16, 1955.	Flooding, Eleven (11) deaths. Damages: \$11 million.

**Table 3-11  
Major Flood Disaster Declarations (1954 – 2003)**

<b>Disaster No.</b>	<b>Type/Location</b>	<b>Date Declared</b>	<b>Damages</b>
<b>DR-338</b>	Hurricane Agnes, Western and Central NY	June 20-25, 1972	5000 Homes destroyed or badly damaged. Twenty-four (24) deaths. Damages: \$703 million.
<b>DR-702</b>	Flooding, Southeastern N.Y.S.	April 17, 1984	Total Eligible Damages: \$11.9 million
<b>DR-725</b>	Flooding, Western N.Y.S., declared 9/25/84	September 25, 1984	Total Eligible Damages: \$3.3 million
<b>DR-733</b>	Flooding, Northern N.Y.S.	March 21, 1985	Total Eligible Damages: \$1.6 million
<b>DR-734</b>	Flooding, Buffalo/Niagara Falls Area	March 22, 1985	Total Eligible Damages: \$1.1 million
<b>DR-750</b>	Hurricane Gloria, Long Island	October 18, 1985	Flooding, Property damage. Damages: \$48.5 million
<b>DR-792</b>	Flooding, East Central N.Y.S.	May 15, 1987	Total Eligible Damages: \$3.6 million
<b>DR-918</b>	Hurricane Bob, Long Island	September 16, 1991	Flooding, Property damage. Damages: \$11.7 million.
<b>DR-974</b>	Coastal Storm, Nor'easter.	December 21, 1992	Damages: \$31.2 million

**Table 3-11  
Major Flood Disaster Declarations (1954 – 2003)**

<b>Disaster No.</b>	<b>Type/Location</b>	<b>Date Declared</b>	<b>Damages</b>
<b>DR-1146</b>	Severe coastal storm, flooding / wind including Westchester and Suffolk Co.	November 19, 1996	Total Eligible Damages: \$16 million
<b>DR-1095</b>	Severe Flooding	January 25, 1996	Road closures, property damages, closed businesses and ten (10) deaths. Total Eligible Damages: \$160 million
<b>DR-1148</b>	Severe Flooding	December 9, 1996	Total Eligible Damages: \$25.6 million
<b>DR-1233</b>	Severe flooding	July 7, 1998	Property damages, road closures. Two (2) deaths. Total Eligible Damages: \$27.8 million
<b>DR-1296</b>	Flood/Wind, Hurricane Floyd	September 19, 1999	Property damages and debris accumulation. Total Eligible Damages: \$62.2 million
<b>DR-1335</b>	Flooding	July 21, 2000	Total Eligible Damages: \$34.6 million
<b>DR-1486</b>	Flooding	September 29, 2003	Property damages, road closures. Total Eligible Damages: \$23 million

