

The March 2010 Floods:

Who Suffered the Worst?



The devastation from the March 2010 floods brought heartbreak and destruction to a swath of Rhode Islanders. Residents across the state were impacted in a variety of ways with flooded basements, sanitation issues, economic losses, and loss of countless family heirlooms and personal items. Many experienced these effects, but which Rhode Islanders suffered the most from them, and why? Was it merely geography of residence or business, or were there also patterns of age, race, and economic class? We examined property information, mined media sources, and conducted interviews with residents and experts to investigate these questions and to determine if there are clear patterns among those who suffered disproportionately. We analyzed differences in socioeconomic status, age, household locations, access to recovery sites, and the ability to understand FEMA procedures to determine the extent to which these factors affected the amount of suffering experienced by groups of people. In this report we provide insight on the extent of the damage and the residual effects caused by the flooding, the most vulnerable regions on the floodplain and the different groups of people living

there, and the assistance that flood victims received. We explore the emotions of flood victims and their opinions regarding the adequacy of the assistance they received, focusing on assistance from individual insurance providers and FEMA. Through this analysis we have found that not only are there particular groups of people that suffered disproportionately from the flood, but also that these identified groups of people will remain the most vulnerable to disasters such as the March flooding until there is reform within rental traps, communication systems, and insurance processes.

A Glimpse into the Destruction

Through local and national news, the America watched as Rhode Island streets became ponds and the Warwick Mall was transformed into a lake between two major interstates, a portion of which was closed due to flooding. Local media sources such as the Providence Journal, WPRI,



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ABC6, MSNBC, the Cranston Herald, the Warwick Beacon, the Rhody Beat, and WBRU provided a constant stream of updates throughout the flood, and analyses for weeks afterwards.

News reports highlighted the Warwick Sewer Treatment Plant on the bank of the Pawtuxet River as one high-risk area due to the projected elevated levels of water and existing soil contamination¹ (see Report 3). Much to the dismay of Warwick residents, this resulted in a toilet-flushing ban. As we’ve seen, the placement of the Warwick Sewer Treatment Plant caused residents across Warwick and Cranston to be subject to waste-water contamination.²

The flow of the Pawtuxet River was relentless, overwhelming vulnerable zones along its floodplain with many homes included. One resident of Willowbrook Apartments in Cranston whose first floor was inundated with water declared to a WBRU reporter “this week, I am homeless.”³ Displaced residents rushed to the few hotels that still had space and were accessible by road.⁴ Residents of mobile

home parks, homes, and businesses built on wetland areas, locations especially prone to flooding, were evacuated.⁵ Certain neighborhoods of rental homes along the I-95 and I-295 intersection between Cranston and Warwick were also particularly vulnerable to the flooding, as we’ve seen in previous reports.

The media stressed that Rhode Island’s already high unemployment rate of 13%—the highest in the country— was exacerbated as the jobs of countless employees disappeared due to severe flooding⁶ (see Report 5). West Warwick, a town designated as a “distressed community,” was particularly compromised because of its many low-



income residents and heavy tax burden. It was estimated that during the second round of flooding from March 28 to April 1, businesses in West Warwick alone “missed out on \$730,000 in revenue.”⁷

Local news stations provided a glimpse of those overcome the flood, reporting on a broad range of affected areas. The media streamed moving stories of homelessness and waterlogged businesses, however, they did not cover larger implications of the flooding. Other sources of information, including interviews with residents and experts and information on FEMA assistance, reveal that disparities in suffering ranged not only by location but also by other situational definitions such as socioeconomic status and age demographics.

Residents of the Floodplain

Residential areas in Rhode Island are scattered along the coastal floodplain and rivers, including many within 100-year and 500-year flood zones (see Figure 1). Because of its inexpensive nature, low-income housing is often built on sensitive areas within a floodplain.

Our analysis supports claims by some observers that there tended to be high numbers of rental properties in areas hit by the March 2010 floods. The factors contributing to the prevalence of rental properties on floodplains was explained by Paul Salera, Director of Westbay Community Action Center — a non-profit organization whose mission is to assist the economically disadvantaged in Kent County. Salera commented that “people get houses cheap in areas that flood a lot,” and these buyers “then rent the houses out cheap,” drawing in even more of a low-income population.⁸ He emphasized this point by stating that “all low-income housing was affected.” Salera’s opinion regarding the disparity of suffering was further reinforced by his finding that “people coming in [to Westbay] for flood assistance were already in the system.”⁹ In other words, Westbay Community Action Center’s work to assist the economically disadvantaged had touched upon the lives of many people affected by the flood prior to the flooding.

