New Jersey ABFEs - Overview and Lessons Learned

Ed Curtis, FEMA Region IX

FMA Luncheon, March 21, 2013
Context for ABFEs

- **Hurricane Sandy by the numbers**
  - $29.4 billion in damages to New Jersey
  - Ten counties, 162 communities, 3 million people heavily impacted
  - 72,000 buildings damaged

- **The situation it presented for FEMA**
  - Current effective maps of the NJ Coastline are 20-30 years old
  - Coastal study underway with maps in process of being updated when Hurricane Sandy hit
  - Communities ready to rebuild and wanted guidance

- **Decision to create ABFE maps**
  - FEMA knew risk profile had increased dramatically
  - Had information that would be valuable and could enable people to build back stronger, safer, smarter
  - Previous experience with Katrina
  - Time was of the essence
NJ ABFE Team’s First Day: Nov. 10

- General sense that ABFEs may be useful but no plan for how they would be developed, used, rolled out
- Lots of uncertainty about who had authority to make decisions and who were key influencers – JFO? HQ? State government?
- Steep learning curve on methodology and approach
- No clear messages, strategy
ABFEs – Where to Deploy?

• Criteria to consider:
  • Current FIRM underestimates existing flood hazard
  • Significant recovery effort needed
  • Cost effective mechanism to deploy ABFE data

• Comparison analyses with FIRM data:
  • Ongoing coastal analysis
  • Gage data

• Unique situations:
  • Long Island, NY
  • Rockland County, NY
  • Rhode Island
Where Will ABFEs Be Available?

- Atlantic County
- Bergen County
- Burlington County
- Cape May County
- Essex County
- Hudson County
- Middlesex County
- Monmouth County
- Ocean County
- Union County

* Recent updated FIRM in effect. FEMA is currently reviewing the analysis used to produce the updated FIRMs for Nassau and Suffolk to determine if the effects of Hurricane Sandy would impact those elevations.
Advisory Methodology

- Expedited methodology for the Advisory Products results in some limitations
  - No actual modeling of wave heights
    - Advisory V Zones are based on depth, anywhere with 4’ of depth should expect V Zone designation.
    - No consideration of wind speeds or direction or timing
    - Approximation works best on the open coast where waves are big and therefore depth-limited.
  - Erosion not evaluated
    - Protection afforded by dunes not accounted for
    - Given the same depth of flooding, areas without dunes will show similar hazards as areas with large dunes, landward of the dune.
  - Does not account for land use (dunes, buildings, vegetation)
    - These obstructions to wave action are not considered
    - Advisory V and Coastal A Zones are wider than they would be if obstructions to wave action were modeled.
  - Does not account for flood/erosion control structures
    - Areas protected by certified/accredited flood control structures will not be shown on advisory products
Advisory Methodology

\[ H_B = 0.78(d) \]

\[ ABFE = SWEL + 70\%H_B \]

\[ ABFE = SWEL + 0.7(0.78)d \]

\[ ABFE = SWEL + 0.55(d) \]

1. Create flood depth grids
2. Calculate depth-limited waves
3. Calculate Advisory Elevation Surface
4. Create and smooth elevation boundaries and advisory zones

Figure D.2.7-2 WHAFIS relationships between local stillwater depth, \(d_s\), maximum breaking wave height, \(H_b\), and wave crest elevation.
October 29-December 15

President Obama declares Federal Disaster

Hurricane Sandy hits NJ Coast

Advisory product creation begins

Miller-Carwile Memo signed for IA, PA programs

Stakeholder engagement plan developed

Outreach materials, messaging drafted

ABFEs briefed to Congressional, State officials, Media

ABFEs go live online!

Outreach materials, messaging drafted

Stakeholder engagement plan developed
Major Activities

- ABFE team forms in JFO and data development begins
- HQ established regular communications with JFO to support and coordinate efforts
- Miller-Carwile memo signed qualifying ABFEs as best available data
- Stakeholder engagement strategy and implementation plan established
- Briefing documents, key messages and FAQs drafted for webinars, website and meetings with stakeholders
- Webinars and meetings introduce ABFEs to NJ Congressional, State and Local officials
- ABFEs go live online through Region2Coastal.com
Initial Outcomes

Pre-Data Release Outreach

State:
• Worked with DEP & SHMO on Outreach Plan
• Gave “first look” at the data

Elected Officials:
• Conducted ABFE Webinars for State & Congressional Stakeholders
• Will conduct “first look” at data prior to release

Public Officials:
• Conducted 7 ABFE Overview Webinars
• Called All County Planners, shared ABFE overview and scheduled public outreach briefings

Insurance, Builders & Architects:
• Defined a call plan for reaching targeted groups in these industries

Outcomes from first 30 days:

- Internal communications around ABFEs improved both within JFO and between HQ and JFO
- Messaging went viral through briefings to media
- ABFEs and Web Portal launched, increasing data familiarity
- Established trust with State leadership and agencies
The Next 30 days: Through Jan. 18

