

FLOOD OF OCTOBER 2005

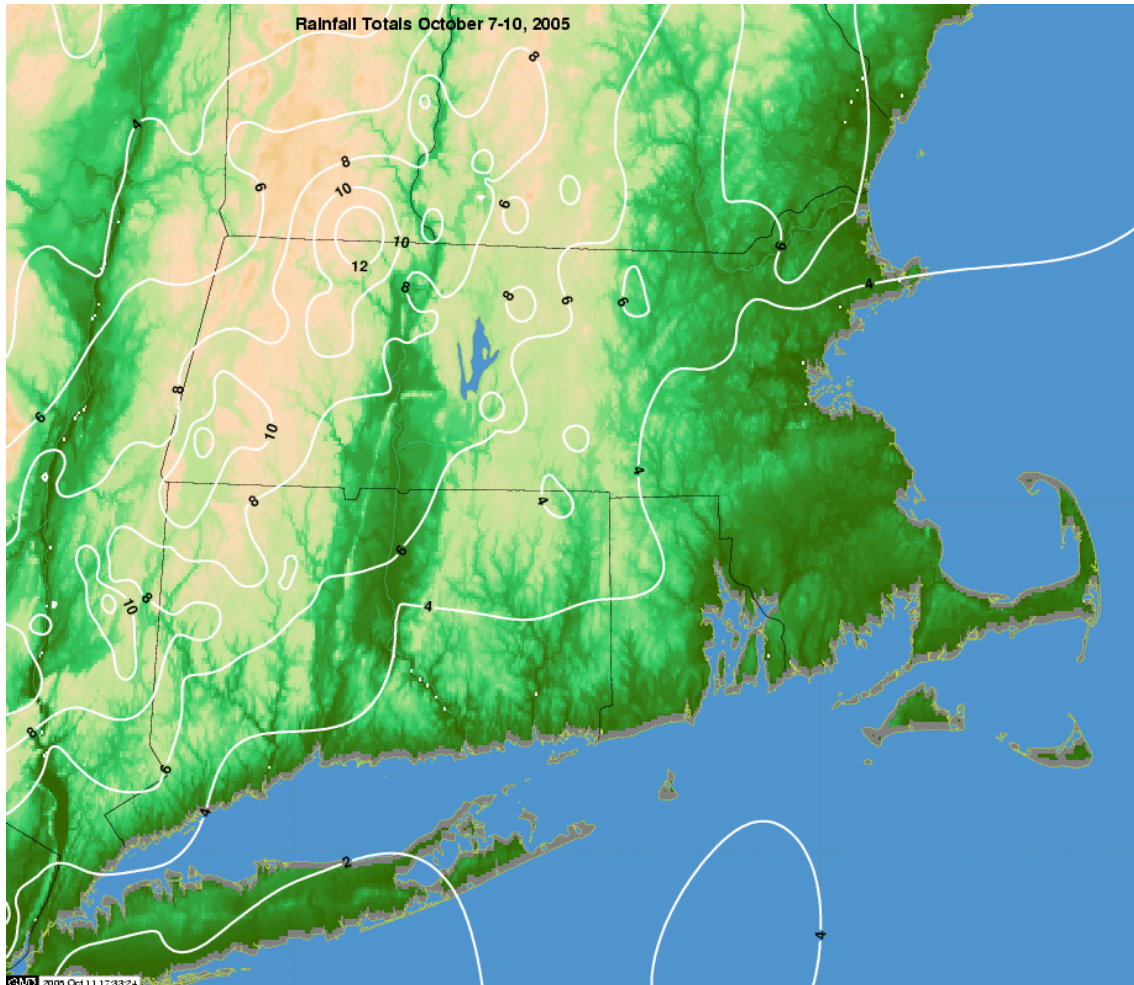


US Army Corps Surry Mountain Dam, Ashuelot River, Keene.