When describing groups of people who suffered disproportionately from the flooding, Mayor Avedisian also referenced those in lower-income brackets. The Mayor pointed out that “if you look at the demographics of people in West Warwick, people who rented in apartments they



could barely afford lost everything.” He explained that “if you are in that bracket, you get anything you can afford,” drawing attention to the reality that low-income groups often have no choice but to live in inexpensive homes that are susceptible to flood damage.¹⁰ This finding that the March flooding devastated low-income renters more than any other group reveals the possibility of a renting trap.

Another factor that contributed to the disproportionate suffering of low-income groups was revealed by Terry Gray, assistant manager of the DEM. Gray explained that there were communication challenges when dealing with low-income and minority groups during the flooding period, stating “in the cases of reaching out to low-income and minority groups, [only] the EPA went out door to door” to contact people.¹¹ Not all agencies had the resources to reach these groups by employing door-to-door methods. Agencies such as Westbay Community Action Center and the DEM were able to help flood victims who requested assistance but did not have the resources to seek out victims

on an individual basis. This inability to communicate via the necessary methods further deprived the suffering low-income group from receiving assistance.

Peter Lord of the Providence Journal revealed yet another factor that detailed why those in low-income groups suffered disproportionately from the flooding. He stated that some residents in low-income areas “got mad when they were told to evacuate because they were afraid that people would break into their homes.”¹²

Federal Emergency Management Agency (FEMA) charts depict the top five regions that received the most financial assistance from the agency after the March floods. Among the top five regions were Warwick, Cranston, and West Warwick. Further analysis revealed that the aforementioned towns also contained the highest number of renters, representing up to 25% of the households in some areas. In these same towns, 30% of the population is made up of elderly residents, age 60 and over (see Figure 2). This supports observations of Salera, Gray, Lord, and Mayor Avedisian that the prevalence of renters in highly damaged areas is not coincidental.



Assessing the Damage

The effects of the floods' damage were extensive and long-lasting, particularly so in low-income sectors already suffering from economic disadvantages. When the flood water receded in these areas analyzed, damage encompassed more than flooded basements. Property-values declined, trash flowed through neighborhoods, and property was damaged.¹³

Brown University students conducted two small surveys in areas affected by the flood. The first was administered in November 2010 and found that a majority of those interviewed (23/30 or 77%) were most affected by basement flooding.¹⁴ A separate set of interviews conducted in February 2011 across the greater region of Warwick, Cranston, and East Greenwich found that both renters and homeowners were negatively affected by the floods. These adverse experiences included being evacuated for days, loss and damage of possessions, flooding of basements (ranging from inches to ten feet deep), damage to driveways and yards, and roof leaks.

One Warwick resident from Pawtuxet Village exclaimed that "my whole yard, street, and basement were completely flooded and we could not leave our house for 3 or 4 days. We just couldn't go anywhere!" The same respondent "had to cancel plans because I could not get out of my neighborhood." The respondent lost most of the items

in her basement including utility items (like a dryer) and "important" personal artifacts. She elaborated that such losses were "upsetting because all of those memories [are now] gone." The resident summarized that "the flooding created a lot of inconvenience for everyone...So many things that we took for granted were not around. It made everything harder for a longer time than the immediate flood clean-up."¹⁵

An indirect effect of the flood was illustrated by a survey respondent's statement that "paying for the aftermath set us back a few months." Additional effects of the flood included extension of commute time to work and inability to commute to work, stress or frustration produced by dealing with the floods, and loss of personal items. Among the things that were lost were heirlooms, toys, stored holiday decorations, carpeting and furniture, and other items. Some reported that these lost items were only somewhat important or only sentimental in value; however, at least a quarter of the survey respondents reported that they did lose "important" items that could not be replaced.