- Public Official Roadshow Begins for 10 Counties
- Outreach to national associations for insurance, building, engineering community
- Requests for Public Meetings Begin
- Develop Decision-making Tool for FPMs with State partner
- Educate thousands of homeowners through Info Fairs

http://www.fema.gov/medialibrary/media_records/11194
## The Next 30 Days: Outcomes

### Post Data-Release Outreach

<table>
<thead>
<tr>
<th>Public and Elected Officials:</th>
<th>Outcomes at end of 60 days:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Conducted a “telethon” and reach out to counties and communities that have had the greatest impact</td>
<td>• Reached all 10 counties impacted by ABFEs, increasing understanding</td>
</tr>
<tr>
<td>• 42 Local Official Calls/Meetings</td>
<td>• Continued engagement of State leaders and agency officials, maintaining credibility</td>
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<tr>
<td>• 15 State Briefings</td>
<td>• Expanded risk awareness among homeowners through public meetings</td>
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</tbody>
</table>

<table>
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<tr>
<th>Public</th>
<th>• 37 Public Meetings (Town Halls, Open Houses, Recovery Workshops, Information Fairs, Association meetings and trainings)</th>
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<tr>
<th>Builders, Architects, and Engineers:</th>
<th>• Established dialogue with new tiers of stakeholders</th>
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<td>• Engaged National, State, and Regional Associations on ABFE importance &amp; implications</td>
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<th>NGOs &amp; Public Institutions:</th>
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<td>• Planned engagement of major NGOs and Public Institutions on ABFE importance &amp; implications</td>
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Jan. 18 and Beyond

- NJ adopts ABFEs!
- Transition begins from JFO ABFE team to Region II team
- Finalizing “Recovery Tool for Homeowners”
- Continued meetings with stakeholder groups
- Preparing for transition from ABFEs to preliminary map release
  Spring/Summer 2013
Today: Regional and Local Ownership

- Where are we today?
  - Moving into Risk MAP
  - Changing dialogue from knowing risk to making decisions about ways to reduce risk and encourage mitigation action
  - Transitioning conversations and planning to focus on preliminary map release, showing how ABFEs embed in these products
  - Continuing to support community understanding of mitigation

“By acting today to use the latest available information and data from FEMA to set rebuilding standards for New Jersey, Governor Christie is helping homeowners and small businesses rebuild properties that are less at-risk, while also helping them avoid potentially massive, out-of-control flood insurance costs over the long-run.” (State of New Jersey Department of Environmental Protection)
ABFE Map Overview

- Modeling for 1,800 miles of New Jersey and New York tidal coastline
- 126 miles along Atlantic oceanfront from Sandy Hook to Cape May
- Predominant amount of advisory data show increases in Base Flood Elevations of 1 to 4 feet
  - Corresponding increases in Advisory V Zone areas
  - Some X Zone areas change to A Zone areas
- 79% of mapped ABFE areas show Hurricane Sandy impact
  - 46% V Zones, 53% A Zones, 1% Shaded X Zones

![Map Image](image-url)
What are ABFEs?

- ABFEs are updated estimates of the 1% annual chance flood elevations
  - Advisory Zones V, A, X
  - New Coastal A Zones

- They are derived from new coastal flood analyses and data

- Updated coastal flood zones extend further inland than Special Flood Hazard Areas shown on current effective FIRMs
www.region2coastal.com
Key Messages: Risk

Advisory Base Flood Elevation Information

Information is for advisory purposes for rebuilding activities. The information in the Advisory Base Flood Elevation table does not identify elevations to rate your property’s insurance policy.

<table>
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<tr>
<th>Attribute Name</th>
<th>Attribute Value</th>
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<tr>
<td>Is my property’s Advisory Base Flood Elevation (ABFE)?</td>
<td>12 feet (NAVD88)</td>
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<td>Is my property’s Advisory Flood Zone?</td>
<td>A</td>
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<tr>
<td>Is my property in the Area of Moderate Wave Action?</td>
<td>N/A</td>
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<tr>
<td>What does my ABFE Map Look Like?</td>
<td>Link to ABFE Map PDF</td>
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<tr>
<td>Find your property on our Interactive Web Tool</td>
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Key Messages: Risk

Effective Flood Insurance Data
This information is from the effective Flood Insurance Rate Map for your community. It is used to determine who must buy flood insurance and how much it costs. It is also used by your community to regulate development in flood prone areas.

