PUERTO RICO'S LIBRARIES, ARCHIVES AND MUSEUMS ROAD TO RECOVERY: A TIMELINE OF EVENTS AFTER HURRICANE MARIA

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General Library – University of Puerto Rico, Mayagüez
August 17, 2018

SAA Washington, DC
The Storm's Impact in Puerto Rico

Image: New York Times

Image: NASA Earth Observatory

AEE Generation

95.2%
It took eleven month to restore power
Mortality in Puerto Rico after Hurricane Maria

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ABSTRACT

Quantifying the effect of natural disasters on society is critical for recovery of public health services and infrastructure. The death toll can be difficult to assess in the aftermath of a major disaster. In September 2017, Hurricane Maria caused massive infrastructural damage to Puerto Rico, but its effect on mortality remains contentious. The official death count is 64.

METHODS

Using a representative, stratified sample, we surveyed 3299 randomly chosen households across Puerto Rico to produce an independent estimate of all-cause mortality after the hurricane. Respondents were asked about displacement, infrastructure loss, and causes of death. We calculated excess deaths by comparing our estimated post-hurricane mortality rate with official rates for the same period in previous years.

RESULTS

From the survey data, we estimated a mortality rate of 14.3 deaths per 1000 persons. This rate is significantly higher than the 4.6 deaths per 1000 persons from 2017. This rate is also higher than the 6.9 deaths per 1000 persons from 2016. The percent difference between the upper and lower limits is 16.8%.

CONCLUSIONS

This household-based survey suggests that the number of excess deaths related to Hurricane Maria in Puerto Rico is more than 70 times the official estimate. Funded by the Harvard T.H. Chan School of Public Health and others.

Letters

Use of Death Counts From Vital Statistics to Calculate Excess Deaths in Puerto Rico Following Hurricane Maria

The official death toll for the Hurricane Maria, which devastated Puerto Rico on September 20, 2017, has remained at 64 since December 29, 2017. According to estimates of deaths from environmental disasters, more than 1,427 environmental deaths were estimated using survival analysis. However, other estimates suggest that the number of excess deaths may be as high as 4,645. The estimated mortality is due to differences in methodologies. The official government death toll includes deaths in which documentation of “death from natural causes” was not possible. The individual’s death certificate does not account for indirect deaths, including from infectious disease outbreaks or lack of access to essential medicines, sanitation, water, and medical care. We estimate that excess deaths affected both direct and indirect deaths and typically used excess deaths from government agencies or surveys, which are not comparable to other data sources.

METHODS

Monthly death counts from January 2010 through December 2017, including previously unavailable death counts for January through July 2017, were obtained from the Puerto Rico vital statistics systems to calculate excess deaths in Puerto Rico following Hurricane Maria. This system has a 99% coverage rate based on previous analyses. Because these data are not adjusted for non-inference, this study is considered to be research not involving human subjects as defined by US regulations (45CFR46.101b).

RESULTS

The estimated number of deaths was 2366 in September, 2472 in October, 2476 in November, and 2477 in December (Table). The upper bound 95% CI of the same months was 2484, 2486, 2513, and 2824, respectively, whereas the actual number of deaths was 2528, 2561, 2678, and 2826. There were 1229 (95% CI, 1056-1320) excess deaths: 409 (95% CI, 365-450) in September, 156 (95% CI, 110-201) in October, and 105 (95% CI, 50-162) in November. Although August and July experienced lower numbers of deaths than expected, September and October had higher numbers than expected. In November and December, there were no deaths expected to be higher than the number of deaths increased in November, whereas December had returned to a level within historical variance.

Table 1. Mortality Patterns of Deaths, 2007 Death Counts, and Estimated Excess Deaths in Puerto Rico

<table>
<thead>
<tr>
<th>Month</th>
<th>Death Counts (Dec)</th>
<th>Estimated Excess Deaths (Sept)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>2083</td>
<td>526</td>
</tr>
<tr>
<td>February</td>
<td>2134</td>
<td>542</td>
</tr>
<tr>
<td>March</td>
<td>2161</td>
<td>566</td>
</tr>
<tr>
<td>April</td>
<td>2177</td>
<td>582</td>
</tr>
<tr>
<td>May</td>
<td>2181</td>
<td>592</td>
</tr>
<tr>
<td>June</td>
<td>2192</td>
<td>604</td>
</tr>
<tr>
<td>July</td>
<td>2211</td>
<td>621</td>
</tr>
<tr>
<td>August</td>
<td>2240</td>
<td>642</td>
</tr>
<tr>
<td>September</td>
<td>2295</td>
<td>685</td>
</tr>
<tr>
<td>October</td>
<td>2354</td>
<td>738</td>
</tr>
<tr>
<td>November</td>
<td>2410</td>
<td>793</td>
</tr>
<tr>
<td>December</td>
<td>2477</td>
<td>855</td>
</tr>
</tbody>
</table>