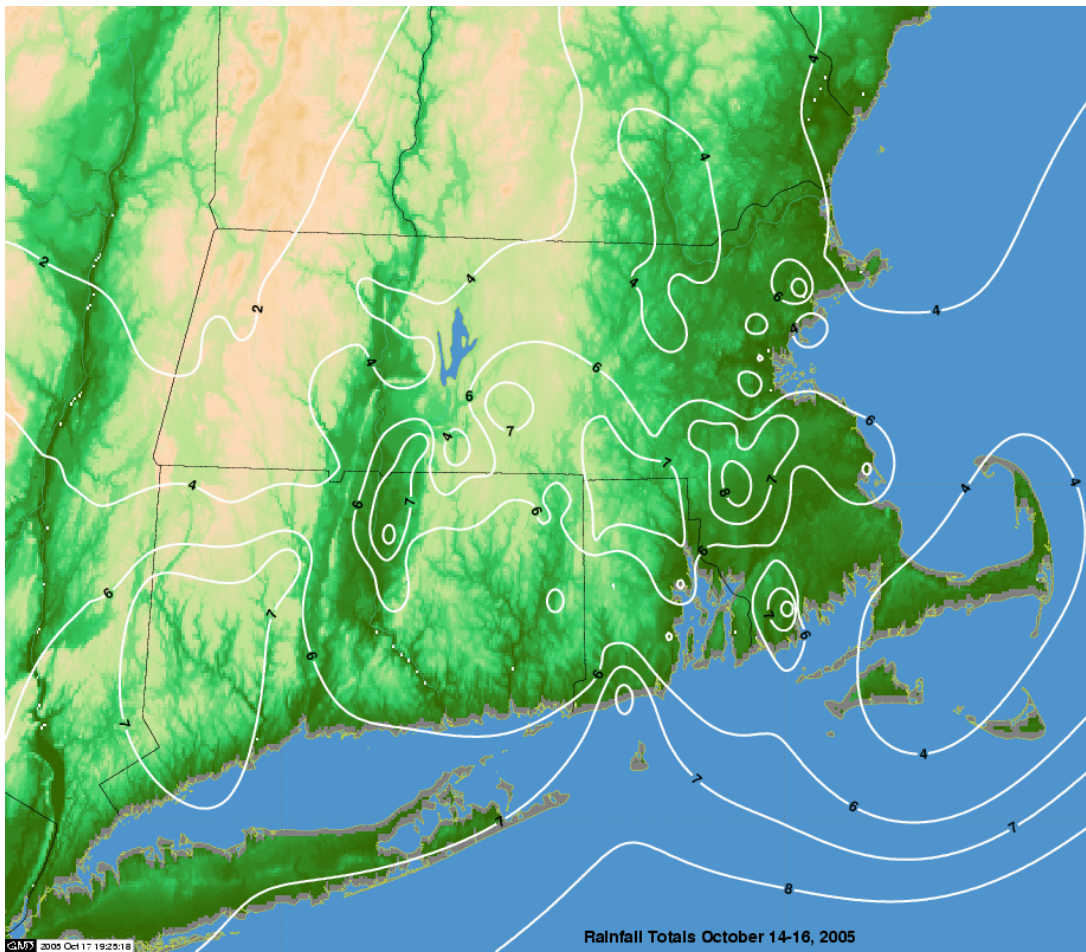
Over a 10-day period In October 2005, remnants of Tropical Storm Tammy and Subtropical Depression Twenty-Two merged with incoming continental cold fronts to produce torrential rains over interior New England, as well as over parts of New Jersey and New York. Particularly hard hit was the state of New Hampshire which saw roads and bridges wiped out, several reported deaths, and whole buildings destroyed. During this 10-day period, 7 through 16 October 2005, approximately 6 to 15 inches of rainfall occurred within New England River basins.