When quantifying the damage, the elderly are revealed as another population that disproportionately suffered. Mayor Avedisian also described damage incurred by the flooding by elaborating on experiences by waste management services. He stated that "in the older neighborhoods, they lost the most," referencing Rhode Island's neighborhoods with elderly residents.¹⁶ The prevalence of mementos in the basements of elderly persons' homes contributed to the disproportionate suffering experienced

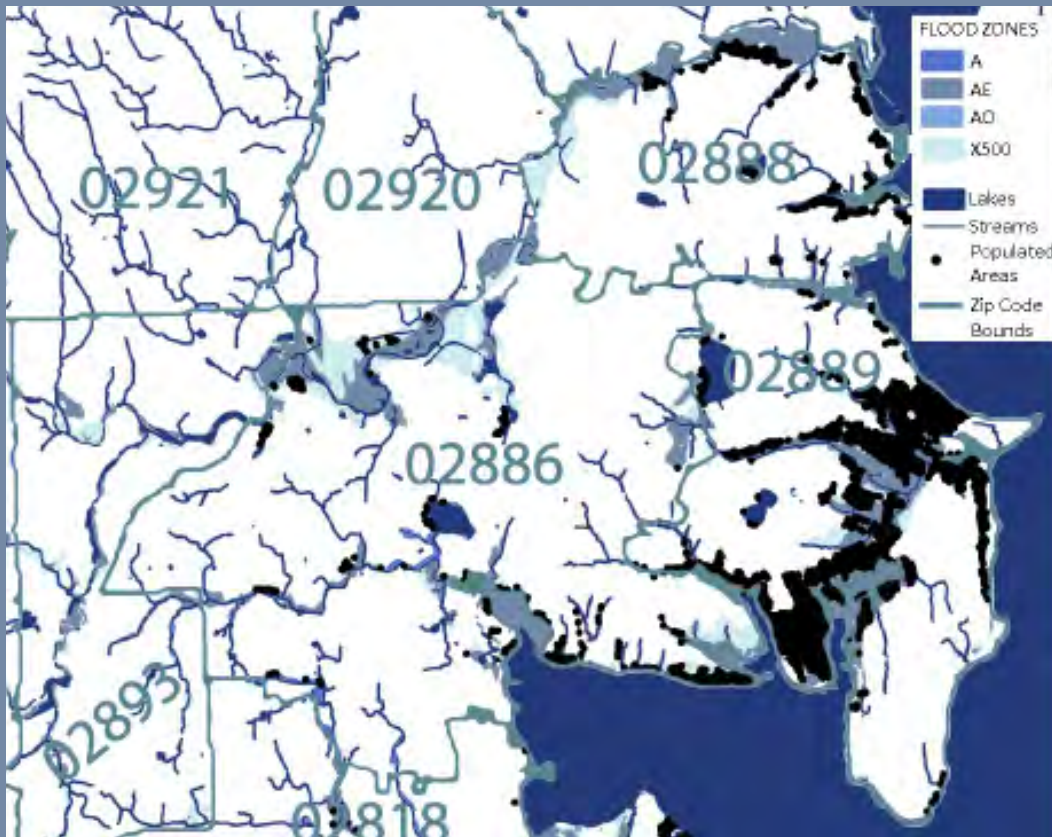


Figure 1: GIS Map
 Indicating flood zones, residential areas, and corresponding zip codes for the region.

Figure 2: Top Ten Financial Assistance from FEMA by City

Zip Code	City	Owners	Renters	Renters Percent of Households	Elderly (Over 60)	Elderly Percent of Households	Max Grants	Total Housing Assistance	Total Other Needs Assistance	Total Assistance
02816	Coventry	1,628	151	8%	470	26%	2	\$3,095,445	\$198,993	\$3,294,437
02889	Warwick	1,559	116	7%	492	29%	0	\$2,353,794	\$117,237	\$2,471,031
02886	Warwick	1,110	432	28%	509	33%	2	\$2,066,011	\$324,498	\$2,390,508
02910	Cranston	545	181	25%	191	26%	12	\$1,824,077	\$384,543	\$2,208,619
02893	West Warwick	1,027	336	25%	337	25%	3	\$1,684,838	\$452,717	\$2,137,555
02888	Warwick	1,140	114	9%	389	31%	2	\$1,622,324	\$143,303	\$1,765,627
02920	Cranston	1,096	111	9%	450	37%	0	\$1,440,388	\$125,967	\$1,566,355
02918	Friar Station	909	85	9%	267	27%	0	\$1,305,044	\$52,812	\$1,357,855
02852	North Kingstown	794	49	6%	256	30%	0	\$1,044,049	\$222,890	\$1,266,939
02891	Westerly	641	223	26%	298	34%	0	\$1,095,500	\$43,171	\$1,138,671
	Totals:	10,449	1,798	15%	3,659	30%	21	\$17,531,469	\$2,066,130	\$19,597,599



by these people.

