What Did You Say?
Conveying Technical Concepts to a Non-technical Audience

Necolle Maccherone, CFM | Lisa Messano, CFM
What are we trying to do?

- Communicate flood risk
- Motivate **personal** action to protect against flood risk
- Motivate **public** action to protect against flood risk
Conveying Technical Concepts to a Non-technical Audience

- What Success Looks Like
- Challenges
  - Public perception
  - Competing Priorities
  - Information Overload
  - Our Brain’s Design
- Meeting the Challenge: Strategies
  - Honesty, Empathy & Trust
  - Analogies
  - Storytelling vs Facts
  - Graphics
Success looks like...

Increasing public awareness leads to actions that reduce risk to life and property.

- Use evacuation routes
- Contact insurance agent
- Round up pets
- Protect infrastructure
- Insurance
- Flood
Coordinated Needs Management System (CNMS)

FEMA Map Information eXchange (FMIX)

Vertical Datum of 1988

NAVD 88 North American

Water-Surface Elevation (WSEL)

Changes Since Last FIRM (CSLF)
Why Rockhampton Is About To Flood, Despite No Rain For Days

by Josh Butler | March 4, 2017

The crisis from torrential rain hammering the eastern seaboard will not relent yet, with the Queensland town of Rockhampton the next to brace for flooding — but it hasn’t rained in Rockhampton for three days.

At least five people have died in the floods which have saturated QLD and northern NSW in recent weeks, with the death toll potentially set to rise with another three more missing. Cyclone Debbie hammered north Queensland, and while the system’s effects are still being felt in the north of the country, big rainfall is also buffeting Sydney and Wollongong.

But Rockhampton is a different proposition to the flooding which has put Mackay, Lismore and more under water.

I already have homeowners insurance; I don’t need flood insurance.

My property is outside the floodplain, so I don’t need flood insurance.

I don’t live near water and this area has never flooded, so the maps are wrong and I don’t need flood insurance.

Make no mistake, this has nothing to do with new “flood” risk areas. FEMA wants to recover the billion of dollars it continually spends reimbursing people who live in coastal areas... Simply add huge new areas to the phony “floodplains” and force these folks to pay insurance...

This is another TAX imposed by FEMA. Philip, 08/03/2015

They are changing the flood plan [sic] due to the flooding in October 2015. They are using the assessment reports written by the Town building inspector... These assessment reports should never be used to establish a new floodplain because they are not true... I am not clear how this all gets approved. Does FEMA approve the floodplain?

Our property was changed from not in a flood zone to a flood zone in 2009. We were never notified by anyone. I would like a step by step process. Who dropped the ball?
Additional Challenges

- Competing Priorities
- Information Overload
- Our Brain’s Design
Competing Priorities

Busy States of America

What the Nation is Doing Now

Everyday we fill our time with a mix of activities from work and chores to socializing with friends and relaxing on the couch. Are you eating right now? About to call a friend? Find out how many of your fellow Americans are engaged in selected everyday tasks at this very moment.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleeping</td>
<td>12,585,561</td>
</tr>
<tr>
<td>Eating</td>
<td>29,182,429</td>
</tr>
<tr>
<td>Shopping</td>
<td>21,156,291</td>
</tr>
<tr>
<td>Working</td>
<td>114,891,493</td>
</tr>
<tr>
<td>Doing household chores</td>
<td>32,571,595</td>
</tr>
<tr>
<td>Watching TV</td>
<td>24,520,783</td>
</tr>
<tr>
<td>Doing sport activities</td>
<td>4,779,376</td>
</tr>
<tr>
<td>Learning</td>
<td>17,234,870</td>
</tr>
<tr>
<td>Caring for family</td>
<td>6,968,675</td>
</tr>
<tr>
<td>Caring for non-household members</td>
<td>4,014,831</td>
</tr>
<tr>
<td>Participating in community activities</td>
<td>3,593,609</td>
</tr>
<tr>
<td>Corresponding by phone or mail</td>
<td>2,745,877</td>
</tr>
<tr>
<td>Doing leisure activities</td>
<td>28,234,238</td>
</tr>
<tr>
<td>Doing other activities</td>
<td>5,918,263</td>
</tr>
</tbody>
</table>

A Typical American Day

Sleep takes up a large portion of everyone’s time, but it’s in the waking life that really differentiates us. For instance, watch education evolve into work and then finally into leisure as we age. Or see which gender plays the largest role in household activities. With data collected from the US Bureau of Labor Statistics, you see the demographic divisions in everyday American life. Read more about the typical American daily life at http://www.retale.com/info/busy-states-of-america/
Information Overload

- How Much Information Do We Process Each Day?

Credit http://www.adweek.com/digital/social-media-overload/
Information Overload
Competing Priorities (and Information Overload)

105,120 per year!
Example of Success

- Burlington County Telephone Town Hall
“Most of us think of ourselves as thinking creatures that feel, but we are actually feeling creatures that think.”

