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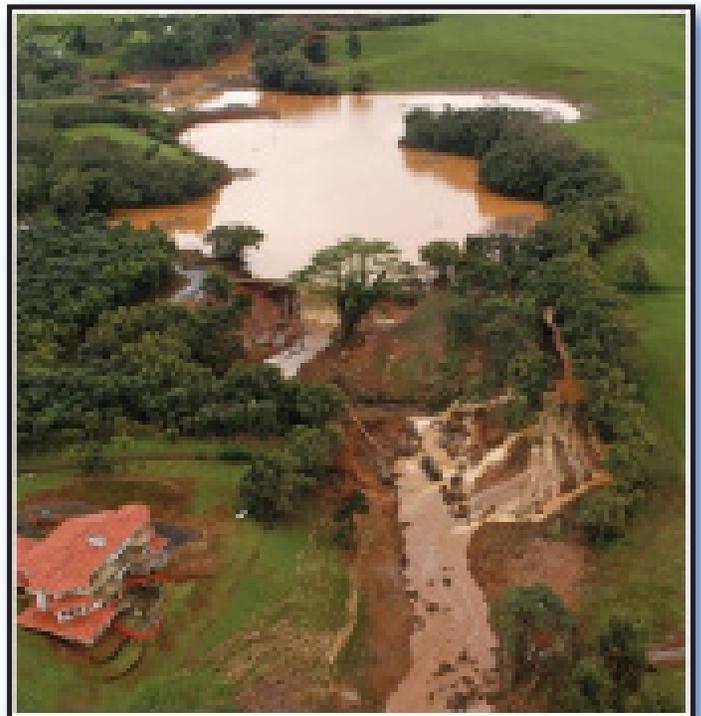


## State of Dam Safety Programs

ED BEADENKOPF, PE, CFM | ATKINS  
AMIT SACHAN, PE, CFM | ATKINS

Variability in the climate, an active period of extreme precipitation events, aging infrastructure, and continued population growth have created a perfect storm to put the infrastructure of our nation's dams at increased risk. Of the more than 90,000 dams cataloged in our National Inventory of Dams (NID), the average age is 50 years and rising. By 2025, more than 70 percent of the dam infrastructure inventory will be older than 50 years. These statistics do not account for the tens of thousands of small dams not in the NID that generally are located in rural areas. The vast majority of the dams (more than 87 percent) are made up of an earthen embankment. More than 93 percent of the regulated dams have a dam height less than or equal to 50 feet, with 50 percent of the regulated dams having a dam height less than or equal to 25 feet. These smaller dams are primarily privately owned (60 percent of the NID) with an additional 20 percent owned by municipal governments.

The smaller dams that are owned privately or by local government and that number in the tens of thousands all across the country are highly valuable during extreme rainfall events. For example, the recent 2013 flooding in Colorado and the 2015 flooding in South Carolina were characterized by extreme rainfall (estimated in excess of the 1,000-year storm event) that overwhelmed smaller, privately owned and operated, earthen embankment dams. Of most significance were the effects of unplanned releases from upper basin dams that negatively impacted the safety



Small earthen dam embankment failure (Source: FEMA P-946)

(continued on page 3)

## From the Chairman's Desk



DAVID KEY, PE, CFM  
NCAFPM CHAIRMAN

### A Resilient Spring – Rebuilding a Stronger North Carolina

Greetings, North Carolina floodplain managers! Wow – what an amazing two weeks it has been! This is first time that I can remember that our annual conference and the ASFPM national conference were back to back. My brain is tired and my body is tired but I am excited about what is happening around our state and our nation! For those that were able to attend our Spring Annual Conference on April 23-26 in sunny (mostly) Atlantic Beach, thank you for coming and making our conference great. We had a great program filled with lots of great speakers and training opportunities in our chapter. (See page 6 for more details about the conference.)



*Sunset across Bogue Sound as viewed at our Tuesday night conference social at the NC Aquarium!*

I returned yesterday from the ASFPM National Conference in Kansas City. Several of our board members attended and represented our North Carolina chapter in meetings. Our chapter was recognized by ASFPM for the best application of the Ward's Flood Model. Hats off to our outreach committee for all the hard work in using the valuable tool to explain flooding in an easy way. Our very own Tim

Trautman was awarded the National Floodplain Manager of the Year honor!! Our friend to the south, Maria Cox Lamm (SCDNR), was elected as Chair of ASFPM. We are so proud of you, Maria.