Mayor Avedisian’s observation was confirmed by statements made by Salera who pointed out that in addition to those in low-income brackets (especially renters) the elderly (those aged 60 and over) suffered to a greater extent than other groups. Salera extended this finding by explaining that the elderly were most affected by fear and misinformation. For example, oftentimes elderly citizens “did not want anyone [offering assistance] to go into their homes because [they] did not want to be told they had to leave” their own property.¹⁷ This fear may be a product of the increased attachment that the elderly population as a whole has to their residences in comparison to other age groups. Rationally, those who may have lived in their homes 20-30 years or more are more likely to be profoundly attached to those residences. While helping alleviate flood damage through Westbay’s assistance, Salera also found that those of the “elderly population rarely check their basements.” This can create the problems such as mold growth in previously flooded areas and can lead to a greater prevalence of medical issues.¹⁸

Repair and Recovery

The repair and recovery process from the March 2010 floods is not over. Records depicting the specific amounts

of economic assistance that certain groups of people in particularly damaged areas received points to a disproportionate repair burden on low-income and elderly neighborhoods. These records answer the question of who is still suffering the most, and how they are coping with it. In fact, the percentage of elderly in the top-ten list of locations that received the most FEMA money as compared to the entire state ranged from 25% to as high as 37%. The number of renters in this category ranged from 6% to 28% of the residences within a particular zip code (see Figure 2). This data presents further evidence that the elderly and renting populations were groups that suffered most from the floods. The maximum grant given to a household from FEMA was \$29,900, though many who applied for assistance received far less. Twelve of the households in Cranston, RI received this maximum grant while West Warwick, the next-highest town, only received three maximum grants.

In addition to other factors, Salera commented that the disproportionate suffering experienced by low-income groups of people was a byproduct of this group’s lack of “disposable money.”¹⁹ Salera observed that “people who have back-up plans are able to recover faster than people who live paycheck to paycheck.” He explained that those in low-income brackets “do not have the means or the support network” to respond to events like the March flooding. One such missing support network was illustrated by FEMA’s lack of flood assistance to rental properties. Salera explained that problems tend to have a “snowball effect”