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## SUMMARY OF DAMAGES & NEEDS

<table>
<thead>
<tr>
<th>Units</th>
<th>Participants</th>
<th>Units with Damages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archives</td>
<td>19</td>
<td>16</td>
</tr>
<tr>
<td>Documentation Center</td>
<td>14</td>
<td>13</td>
</tr>
<tr>
<td>Academic Library</td>
<td>27</td>
<td>24</td>
</tr>
<tr>
<td>School Library</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>Community Library</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Public/Municipal Library</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>Specialized Library/Collection</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Museum</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>109</strong></td>
<td><strong>96</strong></td>
</tr>
</tbody>
</table>

### Units with Damages

- **Damage (96 units):** 12%
- **No damage (13 units):** 88%

### Things Damaged

- **Collections:** 62
- **Equipment:** 45
- **Building:** 60
- **Furniture:** 61

### Type of Damage

- **High T/HR:** 77
- **MoH:** 72
- **Leaks:** 68
- **Water damage:** 60
- **Flooding:** 39
- **Structural damage:** 39
Loss of waterproofing membranes
Intense filtration, damage resources
Flooding, lack of electricity and control climate
Mold infestation on walls
IMPACT: ACADEMIC LIBRARIES

Water damage, lack of electricity and control climate
Water & mold infestation on resources
RECOVERY
RECOVERY: TRAINING

26 workshops/orientations

Organized by

Heritage Emergency National Task Force
National Heritage Responders
FEMA
Museo de Arte de Puerto Rico
Beta-Local
Fundación Luis Muñoz Marín
Casa del Libro

Organized by

Red de Archivos de Puerto Rico,
Reforma Capítulo de Puerto Rico
Universidad de Puerto Rico Recinto de Mayagüez, Ponce, Humacao y Río Piedras
Asociación de Egresados de la Escuela Graduada de Bibliotecología y Ciencia de la Información
Asociación de Museos de Puerto Rico
Asociación de Bibliotecarios Escolares de Puerto Rico
Museo de Arte de Ponce
Recovery was supported by many institutions, organizations and people in and outside of Puerto Rico.
# RECOVERY: FUNDING

## Approved Funding for Puerto Rico

<table>
<thead>
<tr>
<th>Funding</th>
<th>Awarded</th>
<th>Funding approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Endowment for the Humanities</td>
<td>30</td>
<td>$859,114.75</td>
</tr>
<tr>
<td>Fundación Puertorriqueña de las Humanidades</td>
<td>6</td>
<td>$117,587.57</td>
</tr>
<tr>
<td>Society of American Archivist</td>
<td>6</td>
<td>$26,086.00</td>
</tr>
<tr>
<td>American Library Association</td>
<td>13</td>
<td>$52,000.00</td>
</tr>
<tr>
<td>Beta-Local</td>
<td>109</td>
<td>$408,260.00</td>
</tr>
</tbody>
</table>

Total
164 awards
$1,462,994.32

## OTHER HELP

- American Library Association/Reforma Nacional “Adopt a Library” 20 participants
- Institute for Conservation of Historic & Artistic “Collections Assessment for Preservation” 1 participant

## STILL UNDER EVALUATION PROCESS

- Laura Bush Foundation for America’s Libraries “Rebuilding Libraries Affected” for collections

Updated: July 24, 2018
**RECOVERY: FUNDING**

**SAA Foundation Awards Five Disaster Recovery Grants**

The Society of American Archivists Foundation recently awarded disaster recovery grants to five repositories struck by hurricanes and earthquakes in late 2017:

- The Department of Cultural Affairs in Caguas (Puerto Rico) was awarded $5,000 to clean documents and records damaged by floods.
- The Autonomous Municipality of Guánica (Puerto Rico) was awarded $5,000 to buy cleaning and safety supplies for the library.
- The Autonomous Municipality of Canovanas (Puerto Rico) was awarded $2,500 to hire staff to relocate part of the archive and help with the cleaning of the buildings damaged by the hurricane.
- The National Library of the Dominican Republic was awarded $5,000 to clean and preserve documents damaged by the earthquake.
- The St. Thomas Historical Trust was awarded $3,500 to purchase material for the preservation of the photographic archives damaged by Hurricane Maria.