This spring brings lots of opportunities for our counties and communities devastated by Hurricane Matthew. The NC Emergency Management is developing Resilient Redevelopment Action plans in all 50 declared counties. These plans will identify and prioritize mitigation projects in each county covering housing, infrastructure, economic development, and the environment. More information about the Hurricane Matthew recovery project can be found at the newly released website [rebuild.nc.gov/hurricaneMatthew](http://rebuild.nc.gov/hurricaneMatthew) and on page 11, which summarizes some of the high points of the project.

I thank you all for your dedication to protecting property and lives in this state. I hope everyone has a safe and fun spring and summer! ▲

A handwritten signature in blue ink that reads "Dad".

## **Dam Safety Programs** *(from front page)*

of downstream dams receiving the releases.

Because of the work done on behalf of the National Dam Safety Program (NDSP) by the Federal Emergency Management Agency (FEMA), federal and professional organization partners, and especially state dam safety professionals, hazard potential classifications have been assigned, dam safety inspections are being performed annually and emergency action plans have been prepared for many of the highest hazard dams. In North Carolina, Dam Safety provides oversight for more than 3,000 dams statewide, which does not include smaller, privately owned dams. Following the Coal Ash Management Act of 2014, inundation mapping and emergency action plans were prepared for several dams classified as high hazard and intermediate hazard.

On a national level, much is left to be done to identify flood hazard mapping from potential dam failures for the vast majority of dams (80 percent) not categorized as high hazard dams. The mapping of potential dam breach failure flooding is a foundational element of emergency preparedness and flood risk communication. Failure to identify the potential flood hazards downstream of dams is leading to “hazard creep,” where development downstream of dams occurs, elevating the hazard potential of unknown/low hazard dams to high hazard and increasing the cost for hazard mitigation. It is estimated that \$64 billion is presently required to rehabilitate dams in need. This cost is only increasing with time.

Flood hazard mitigation planning and implementation is instrumental to successfully achieve the NDSP strategic vision, which reads: “The benefits and risks of dams are understood and risks are managed to improve public safety, economic strength, national security, and sustain the environment.”

Due to the large number of private dams and the lack of funds for mitigation, a risk management approach is needed that takes into account the probability of dam failure and the resultant consequences. By using these factors to assess risk, structural/nonstructural/operational measures are selected and implemented to reduce risk. The residual risk then is managed by implementing tested emergency preparedness and effective risk communications. Ultimately, due to the enormous cost and potential public resistance to implementing all the needed structural and nonstructural mitigation actions, there will never be a way to eliminate all risk, but minimization of risk is certainly a starting point.

The path forward to safer dams requires flood hazard mitigation. It requires that states, dam owners, community representatives, emergency managers, and first responders all work together to understand the potential flood hazards for a dam breach, to assess consequences and risk, to mitigate risk, to communicate the residual risk, and to prepare for dam failure incidents.

North Carolina is nationally recognized as a leader in proactive floodplain and emergency management and is integrating Flood Risk Management and Dam Safety to ensure that dam breach flood hazard mapping is developed for regulated dams in the state and that dams are included in local government hazard mitigation planning, preparedness, and risk communication efforts. North Carolina is putting into practice the FEMA NDSP strategic vision that will lead to safer dams. ▲

## Education & Outreach: Tides, Marbles, and Hurricane Hunters

DAN TOMCZAK, CFM | EDUCATION AND OUTREACH COMMITTEE CHAIR

NCAFPM has been active and busy since our last *FlashFlood* newsletter with reaching out to organizations, communities, and schools and becoming more involved with promoting flood risk education.



*Localized high water during the king tide event in November 2016, Carolina Beach, NC*

PHOTO: JEREMY HARDISON

### King Tide Project

Members of NCAFPM along the coast are starting to become involved with the North Carolina King Tide Project ([nckingtides.web.unc.edu](http://nckingtides.web.unc.edu)). Set up by the University of North Carolina Institute of Marine Sciences, the project includes people taking photographs (SAFELY!!) of high water/flooding areas during known extreme high tide events (ie king tides) so that potential future sea level rise issues can be better visualized. The photographs are logged and uploaded onto a Flickr site (through the project's website). Jeremy Hardison of Carolina Beach observed areas of high water around town during the November 2016 king tide event and was able to take some great photographs. If you live near the coast and would be interested in being a king tide amateur photographer, please contact me at [daniel.tomczak@ch2m.com](mailto:daniel.tomczak@ch2m.com).

