

**Subject:** Re: size of the x-year storm  
**From:** Gardner C Bent <gbent@usgs.gov>  
**Date:** 10/6/2011 4:52 PM  
**To:** jane@thebeatnews.org  
**CC:** Phillip J Zarriello <pzarriel@usgs.gov>

Hi Jane,

Sorry for my delayed response. I was in the field the two previous weeks when I got your e-mail. Interestingly enough I was out in northwestern MA flagging high-water marks from Irene. Since then it been hectic here getting all the data from the field in order before it gets out of order.

I think you are referring to the fact that the equations for estimating the magnitude and frequency of peak flows are several years old (almost 30 years old). This is the last time USGS did a study to develop new equations for estimating the magnitude and frequency of peak flows for the State of Massachusetts. The report is USGS Water-Supply Paper 2214 by S. William Wandle Jr., 1983 (<http://pubs.usgs.gov/wsp/2214/report.pdf>). This study would have only included peak-flow data through about water year 1981. So not only are there an additional 30 years of new peak-flow data, but there are better statistical analysis methods, and better GIS data for determining basin and land-use characteristics - which could be potential explanatory variables for the equations.

To your point, the USGS has been discussing with our Federal, State, and local governmental agencies the need to update these equations for several years. These discussion have involved MassDOT, MADCR, MADEP, FEMA, NWS, etc. All of these agencies are interested and feel the equations should be updated, but with all the recent budget cuts - no one has been able to provide funding for the project. The USGS needs to have cooperative funding of 50% or more of the cost to do the project, as are studies are generally cooperatively funded. As of today there is no time table for this to occur. We are all hoping in the next few years, but we all said this a few years ago. With all the recent flooding events - from eastern MA last year to western MA two months ago, hopefully there will be a bigger push to get a new study underway.

This office is currently updating the peak-flow equations for the State of Rhode Island through funding from FEMA Region I. If you can believe it, the equations in Rhode Island were even older than Massachusetts's.

Phil Zarriello, surface-water specialist, in our office is the project chief of this RI study to update the peak-flow equations, and he has been leading the charge to try to get funding to update the Massachusetts equations. Phil would have the best thoughts on whom you might contact to express your interest in seeing these equations update and any status on the potential of a future study. You can contact Phil at (508) 490-5010 or at [pzarriel@usgs.gov](mailto:pzarriel@usgs.gov)

Thank you for your interest in the need to update the equations, and I hope this helps.

Thanks, Gardner

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