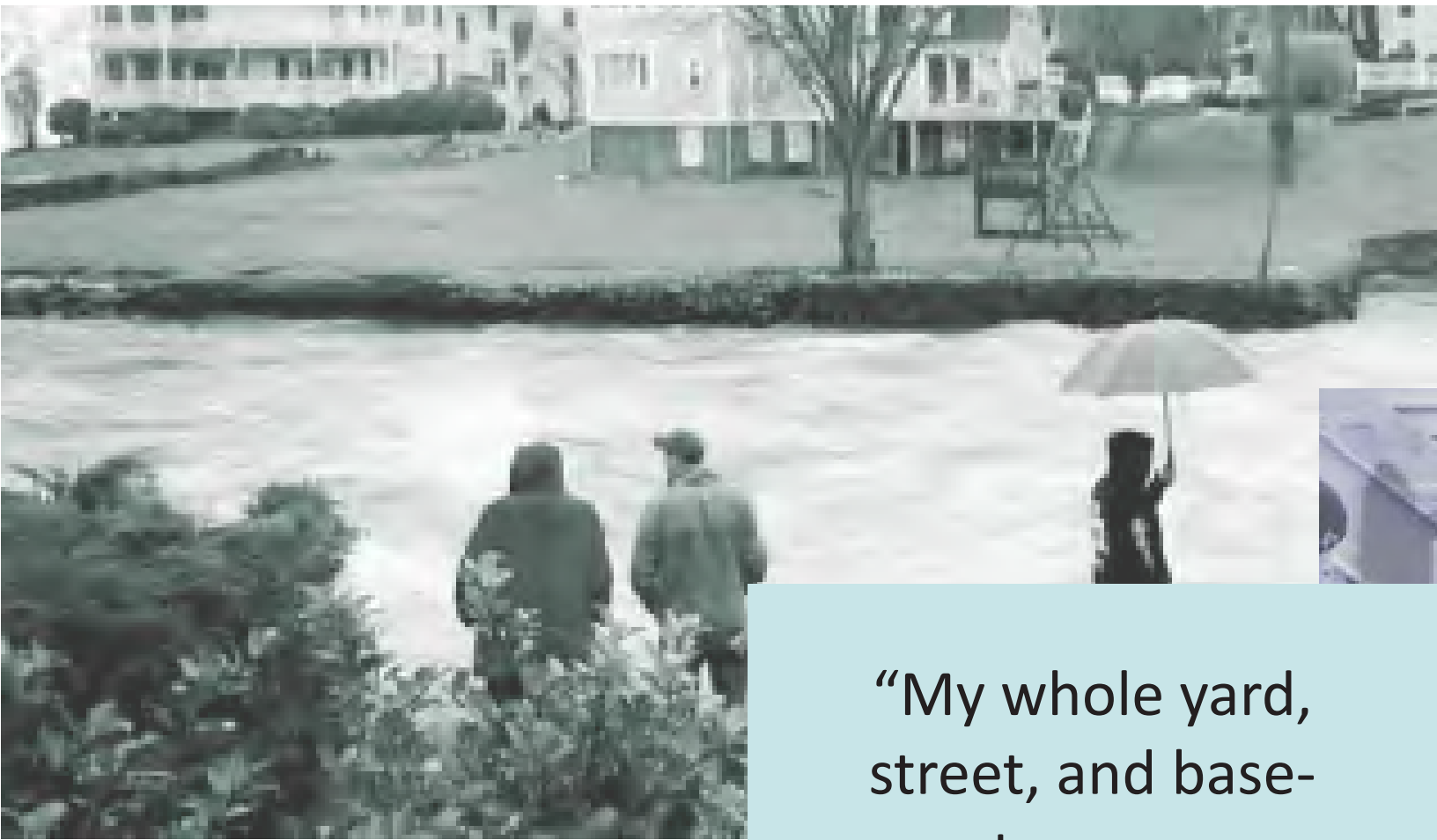
which forces those in low-income brackets to spend money on immediate repairs that instead “should go to amenities.”²⁰

When asked if their respective insurance companies covered the flood damage, the majority of survey respondents said ‘no’, though some of those had landlords who were responsible for repairs. More often than not, respondents paid at least in part for damage repair and few respondents said that their insurance companies paid some amount. When applying to their insurance companies for assistance, many of the respondents were met with resistance. For example, one insurance company, Amica, was reportedly not covering groundwater infiltration since it is categorized as “seepage.” Another respondent explained that some insurance companies defined a flood as “seepage into both the house and adjacent house,” which did not always occur in some neighborhoods.

Only two of the 16 respondents for the February interviews received FEMA assistance. The majority of respondents did not receive FEMA assistance, because they either did not know about it or consciously abstained from applying. (One respondent said they “left it for others who weren’t as lucky”). Another person explained that they were “too flustered to realize” they could apply for FEMA assistance. Both of the surveys administered revealed that many who applied did not receive assistance, or thought the assistance they did receive was not enough. Although

some respondents did think they were given enough assistance overall, compared with others worse off in their neighborhoods, most respondents believed that “more financial assistance” would be most helpful. These respondents did not cite a specific source to blame for this. The November survey found that many of the Warwick residents who suffered flood damage were hesitant to apply to FEMA for assistance. Of the respondents for the November survey that did apply, only 25% (3/12) received any assistance. Of the respondents who suffered flood damage, 61% (14/23) received no financial assistance from their flood insurance to cover flood damage. When asked how prepared they were for the March flooding, 86% (26/30) of the respondents thought that they were not very prepared or not prepared.

Furthermore, Rhode Islanders who were susceptible to insurance fraud or victims of criminal activity from the floods suffered even more when trying to repair and restore their homes. This may include the elderly, younger adults (new homeowners), residents whose first language is not English or who are unfamiliar with insurance policies—all especially susceptible to criminals or con artists who might seek to take advantage of their weakened state.²¹ The difficulty is documenting whether these unequal burdens were widespread or anecdotal.