### Future Me Kids Career Fair

Marbles Kids Museum in Raleigh held its 4<sup>th</sup> annual Future Me Kids Career Fair on February 25. NCAFPM members Tammie Tucker and Laura Arnold, along with Rachit Bhayani (all with AE-COM), demonstrated the Ward's flood model and spoke with kids and parents about some "awesome" professions including floodplain managers, water resources engineers, hazard mitigation experts, and urban planners. Over 2,500 guests visited the museum during the career fair. The kids really loved the hands-on opportunity with the flood model to demonstrate stormwater run-off of a parking lot, design communities along a river, build culverts and levees, and be "rainmakers."



*Laura Arnold, Tammie Tucker, and Rachit Bhayani demonstrate the Ward's flood model during the Raleigh Future Me Kids Career Fair in February.*

### Severe Weather Preparedness Week

As part of Severe Weather Preparedness Week, NCAFPM teamed up with the National Weather Service on March 10 to speak with the 3<sup>rd</sup> and 4<sup>th</sup> grade classes at West Lumberton Elementary School in Lumberton, NC, on weather and flood risks. West Lumberton Elementary was one of the schools impacted and displaced by the flood waters of Hur-

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## Education & Outreach (continued)

ricane Matthew in October 2016, and as of March 2017 the school is still operating out of a temporary location on the area junior high school campus.

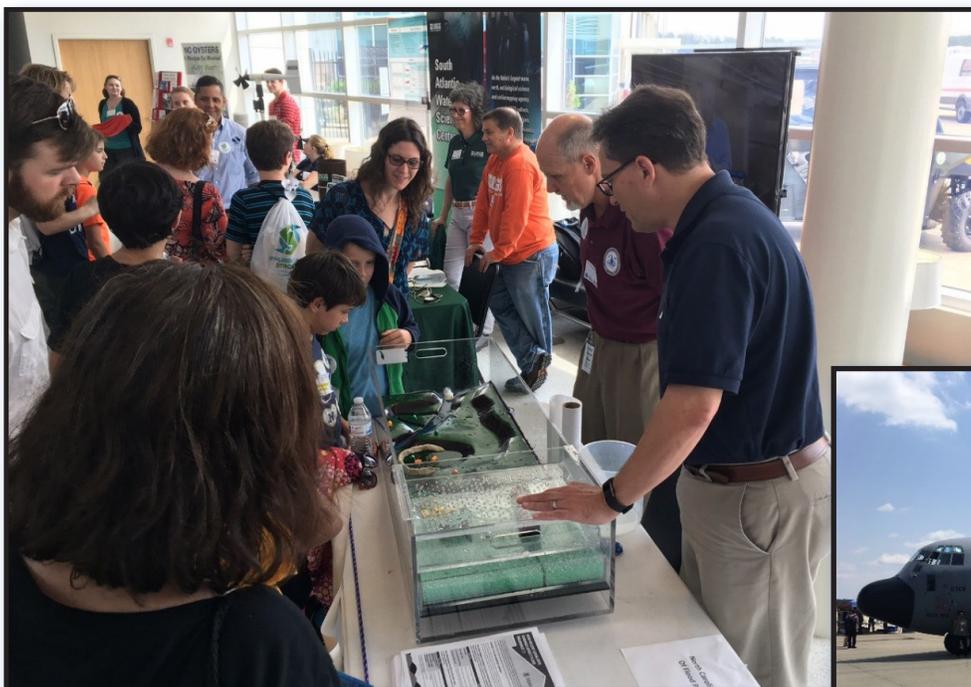
Steven Pfaff, a meteorologist in the NOAA National Weather Service – Wilmington (NC) office, presented photos and videos on severe weather and flooding events, while NCAFPM demonstrated how changes to the land surface can produce downstream flooding using the Ward's flood model.