**SAA Foundation Awards Disaster Recovery Grant to University of Puerto Rico at Bayamón**

The Society of American Archivists Foundation has just awarded a disaster recovery grant to the University of Puerto Rico at Bayamón. The $4,900 grant from the National Disaster Recovery Fund for Archives will support the university's efforts to recover from damage their collections sustained from hurricanes Irma and Maria. The university's Historical Archive is the safeguard to preserve all the materials that narrate the historical trajectory of the University of Puerto Rico since it was founded in 1917.

**SAA Foundation Awards More Disaster Recovery Grants to Puerto Rico, US Virgin Islands**

The Society of American Archivists Foundation has recently awarded two more disaster recovery grants to institutions recovering from Hurricanes Irma and Maria. The Government of the United States Virgin Islands (GVI) Department of Parks and Recreation and the Division of Libraries, Archives, and Museums received $2,500 to aid their preservation and restoration efforts for historically damaged libraries and archives. The University of the Virgin Islands (UVI) in St. Thomas received $5,000 to support the preservation and restoration of their archives and libraries damaged by Hurricane Irma.

**SAA Foundation Awards Disaster Recovery Grant to La Casa del Libro**

The Society of American Archivists Foundation has just awarded a disaster recovery grant to La Casa del Libro, a book museum in Puerto Rico. The $4,950 grant from the SAA Foundation will support the museum's efforts to recover from damage their collections sustained from Hurricane Maria. This unique institution has more than 6,000 volumes in its rare book collection, including manuscripts and incunabula (early printed books from 1450 to 1500), to "the most worthwhile productions of our time," as part of the museum's mission to show the history of the book.

This award was made from the Foundation’s National Disaster Recovery Fund for Archives, established by SAA and the Society of Southwest Archivists in 2005 to assist repositories affected by Hurricane Katrina. The scope of the Fund was later expanded to provide grants to repositories throughout the U.S. regardless of region or repository type. In November 2017, the Foundation Board further expanded the Fund by increasing the maximum grant amount to $5,000 and noting that, "Although the NDRA is pointed toward the states, District of Columbia, and territories of the United States, under exceptional circumstances we will consider awarding grants to non-U.S. entities."
# RECOVERY: SUPPORT

<table>
<thead>
<tr>
<th>Dates</th>
<th>Groups</th>
<th>Institutions visited</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 13 – 18, 2017</td>
<td>HENTF-FEMA</td>
<td>9</td>
</tr>
<tr>
<td>November 27 - 1 December 2017</td>
<td>NHR</td>
<td>8</td>
</tr>
<tr>
<td>December 11 – 16, 2017</td>
<td>HENTF-FEMA</td>
<td>8</td>
</tr>
<tr>
<td>January 8 – 12, 2018</td>
<td>NHR</td>
<td>8</td>
</tr>
<tr>
<td>February 20 – March 17, 2018</td>
<td>NPS-FEMA</td>
<td>13</td>
</tr>
</tbody>
</table>

**Total 46 visits**

Heritage Emergency National Task Force (HENTF) [FEMA, US National Archives and Records Administration (NARA), Smithsonian Institution & National Park Services]

National Heritage Responders (NHR) [107 volunteer conservators]
Puerto Rico's libraries, archives and museums road to recovery: A timeline of events after Hurricane Maria
by Hilda Teresa Ayala-González
- Collaborative work with Dr. Joel A. Blanco Rivera*
- Web collection about the recovery process in libraries, archives and museums after Hurricane Maria
- Scalar
- Links are preserved in the Internet Archives & Webrecorder
- Organized as a monthly timeline for contextualized navigation
- About a 130 resources (September 2017 – July 2018)

http://scalar.usc.edu/works/prlamrecovery/index

Supported by Dr. Joel A. Blanco Rivera and students from the Digital Curation Course in the Escuela Graduada de Ciencias y Tecnologías de la Información (UPR-Río Piedras) and is part of a bigger documentation Project about the aftermath of Hurricane Maria in the Island
DOCUMENTATION: WHAT’S NEXT?

• Finish the timeline until September 20, 2018

  Second part
  • Follow up with institutions that were affected
    • Recovery efforts, time and outcomes

• Interviews, photographs & micro-articles

• Updating the timeline with institutional records & stories
ACKNOWLEDGMENT


Society of American Archivist for funding my participation on the Latin American and Caribbean Cultural Heritage Archives section and Ana Rodríguez for the invitation.

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Thank you!