“My whole yard, street, and basement were completely flooded and we could not leave our house for 3 or 4 days.”

Conclusion

Of those who suffered from the flooding, those already financially or physically disadvantaged appear to have been disproportionately affected, especially low-income and elderly groups. Disparities in suffering are a product of existing vulnerabilities within the two groups, including having limited funds and being subject to misinformation and miscommunication. Although these groups certainly do not encompass all of the people adversely impacted by the floods, analysis of various information sources revealed that they had particular difficulty recovering. Although the records reveal that they received the most financial attention and assistance from non-governmental agencies, these groups are still recovering, still as vulnerable as they were prior to the floods, and least prepared if another flood were to occur. Improving basic infrastructure, access to information, and access to financial assistance are all necessary to improve the disproportionate suffering of these groups of vulnerable Rhode Islanders.



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Figure Credits

Figure 1: Mage, Suzy and Taryn Martinez. "Case Study: March 2010 Flood Event in Warwick, R.I." Brown University, PDF File.

Figure 2: Federal Emergency Management Agency, Rhode Island Zip Code Report COB 7/28/2010, Paul Salera, July 2010, Interview.

Image Credits

Image 1: Associated Press. 2010. Photograph. Warwick, RI. Mass Live. 31 Mar. 2010. Web. 23 Mar. 2011. <http://www.masslive.com/news/index.ssf/2010/03/new_england_flooding_forces_pe.html>.

Image 2: Milne, Stew. 2010. Photograph. Warwick, RI. Examiner. By Donna Diegel. 31 Mar. 2010. Web. 22 Mar. 2011. <<http://www.examiner.com/headlines-in-providence/pictures-ri-flood-2010-rainfall-totalspicture?slide=9883696#main>>.

Image 3: Milne, Stew. 2010. Photograph. Warwick, RI. Examiner. By Donna Diegel. 31 Mar. 2010. Web. 22 Mar. 2011. <<http://www.examiner.com/headlines-in-providence/pictures-ri-flood-2010-rainfall-totalspicture?slide=9883701#main>>.

Image 4: 2010. Photograph. Cranston, RI. Fox Providence. 31 Mar. 2010. Web. 22 Mar. 2011. <http://www.fox-providence.com/dpp/news/local_news/historic-floods-strike-rhode-island1269995305749>.

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Image 6: Hope, Heidi. 2010. Photograph. Warwick, RI. Heidi Hope Photography. 31 Mar. 2010. Web. 22 Mar. 2011. <<http://heidihope.blogspot.com/2010/03/local-flooding-of-pawtuxet-river-in.html>>.

Image 7: Unknown Photographer. Volunteers remove ruined belongings from a flooded house. . N.d. Help for Flood Victims, Rhode Island. Samaritan's Purse. Web. 22 Mar. 2011. <http://www.samaritan.org/index.php/articles/flooding_in_rhode_island/>

Image 8: Healey, Matthew. Porfelio Morales (R) and his father Nicholas Morales (L) work to clean up their flooded backyard on Valley Street.. N.d. Flood clean up begins in Providence, Rhode Island, Providence, RI. UPI.com | News Pictures. Web. 22 Mar. 2011. <<http://www.upi.com/enl-win/405fca5540f064973ce49eb5844a66a1/>>

Image 9: Hope, Heidi. 2010. Photograph. Warwick, RI. Heidi Hope Photography. 31 Mar. 2010. Web. 22 Mar. 2011. <<http://heidihope.blogspot.com/2010/03/local-flooding-of-pawtuxet-river-in.html>>.

Image 10: Milne, Stew. 2010. Photograph. Warwick, RI. Examiner. By Donna Diegel. 31 Mar. 2010. Web. 22 Mar. 2011. <<http://www.examiner.com/headlines-in-providence/pictures-ri-flood-2010-rainfall-totalspicture?slide=9883701#main>>.

Image 11: Milne, Stew. 2010. Photograph. Warwick, RI. Examiner. By Donna Diegel. 31 Mar. 2010. Web. 22 Mar. 2011. <<http://www.examiner.com/headlines-in-providence/pictures-ri-flood-2010-rainfall-totalspicture?slide=9883701#main>>.