*Dan Tomczak of NCAFPM and Steven Pfaff of NOAA-NWS teamed up to speak with students at West Lumberton Elementary School during Severe Weather Preparedness Week (March 2017)*

## Hurricane Awareness Tour

The Hurricane Awareness Tour came through the Raleigh area on May 10 as part of a week-long East Coast tour. This NOAA-sponsored event was to help raise awareness on the impacts of tropical storms and hurricanes and included the public tours of the U.S. Air Force Reserve C-130J Hurricane Hunter aircraft and the NOAA G-IV aircraft. As one of the exhibitors at the event, NCAFPM provided great opportunities for discussions with the public on flood risks and the impacts of flooding. Over 3,500 people attended this one-day event. Many thanks to Randy Mundt, Scott Brookhart, Laura Arnold, Rachit Bhayani, and Shawn Springer who helped support the NCAFPM exhibitor booth at the event.



*Randy Mundt and Scott Brookhart demonstrate the impacts from flooding with the public at the Hurricane Awareness Tour in Raleigh (May 2017). The USAF Reserve C-130J Hurricane Hunter aircraft was open for public tours at the event.*



## Get Involved!

There are many other outreach opportunities for members to become more involved with NCAFPM, including the “Turn Around Don’t Drown” campaign, the High Water Mark Initiative, and Forsyth Creek Week. If you are interested in becoming involved in outreach for NCAFPM or potentially using the Ward’s flood model for an upcoming activity or event, please feel free to contact me at [daniel.tomczak@ch2m.com](mailto:daniel.tomczak@ch2m.com). ▲

## 2017 NCAFPM Annual Conference REPORT

JOHN FULLERTON, CFM  
NCAFPM AT-LARGE REP.

NCAFPM once again returned to Atlantic Beach for our 2017 Annual Conference. The Double Tree was our host and a full program of instruction filled the two and one-half day event, held April 23-26 at the DoubleTree by Hilton Atlantic Beach Oceanfront.

### Conference Highlights

Sunday morning, the rain abated enough so that sixteen golfers were able to finish 18 holes at Beaufort Club without getting rained out. There was plenty of wind, but only two strokes separated the best ball scores of the four foursomes.

Thirty one presentations were combined with networking opportunities as well as social time. Fourteen corporate sponsors assured the financial

success of the conference including Platinum sponsors

**AECOM, ATKINS, Dewberry, ESP, Freese & Nichols,**

and **SURDEX**. Program Chair **Ken Ashe** organized a

varied and instructional program which included CRS updates as well as a CFM exam refresher. Six new potential NC CFMs took the exam Wednesday morning.

Perhaps the most unusual presentation was a real time audio and video report from a flooding site in Raleigh during a FIMAN discussion. Heavy rains and flooding across the state resulted in some early departures of those people responsible for the affected areas.

The highlight of the networking time was the Thursday evening visit to the **NC Aquarium at Pine Knoll Shores**. Graciously arranged by hotel staff and the aquarium management, we enjoyed an exclusive evening of the recently renovated facility. Food and beverages were served and the three hour event was enjoyed by all.

Approximately 200 people attended all or part of the conference including SCAHM board members, **Angela McJunkin** and **Shawn Putnam**. Board members along with **THC, Inc.** volunteers **Aimee Davis, Aimee Saito,** and **Anne Regan** planned and conducted the 4<sup>th</sup> NCAFPM Silent Auction. This year's auction was another success and will provide scholarships for future NCAFPM conference attendees as well as support for ASFPM Foundation.

### Presentations Available Soon

The presentations from our speakers are currently being compiled. We will send an email to our membership when the presentations are ready to share.

### Continuing Education Certificates

The credits from the conference are currently being processed and attendees should expect to receive their certificates via email by the beginning of June. Please contact Kelly Keesling at [ncafpm@ncafpm.org](mailto:ncafpm@ncafpm.org) if you have any questions. ▲

## A State of RESILIENCE

NORTH CAROLINA ASSOCIATION OF FLOODPLAIN MANAGERS

ANNUAL CONFERENCE

Atlantic Beach, NC April 23-26, 2017

Thanks to all the presenters, moderators, and sponsors including a special thanks to all attendees who made the 2017 Annual Conference a success!