**Table 3-12  
Major Flood Disaster Declarations (2004-2007)**

Disaster No.	Type/Location		Declared Date & Incident Period	Damages
	Individual Assistance (IA)	Public Assistance (PA)		
<b>DR- 1534</b>	Severe storms and flooding IA – no counties declared PA - Allegany, Cattaraugus, Chautauqua, Delaware, Erie, Hamilton, Herkimer, Ontario, Saratoga, Schoharie, Steuben, Ulster, Washington, and Yates Counties.		8/03/04  5/13/04-6/17/04	\$14M
<b>DR- 1564</b>	Severe storms and flooding IA – Allegany, Broome, Cattaraugus, Madison, Monroe, Niagara, Oneida, Onondaga, Orleans, Steuben, Sullivan, Ulster, and Wayne Counties PA -Allegany, Broome, Cattaraugus, Chautauqua, Columbia, Delaware, Monroe, Niagara, Onondaga, Orange, Orleans, Steuben, Sullivan, Ulster, and Warren Counties		10/01/04  8/29/04 – 9/16/04	\$18.03M
<b>DR - 1565</b>	Tropical Depression Ivan IA - Broome, Chenango, Delaware, Orange, Sullivan, and Ulster Counties PA - Broome, Chenango, Delaware, Orange, Schoharie, Steuben, Sullivan, Tioga and Ulster Counties		10/01/04  9/16/04 – 9/24/04	\$15.10M
<b>DR - 1589</b>	Severe storms and flooding IA - Broome, Chenango, Cortland, Delaware, Orange, Rensselaer, Schenectady, Schoharie, Sullivan, Tioga, and Ulster Counties. PA -Broome, Chenango, Cayuga, Chautauqua, Columbia, Cortland, Delaware, Greene, Madison, Montgomery, Niagara, Orange, Otsego, Putnam, Rensselaer, Schoharie, Sullivan, Tioga, Westchester, and Ulster Counties.		4/19/05  4/02/05- 4/04/05	\$66.21M
<b>DR - 1650</b>	Severe storms and flooding IA - Broome, Chenango, Delaware, Herkimer, Montgomery, Oneida, Orange, Otsego, Schoharie, Sullivan, Tioga, and Ulster Counties. PA - Broome, Chenango, Delaware, Herkimer, Montgomery, Otsego, Sullivan, Ulster, and Westchester Counties.		7/01/06  6/26/06 – 7/10/06	\$246.33M
<b>DR - 1665</b>	Severe storms and flooding IA - Erie, Genesee, Niagara, and Orleans Counties. PA – Erie, Genesee, Niagara, and Orleans Counties.		10/24/06  10/12/06 –10/13/06	\$141.58M

**Table 3-12  
Major Flood Disaster Declarations (2004-2007)**

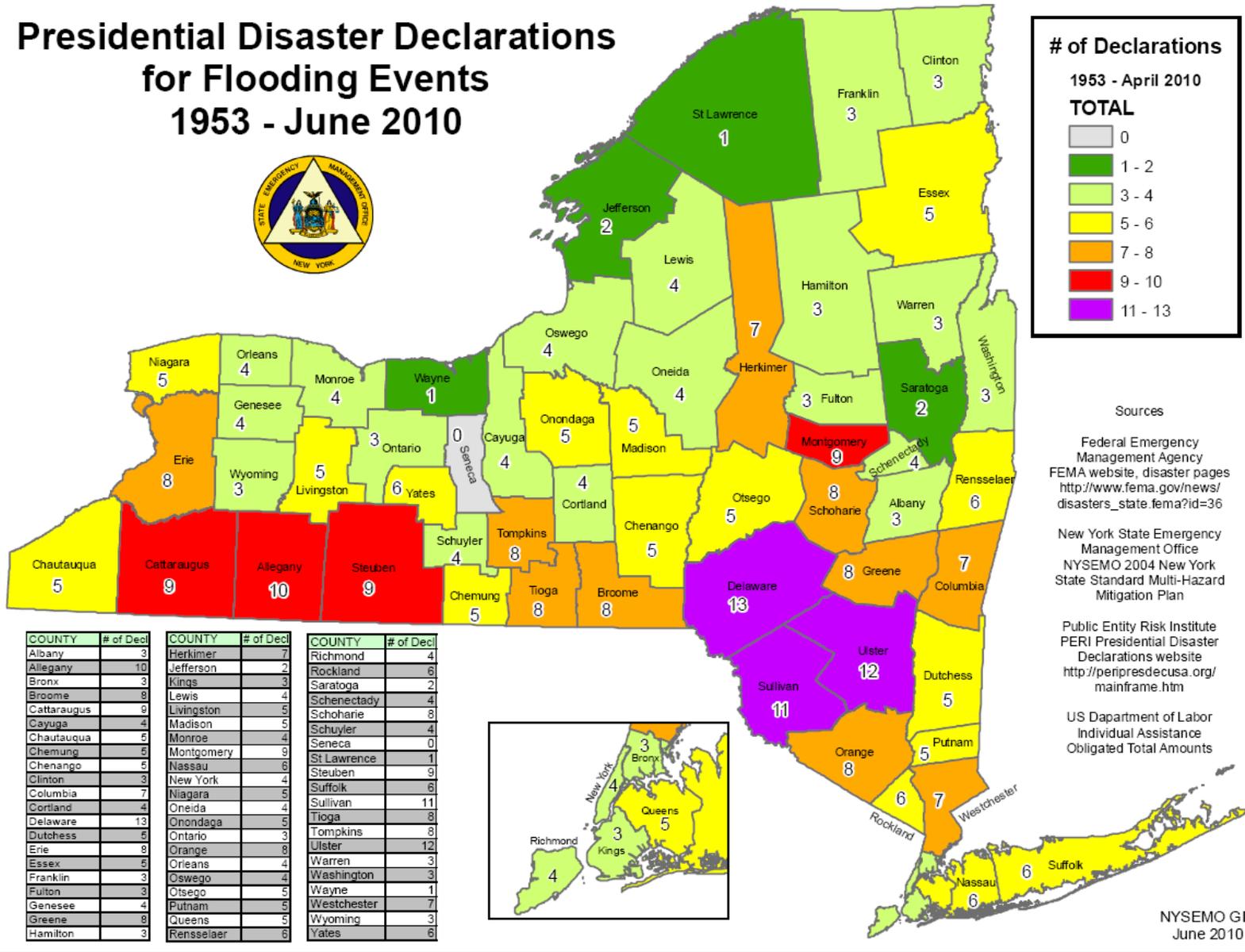
Disaster No.	Type/Location		Declared Date & Incident Period	Damages
	Individual Assistance (IA)	Public Assistance (PA)		
DR - 1670	Severe storms and flooding		12/12/06	\$32.59M
	IA – Broome and Chenango	PA - Broome, Chenango, Delaware, Hamilton, Herkimer, Montgomery, Otsego, Sullivan, and Tioga Counties.	11/16/06 – 11/17/06	
DR - 1692	Severe Storms and Inland and Coastal Flooding		4/27/07	\$12.76M
	IA - Orange, Rockland, Ulster and Westchester Counties.	PA - Albany, Columbia, Dutchess, Essex, Greene, Montgomery, Orange, Putnam, Rockland, Schoharie, Suffolk, Ulster and Westchester Counties.	4/14/07 – 4/18/07	
DR - 1710	Severe Storms and Flooding		7/02/07	Not Yet
	IA – No counties declared	PA – Delaware County	6/19/07	Available