The storm system was actually two rainfall events separated by about 1 week. The first event, influenced by remnants of Tammy, produced rainfall between 4 and 10 inches between 7-10 October, with some 24-hr rainfall totals approaching 8 to 9 inches at Surry Mountain and Otter Brook Dams in Keene, NH (100-yr rainfall frequency is slightly over 6 inches in 24-hrs). The recorded peak discharge at the USGS in Hinsdale NH was about 11,000 cfs (based on provisional USGS flood data). This is the highest recorded discharge since construction of Surry Mountain and Otter Brook and cursory analysis indicates that this event would have exceeded the 1936 and 1938 floods at Hinsdale

had Surry Mountain and Otter Brook been in place. The gage at Hinsdale has a period of record dating back to 1907 therefore this flood could be considered the record flood in this 98 year period.



The second rainfall event, influenced by moisture from remnants of Sub-tropical depression 22, produced between 3 and 8 inches from 14-16 October, with some 24-hr rainfall totals exceeding 6 inches within the Thames and Blackstone River Basins. Rainfall totals during the entire 10-day period ranged from 10 to 15 inches within the Connecticut and Thames River basins, which slightly exceeds 100-year frequency 10-day totals of 12 to 13 inches.



The mainstem Connecticut River, and corresponding tributaries, experienced significant rises beginning on the 8th of October. The Merrimack River, as well as the Thames, Naugatuck, and Blackstone Rivers experienced rises as a result of the second rainfall event beginning on the 14th of October.

Based on a cursory review of rainfall data, recorded peak flows, and reports of flooding, it appears that the relatively short steep tributaries to the main stem Connecticut River experienced some of the most significant flooding. The area below Keene NH appears to have experienced more rainfall, than the areas above Surry Mountain and Otter Brook, and therefore runoff from this area contributed more to the peak flows as recorded at Hinsdale. The uncontrolled Cold River and its tributaries, located along the Connecticut River north of Hinsdale in the town of Alstead NH also experienced extensive flooding. Other isolated pockets of high rainfall such as Pittsfield, MA in the upper Housatonic River watershed and the headwaters of the West Branch Westfield

near Huntington, MA (these areas are located in the Berkshire Mountains) experienced record flooding. This was considered a major flood event within some watersheds of New England and is estimated to be equal to or slightly greater than a 100-year flood event within the Keene, NH area downstream of our Surry Mountain and Otter Brook Dams, as well as within the headwaters of the Housatonic and Westfield Rivers. This was the second highest pool level experienced at Surry Mountain Dam and the third highest at nearby Otter Brook Dam. Within the Thames River basin new peak pools of record occurred at East Brimfield and West Thompson Dams reaching 53 percent full and 63 percent full, respectively. Runoff within the Thames River basin was estimated to be between the 25 and 50-yr frequency.

During these runoff events, flood control storage utilized at Corps reservoirs ranged from 30 to 96 percent within the Connecticut River basin. Surry Mountain Dam reached 96 percent full, peaking 1.5 ft below spillway crest, and nearby Otter Brook Dam reached about 80 percent full, peaking about 8 ft below top of the existing construction berm. Corps dams within the Merrimack, Naugatuck, Blackstone, and Thames River Basins reached between 30 and 65 percent full.

Effect of Corps Reservoirs at Selective River Index Stations

Location	DA (sq.mi)	Flood Flow (cfs)	Obs Peak (cfs)	Natural Peak (cfs)	Reduction	
					Percent	Stage
CONNECTICUT RIVER BASIN						
Conn. River @Montague,MA	7,865	89,700	120,700	133,000	9%	1.7 ft
@ Hartford,CT	10,480	112,500	104,100	121,500	14%	2.3 ft
Westfield River @Westfield,MA	497	11,300	18,000	40,800	56%	8.9 ft
MERRIMACK RIVER BASIN						
Merrimack River @Lowell,MA	4,635	48,000	55,800	67,900	18%	1.5 ft
THAMES RIVER BASIN						
Quinebaug River @ Putnam,CT	331	5,000	5,070	19,500	74	12.2