## Fall Floodplain Institute

NORTH CAROLINA ASSOCIATION OF FLOODPLAIN MANAGERS

**October 24-27, 2017  
Charlotte, NC**

NCAFPM's 12<sup>th</sup> Annual Fall Floodplain Institute (FFI) will be brought to the CITY this year! Our 12<sup>th</sup> FFI will be held in Charlotte on October 24-27. The venue will be Fairfield Inn & Suites - Charlotte Uptown and marks the first time that we have been in Charlotte for this event. David Goode, PE, CFM and Region E Representative will serve as Program Chair and John Fullerton, CFM will serve as Conference Chair. The FFI provides an excellent opportunity for members in the western part of our state to earn CEU's for both engineering and floodplain certifications. This annual event usually draws 110-125 people and the program offers a full range of floodplain topics. New presenters are always welcome. Mark your calendar now and make plans to attend our not-to-be-missed fall conference! ▲



## NCAFPM 2018 Annual Conference

*Mark your calendar!*

**2018 Annual Conference  
Wilmington, NC  
April 15-18, 2018**

Downtown Wilmington marks the location of NCAFPM's 27th Annual Conference. Located along Wilmington's Riverwalk, the Hilton Wilmington Riverside (described below) offers a vibrant venue for best attended conference of the year. A diverse and multi-faceted program is planned in hopes of supplying interesting for neophytes and veterans in the floodplain management field. ▲



## From the Executive Director



**Bill Tingle, PG, CFM**  
**NCAFP Executive**  
**Director**

Spring is here again and hopefully everyone is enjoying this time of year which represents reawakening and renewal instead of dealing with other spring-related issues such as severe weather and related flooding. What an irony that during the last week in April, parts of North Carolina experienced heavy rain and severe flooding which was the same time that most floodplain managers were attending our annual spring conference in Atlantic Beach. And even more strange, severe flooding occurred in several midwest states the following week as the national ASFPM conference was being held in Kansas City (and caused several speakers and others to be unable to attend).

Attendance in Atlantic Beach for the 2017 NCAFP Annual Conference, “A State of RESILIENCE,” topped 200 registrants (one of the largest NCAFP conferences ever) and attendees were treated to excellent presentations and a beautiful evening at the NC Aquarium. (See page 6 for a summary and more information about the conference.)

The national ASFPM conference was attended by several NCAFP members. I would like to add my congratulations to Tim Trautman (Charlotte-Mecklenburg) who was recognized as the outstanding local floodplain manager of the year and to Dan Tomczak (CH2M) whose hard work resulted in NCAFP being recognized as having the top outreach program for promoting use of the Ward’s Flood Model (see the [Ward’s Flood Model page](#) on the NCAFP website for more information about the model and its uses). Besides providing great presentations and handing out awards, Kansas City also provided a chance for a meeting between ASFPM staff and members of the six accredited CFM chapters. As you may know, ASFPM has proposed changes to the accredited chapter CFM programs that could include elimination of these programs. Representatives from all six chapters (including myself, John Fullerton, and David Key from NC) did not hold back with comments and questions during the meeting. ASFPM staff members were very receptive of our input and remained committed to working with us to find common ground. I feel that a mutually agreed upon solution is possible, even though it may take a few years to achieve.

In addition to conference activity, NCAFP has been involved with several issues of importance to all NC floodplain managers. An NFIP reform bill is expected to be passed this year and we are keeping up with the process and will be providing input if needed. We have also provided written comment to key members of congress, expressing our opposition to the president’s proposed budget that includes severe cuts to funding for floodplain mapping and mitigation.

Have a safe and hopefully flood-free remainder of your spring and I look forward to seeing everyone in Charlotte this fall and in Wilmington next spring. ▲

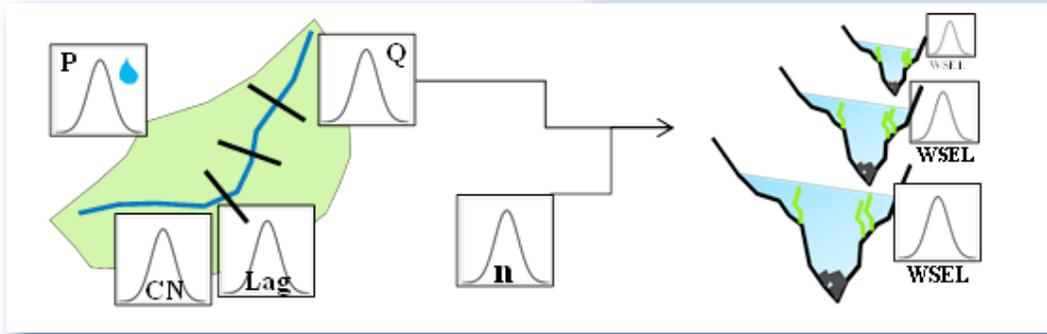
*Bill*

# Communicating Uncertainty In Flood Hazard Identification

DAVID R. MARKWOOD, PE | AECOM

One percent annual chance event floodplains are provided on FIRMs for the majority of streams and rivers in the U.S. known to be sources of flooding, usually draining about a square mile or more. These maps affect and are used by numerous stakeholders, from industry to municipal service and homeowners, academia, outreach and extension, and more. Floodplain delineations on these maps fail to communicate any uncertainty or level of safety. Instead, a definitive in or out boundary is provided, and thus utilized. In fact, 1% annual chance floodplain boundaries depict average extents of flooding of a 100-year runoff event, based on a series of assumptions and compounding modeling uncertainties — “not what is safe” (Edelman, 2016).

