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What Have We Learned?

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SPRING 2011

Brown University  
Center for Environmental Studies

ENVS1920: Analysis and Resolution of  
Environmental Problems and Case Studies

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**Cover Photo:**  
2010. Photograph.  
Warwick, RI. Labelscar:  
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# The Floods of March 2010

## What Have We Learned?

March 2011 marks one year since the Pawtuxet River flooded to its highest level in recorded history, devastating the areas of Warwick, West Warwick, and Cranston, RI. Days of constant rain and overflowing riverbanks led to transportation delays, millions of dollars in property damage, some evacuations, closed sewage treatment plants, stress and general havoc. Fortunately, no one died. A year later, some people have recovered completely and may have forgotten it ever happened. Others are still reeling from the effects.

This report, compiled and written by Brown University undergraduates in a research methods course in the Center for Environmental Studies, analyzes one of the most significant environmental disasters in Rhode Island history by identifying some of the causes and outcomes of the event. Our hope is that this analysis will not only tell an important story but that it will be modestly useful in future efforts for flood preparation and recovery and will provide some insight for other types of large scale environmental disasters in the state. Due to the complexity and importance of this event, the analysis is divided into six smaller





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reports. The first report examines the history and hydrology of the Pawtuxet River Valley and why land use development in the 20th century has led to greater vulnerability to flood damage than in colonial times. It also looks at hydrological data from the last century and finds that, even though precipitation has not changed significantly, Pawtuxet River discharges and subsequent flooding have increased sharply in the last forty years- just as development and land transformation have risen.

The second report examines the role of zoning laws, building codes, and flood insurance policies in the state and in key Rhode Island municipalities. This report outlines the variable stringency of regulatory standards within different state organizations -- including the Federal Emergency Management Agency, the R.I. State Building Code Commission, and the Department of Environmental Management -- and finds that, for the case of the March 2010 floods, the regulations were not strict enough. It also recommends the improved accuracy of Flood Insurance Rate Maps and a requirement that to avoid “perverse incentive” all buildings in floodplains should have to maintain appropriately priced insurance. The current state of affairs is quite the opposite.

Report Three reviews the preparedness of local officials in responding to a flood crisis and what has been learned, to consider how emergency response in the state might be improved. Specifically, it finds that the 2010 floods highlighted the need for a more streamlined response effort through improved community contingency plans; greater cohesion between federal, state, and municipal bodies; and updated standards for infrastructure. The report recommends that Rhode Island establish a chain of command that is coherent, practical, and inclusive of all parties involved in the flood response.

The fourth report examines the adverse social and financial impacts of the flood. This report looks at the issue of low-income households built within floodplains, where renters often have inadequate house or flood insurance to protect their assets. It also recommends amendments to basic state infrastructure and improved access to information, financial, and political resources for future emergencies.





The fifth report looks at some of the surprise benefits brought by the flood, economically and for community cohesion. For the March 2010 floods, some communities did band together and strengthen social ties as they cleaned up in the wake of the flood impact. Additionally, some small-scale industries also benefited from flood clean up -- however any of these economic gains primarily affected the local economy and offered only short-term benefits. Statewide economic influences have been inconclusive. Some local politicians probably gained elevated profile from leading their communities through the event.

Finally, Report Six seeks to assess what has been learned from the entire incident, and what major tasks remain in creating a state more resilient to climate-related disasters. This report specifically outlines the importance of good preparation -- having the most up to date information about flood risk, low development impact, and stormwater management. It also highlights the necessity of preemptive action surrounding increased communication between governments, officials, and communities. In order to constructively move forward on flood adaptation, it is imperative that Rhode Island stakeholders carefully examine both the successes and failures of past decision making and move forward with a wisdom of experience.

## Image Credits

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