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<td>What is my property’s current effective Base Flood Elevation?</td>
<td>N/A</td>
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<td>What is my property’s current effective Flood Zone?</td>
<td>0.2 PCT ANNUAL CHANCE FLOOD HAZARD</td>
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### Key Messages: Risk

**Attribute Name** | **Attribute Value**
---|---
Will Advisory Base Flood Elevation be available for my property? | Yes
What is my property’s Advisory Base Flood Elevation (ABFE)? | 12 feet (NAVD88)
What is my property’s Advisory Flood Zone? | A
Is my Property in the Area of Moderate Wave Action? | N/A
What does my ABFE Map Look Like? | Link to ABFE Map PDF
View your property on our Interactive Web Tool | Link to Web Tool
Where can I get the GIS data for my property area? | Link to ABFE GIS Shapefiles

### Effective Flood Insurance Data

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Key Messages: Risk
Key Messages: Risk
Key Messages: Grants

- FEMA recovery and mitigation activities and programs must use the best flood hazard data available prior to obligation of Federal funds

- FEMA will use ABFEs to determine the flood zone boundaries and minimum flood elevations required for project design and performance standards

- If local codes and standards are more stringent than the ABFE, projects must be designed to the higher standards
Key Messages: Floodplain Management

- A community participating in the NFIP is not required to use the advisory maps and ABFEs
- If a community decides to enforce ABFEs it will need to amend its Flood Damage Prevention Ordinance and building codes
- Communities can adopt a freeboard requirement on top of its current BFEs as an alternative to adopting ABFEs, but use caution if they are lower than ABFEs
- When FEMA provides final FIRMs that replace ABFEs, communities will be required to adopt the revised Flood Insurance Study (FIS) and FIRMs
Key Messages: Floodplain Management (Cont’d)

http://www.nj.gov/dep/floodcontrol/modelord.htm
Key Messages: Insurance

- Adopting standards based on ABFEs will not change the current zones or elevations used for determining insurance premiums.
- When effective FIRMs are updated, flood zones and associated premiums could change to reflect new flood risk.
- A policy holder whose structure was built in compliance and substantially damaged can receive up to $30,000 from ICC for a combination of the following activities:
  - Elevate
  - Flood-proof (non-residential structures)
  - Relocate, or
  - Demolish
- The maximum amount collectable for both Increased Cost of Compliance (ICC) and physical damage coverage from a flood for a single family dwelling is $250,000.
Key Messages: Insurance (Cont’d)

- **Biggert Waters Implications.**
  - Flood insurance premiums increase as risk increases, so the best way to save money on flood insurance is to reduce your risk.
  - Home and business owners whose properties have been flooded are able to reduce current flood insurance costs by repairing or rebuilding to standards based on currently effective flood risk information.
  - **However, building to higher standards can lock in future savings and protect property owners from the known increase in flood risk that is not included in the currently effective information.**
Under the Flood Insurance Reform Act of 2012, You Could Save More than $90,000 over 10 Years if You Build 3 Feet above Base Flood Elevation*

**Premium at 4 Feet Below Base Flood Elevation**
- $9,500/year
- $95,000/10 years

**Premium at Base Flood Elevation**
- $1,410/year
- $14,100/10 years

**Premium at 3 Feet Above Base Flood Elevation**
- $427/year
- $4,270/10 years

*FEMA RiskMAP: Increasing Resilience Together*
Cost of Flood Insurance at Various Elevations

Annual Flood Insurance Cost Based on Elevation Above/Below BFE at Maximum Coverage

- VE Zone
- AE Zone

Elevation Above/Below BFE (feet)
- 4
- 3
- 2
- 1
- BFE
- -1
- -2
- -3
- -4

Flood Insurance Premium ($/year)

$0
$5,000
$10,000
$15,000
$20,000
$25,000
Flood Insurance Savings at Various Elevations

Annual Flood Insurance Savings for Pre-FIRM Structure Rebuilt to Various Elevations Above BFE

<table>
<thead>
<tr>
<th>Elevation of New Structure Above BFE (feet)</th>
<th>VE Zone</th>
<th>AE Zone</th>
</tr>
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<tbody>
<tr>
<td>4</td>
<td>$4,500</td>
<td>$3,000</td>
</tr>
<tr>
<td>3</td>
<td>$4,000</td>
<td>$2,500</td>
</tr>
<tr>
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<td>$3,500</td>
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Flood Insurance Savings ($/year)
Gaining Community Insight and Innovation in Communication

With over 160 NJ and NY communities and multiple layers of stakeholders to reach, the team had to be strategic in how it engaged…

**Before ABFE Release**

- Mapped out the stakeholder layers, key messages, and timing
- Gained community insight from multiple sources, including:
  - Region II
  - News/Media
  - Mitigation
  - Disaster Reports
- Prioritized and tiered outreach so that we focused on the right stakeholder at the right time. Factors included:
  - Influence on Advancing Action
  - Impact from Sandy

**Post ABFE Release**

- 1.5M page views and 300+k unique visitors within from 12/15 to 3/11
- Analyzed what was being hit the most on the Geoportal in order to tailor approach with communities, and identify needs (e.g. BW12, Insurance)
- Worked with External Affairs to understand what was referring traffic to the Geoportal (e.g. Facebook, Asbury Park Press), and worked to influence messaging in these areas
Social Media and “Sharing Data” via FEMA GeoPlatform