<p>TESTIMONY of</p> <p>Scott K. Edelman, PE</p> <p>Senior Vice President</p> <p>AECOM</p> <p>before</p> <p>The United States Senate</p> <p>Committee on Banking, Housing, and Urban Affairs</p> <p>September 13, 2016</p>	<p><b>Second</b> is structure based risk assessments. We must change the perception that if I am just on the other side of the 100-year flood line I am safe. Too much time is spent trying to justify the movement of the flood line by a few feet when in actuality the risk of flooding the structure only has changed ever so slightly. Much of the problem is due to uncertainty of the flood line itself.</p> <ul style="list-style-type: none"> <li>To my knowledge, this is the only product that engineers produce and communicate to the public that deals with averages and not what is safe.</li> <li>We also have a great deal of uncertainty within the calculations. In all actuality, the current 100-year average line shown on the flood insurance maps is perhaps closer to a safe design level of a 10-year event.</li> </ul> <p>Moving to a structure based risk assessment begins to change the conversation from one focused on “in vs out” to one that starts to communicate levels of risk. We must also take affordability and grandfathering with sunset clauses into account for our most vulnerable communities and constituents.</p>
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The Technical Mapping Advisory Committee (TMAC) has made clear the need for FEMA to advance flood insurance administration to a structure-based risk approach. Vice Chair of the TMAC, Scott Edelman, sums up a thoroughly complex issue succinctly: “To my knowledge, this is the only product that engineers produce and communicate to the public that deals with averages and not what is safe.” Industry standard methods often rely on deterministic modeling approaches, largely for reasons of practicality and knowledge gaps, exacerbating the issue of identifying and communicating uncertainty inherent in the flood modeling and mapping process.

Hydrologic and hydraulic modeling and floodplain mapping involve a great deal of uncertainty, whether due to the complexity of the natural phenomena being simulated, knowledge gaps in understanding and describing them, lack of observed data, deterministic approaches where uncertainty is difficult to describe, and much more. These collective uncertainties seem to be lost upon many users of FIS Reports and FIRMs not involved in the development of these products, as evidenced by the common in or out interpretation. FEMA has combatted this by standardizing the requirement to estimate, to quantify in some way, uncertainty associated with the respective flood risk products. Delineating the spatial extents of quantifiable uncertainty should likewise be a minimum requirement (not “optional”), regardless of how accurate it may or may not be, if for no other reason but the explicit communication of uncertainty not currently provided. ▲

In addition, the “1% plus” flood elevation shall be modeled for all riverine analyses. The 1% plus flood elevation is defined as a flood elevation derived by using discharges that include the average predictive error for the regression equation discharge calculation for the Flood Risk Project. This error is then added to the 1% annual chance discharge to calculate the new 1% plus discharge. The upper 84% confidence limit is calculated for gage and rainfall-runoff models for the 1% annual chance event.

The “1% plus” flood elevation must be shown on the Flood Profile in the FIS Report to best understand and communicate the uncertainty of the flood elevation.

# ASFPM Annual Conference REPORT

JOHN FULLERTON, CFM  
NCAFPM AT-LARGE REP.



The “heartland” of America is alive and well as Kansas City and her people displayed their warmth and welcome to the 1,000+ attendees of this year’s ASFPM conference, which was held April 30-May 5. There was no holiday from floods, however, as parts of Missouri and several other states were subjected to rising waters to the extent that scheduled presenters and attendees were called back to their jurisdictions to deal with the threat.

North Carolina was well represented with presenters, moderators, and NCAFPM members — corporate and governmental, including board members **David Key**, **Amit Sachan**, **Bill Tingle**, **Ken Ashe**, and **John Fullerton**.