*Jill Bolte Taylor, My Stroke of Insight: A Brain Scientist's Personal Journey*
Our Brain’s Design

How the brain works can be applied when we consider communicating about flood risk.

Our risk perception system makes up its mind in a blink of an eye.

We shape our opinions to agree with the tribes/groups.

We have optimism bias.

How one feels about a risk is more compelling than the facts.
Meeting the Challenges: Strategies

- Honesty, Empathy & Trust
- Analogies
- Storytelling
- Graphics
Meeting the Challenge: Honesty

HONESTY IS THE BEST POLICY

-- Benjamin Franklin, George Washington, Your Mother
“When we wish to correct with advantage, and to show another that he errs, we must notice from what side he views the matter, for on that side it is usually true, and admit that truth to him, but reveal to him the side on which it is false.”
"My property is outside the flood zone so I don't need insurance."
Meeting the Challenge: Trust
Meeting the Challenge: Analogies

- Make complex concepts more accessible:
  - Discovery outcomes are like buying a car:
    - Base model, Base model with essentials, Upper-level trim options
  - Subaru Impreza (with Eyesight) ‘Rewind’ commercial: https://youtu.be/b7SWCFQoMoA
Meeting the Challenge: Storytelling

https://youtu.be/DHeqQAKHh3M
Storytelling Vs. Fact Sharing

- Over the last 5 years, insured flood losses totaled more than $16.7 M in Illinois
- Most homeowners insurance does not cover floods
- Homeowners are encouraged to purchase insurance to protect their property
DID YOU KNOW? Flooding occurs in all 50 states with nearly 12.5 MILLION square miles at risk.

DID YOU KNOW? People outside of mapped high-risk flood areas file nearly 25% of all National Flood Insurance Program (NFIP) flood insurance claims and receive one-third of Federal Disaster Assistance for flooding. Floods are the most common natural disaster in the U.S. and since standard homeowners insurance doesn’t cover flooding, it’s important to have protection.

DID YOU KNOW? A 6-inch deep creek in the mountains can swell to a 10-foot deep raging river in less than an hour.


https://www.fema.gov/blog/2014-02-21/what-goes-flood-map-infographic
Meeting the Challenge: Graphics
Examples: Graphics
Two homes with different elevations relative to the Base Flood Depth.
Meeting the Challenge: Storytelling

Flood mitigation investment returns positive benefits

The benefits of flood mitigation go beyond dollars and cents. The Economist Intelligence Unit found that investment to make homes and infrastructure more flood-proof returns positive economic, environmental, and social benefits for communities. We reveal the flood mitigation actions, challenges and benefits for 11 flood-affected communities across the US.

Photo by Josh Funk Photography

Flood mitigation takeaways

S at-a-glance takeaways on flood mitigation action.

Community case studies

Discover 11 communities benefiting from flood mitigation action.

The US takes action

Explore flood mitigation actions by state.

http://floodeconomics.com/
Meeting the Challenge: Strategies
Over 15 years increasing public awareness of water resource management through community engagement and risk communication. Despite not having a green thumb, Necolle maintains a beautiful rain garden on her property, decreasing erosion and run-off.

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Over 15 years leading communication efforts in support of FEMA mapping programs. Lisa has always been interested in the power of storytelling. She studied dramatic writing at NYU and was trained to use professional equipment to capture stories at Zen Hospice Program as part of StoryCorp’s Legacy Program.

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Historic Rainfall and Flash Flooding Saturday Night in Ellicott City, Maryland

<table>
<thead>
<tr>
<th>Duration</th>
<th>Rainfall Total</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 minute</td>
<td>0.20”</td>
<td>7:51-7:52 pm</td>
</tr>
<tr>
<td>5 minutes</td>
<td>0.80”</td>
<td>7:50-7:55 pm</td>
</tr>
<tr>
<td>10 minutes</td>
<td>1.44”</td>
<td>7:50-8:00 pm</td>
</tr>
<tr>
<td>15 minutes</td>
<td>2.04”</td>
<td>7:46:8:01 pm</td>
</tr>
<tr>
<td>20 minutes</td>
<td>2.48”</td>
<td>7:44-8:04 pm</td>
</tr>
<tr>
<td>30 minutes</td>
<td>3.16”</td>
<td>7:36-8:06 pm</td>
</tr>
<tr>
<td>60 minutes</td>
<td>4.56”</td>
<td>7:30-8:30 pm</td>
</tr>
<tr>
<td>90 minutes</td>
<td>5.52”</td>
<td>7:00-8:30 pm</td>
</tr>
<tr>
<td>2 hours</td>
<td>5.92”</td>
<td>6:45-8:45pm</td>
</tr>
</tbody>
</table>

The storm total rainfall at Ellicott City was 6.50 inches. Based on the preliminary precipitation frequency estimates in NOAA Atlas 14 from the nearest location, the rainfall amounts with duration 10 minutes to 2 hours statistically have a less 0.1% chance of occurring in any given year, or a 1 in 1000 year event.