

Brief summary of flood of April 27 – May 2, 2011 in northeastern New York

(Revised May 27, 2011)

By: Thomas P. Suro

US Geological Survey, New York WSC

A total of 3 to 5 inches of warm rain combined with significant snowmelt to produce widespread flooding in northeastern New York April 27 – May 2, 2011. The National Weather Service (NWS) reported a 3 day rainfall total of 3.81 inches at North Lake Placid and a 4 day rainfall total of 4.60 inches at Indian Lake, NY. Major flooding was reported by the NWS in the following basins: Lake Champlain, Hudson River, Sacandaga River, West Canada Creek, Schroon River, and Ausable River. The NWS radar image of observed precipitation for the 7 day period prior to May 2 can be viewed [here](#). A graphical image of snow water equivalent for April 25, 2011 from the NWS National Operational Hydrologic Remote Sensing Center can be viewed [here](#).

Ten US Geological Survey (USGS) streamgages in the Hudson and St. Lawrence River basins recorded new record maximums during this event. The Hudson River at North Creek streamgage, in operation since 1907, recorded a new period-of-record maximum discharge of 36,100 ft³/s on April 28 (figure 1, 2a). The Indian River near Indian Lake, Hudson River at Fort Edward, and West Canada Creek at Kast Bridge (figure 2b) streamgages in the Hudson River basin also recorded new period-of-record maximum discharges during this event. In the St. Lawrence River basin new period-of-record maximum discharges were recorded along the Raquette River at the Piercefield, South Colton and Raymondville streamgages.



Figure 1.-- US Geological Survey streamgage Hudson River at North Creek, NY (01315500), April 29, 2011. Photo taken by L.T. Brooks (USGS Troy NYWSC).

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Flood frequency analysis of annual flood-peak discharges recorded at streamgages provides a means of estimating the probability of occurrence of a given discharge. Flood frequency is commonly expressed in terms of recurrence interval or the probability of being exceeded (one is the reciprocal of the other). What has been traditionally referred to as the 100-year flood, for example, has a probability of 0.01 (1-percent chance) of being equaled or exceeded in any given year and is now being termed the 1 percent annual chance flood. The preliminary recurrence intervals (or exceedance probabilities) of the peak discharges at several selected streamgages affected by this flood event ranged from about 25 years (4% annual chance of exceedance) at Schroon River at Riverbank (01317000) to 100 years (1% annual chance of exceedance) at Hudson River at Fort Edward (01327750), to greater than 100 years (less than 1% annual chance of exceedance) at the Hudson River at Newcomb (01312000), Indian River near Indian Lake (01314500), Hudson River at North Creek (01315000), West Canada Creek near Wilmurt (01343060), West Canada Creek at Kast Bridge (01346000), and along the Raquette River at Piercefield (04266500), South Colton (04267500), and Raymondville (04268000).

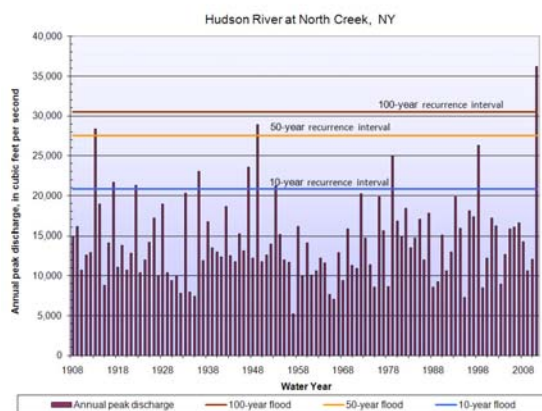


Figure 2a. Annual peak discharges through April 2011, and discharges of the 10-, 50-, and 100-year recurrence intervals for Hudson River at North Creek, NY (01315500).

Figure 2a

(Click figure to enlarge)

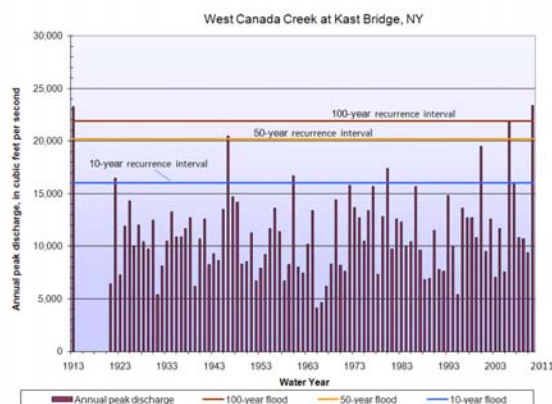


Figure 2b. Annual peak discharges through April 2011, and discharges of the 10-, 50-, and 100-year recurrence intervals for West Canada Creek at Kast Bridge, NY (01346000).

Figure 2b

(Click figure to enlarge)

Several lakes and reservoirs also recorded new record elevations as a result of this event. Great Sacandaga Lake, Hinkley Reservoir and Stillwater Reservoir all recorded new maximum water level elevations during this event. The USGS streamgages on Lake Champlain at Whitehall (04279085) and at Rouses Point (04295000) also recorded new record water level elevations as a result of this storm event. The new maximum water-surface elevation of 103.20 ft. for Lake Champlain at Rouses Point exceeded both the previous maximum recorded elevation in 1993 and the historic elevation of 1869 by more than 1 foot.

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Figure 3.-- Outflow from Indian Lake on April 29, 2011. Photo taken by C.L. Gazorian (USGS Troy NYWSC).

The USGS New York Water Science Center made more than 40 flood measurements during this event to verify and calibrate the stage-discharge relationships at many streamgages in northeastern New York. A total of 15 USGS streamgages recorded new period-of-record maximums during this event. Part of the mission of the Water Resources Division of the USGS is to provide reliable, timely and impartial streamflow information to minimize the loss of life and property as a result of water-related natural hazards such as flooding. USGS water data is used by the NWS for flood forecasting and flood warnings, while flood frequencies computed by the USGS are widely used for road and bridge design as well as for flood insurance studies. A table of flood peaks from the April 27 - May 2, 2011, storm event at selected USGS streamgages and estimated flood frequencies are available [below](#).

(Click to view table)