Source SEMO Financial Records

**Table 3-13  
Major Flood Disaster Declarations (2007-2010)**

Disaster No.	Type/Location		Declared Date & Incident Period	Damages
	Individual Assistance (IA)	Public		
DR - 1724	Severe Storms, Flooding, and Tornado		08/31/2007	\$5.10M
	IA – Queens County		08/08/2007	
DR - 1857	Severe storms and flooding		09/01/2009	\$45.44M
	IA – Cattaraugus, Chautauqua & Erie Counties	PA – Allegany, Cattaraugus, Chautauqua, Chenango, Cortland, & Erie Counties	08/08/09 – 08/11/09	
DR - 1869	Severe storms and flooding associated with tropical depression Ida and a Nor'easter		12/31/2009	\$44.44M
	PA – Nassau and Suffolk Counties		11/12/09 – 11/14/09	
DR - 1899	Severe storms and flooding		4/16/2010	\$78.7M
	PA Nassau, Orange, Richmond, Rockland, Suffolk & Westchester Counties		03/13/10 – 03/15/10	

# Presidential Disaster Declarations for Flooding Events 1953 - June 2010



**# of Declarations**  
1953 - April 2010  
**TOTAL**

- 0
- 1 - 2
- 3 - 4
- 5 - 6
- 7 - 8
- 9 - 10
- 11 - 13

Sources

Federal Emergency Management Agency  
FEMA website, disaster pages  
[http://www.fema.gov/news/disasters\\_state.fema?id=36](http://www.fema.gov/news/disasters_state.fema?id=36)

New York State Emergency Management Office  
NYSEMO 2004 New York State Standard Multi-Hazard Mitigation Plan

Public Entity Risk Institute  
PERI Presidential Disaster Declarations website  
<http://peripresdecusa.org/mainframe.htm>

US Department of Labor  
Individual Assistance Obligated Total Amounts

NYSEMO GIS  
June 2010

**Figure 3-7** summarizes total number of flood related disaster declarations by county sorted highest to lowest through June 2010. Between January 2004 and June 2010, there were 13 Presidential Disasters declared in New York State because of flooding.