NC’s FIMAN was the topic of discussion in several of the sessions and received much attention, praise and questions. FIMAN (Flood Inundation Mapping and Alert Network) uses real-time data from a statewide ALERT network, USGS stream gauges, and flood inundation models to support their online flood inundation mapping engine. The inundation maps are based on the best available elevation and engineering data and methods developed through the NC Floodplain Mapping Program. Making specific and related presentations were **Dan Brubaker** (NCEM), **Tonda Shelton** (NCEM), **Neal Banerjee** (ESP Associates), **David Key** (ESP Associates), and **Dave Canaan** (Water and Land Resources Director, Mecklenburg County).

In addition to moderating and serving on a panel, **Tim Trautman**, Flood Mitigation Program Manager at Mecklenburg County, was awarded the 2017 Larry R. Johnston Local Floodplain Manager of the Year Award.

The conference contained a well-planned mix of education, networking, and thought-provoking discussions. Looking forward, there will be more actions and input regarding the federal budget and its impact on flood-related programs, new proposals potentially affecting accredited chapters (NC, AR, TX, OK, IL, NM), and shifting priorities as a new ASFPM board begins its work. NCAFPM friend, former resident, and long time partner, **Maria Cox-Lamm** begins her term as ASFPM chair. Our best wishes go to Maria and her fellow board members.

“Managing Floods Where Mountains Meet the Desert” is the announced theme for the 2018 ASFPM Annual Conference, which will be held in Phoenix, Arizona, June 17-22. ▲

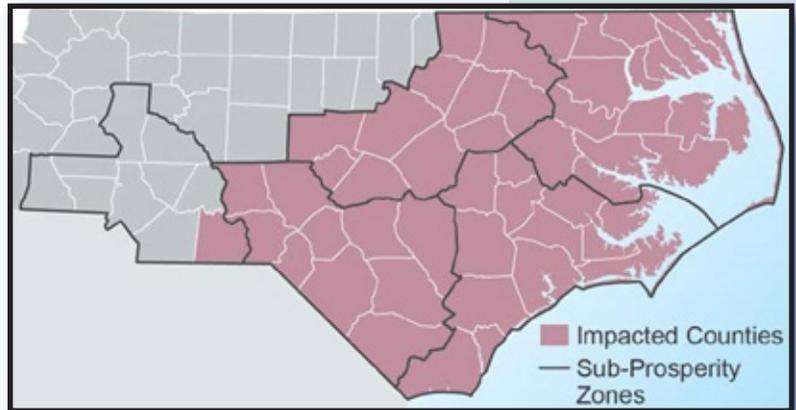
**Congratulations  
to NCAFPM  
member  
Tim Trautman,  
who was  
awarded the  
2017 Larry R.  
Johnston Local  
Floodplain  
Manager of the  
Year Award**



# Hurricane Matthew Resilient Redevelopment Planning

BEL MARQUEZ, PE, PMP, CFM | ESP ASSOCIATES

The Disaster Recovery Act of 2016 (Session Law 2016-124) directed North Carolina Emergency Management (NCEM) to facilitate and oversee the generation of Resilient Redevelopment Plans for the fifty counties and municipalities impacted by Hurricane Matthew and receiving federal declarations. The objectives of the effort are to (1) develop strategic, resilient redevelopment plans/actions, and (2) define any unmet funding requirements needed to implement such actions after taking into account other funding sources. The effort, and resulting resilient redevelopment plans, will be the foundation for any supplemental funding received through Congress, the North Carolina General Assembly, and other funding sources. These plans will also provide the foundation for the state's Recovery Action Plan that is required by the U.S. Department of Housing and Urban Development before the state can expend the funding received from the Community Development Block Grant – Disaster Relief (CDBG-DR) program.



NCEM has already assembled a wealth of data, resources, and technical expertise from state agencies, the private sector, and the UNC system to support the development of innovative best practice strategies that might be implemented. The focus areas of these strategies are (1) residential housing and rental stock, (2) infrastructure, (3) ecosystem, and (4) jobs, business, and economic growth. The UNC-CH is coordinating and collaborating with this effort as it provides expertise to some of the hardest hit communities that do not have capacity.



NCEM leveraged efficient, interactive technologies such as geographic information systems, SharePoint, and the internet to enable real-time, robust analysis, local government interaction and public input. Information on the entire planning process is available online at [rebuild.nc.gov](http://rebuild.nc.gov).

The planning process was a highly collaborative effort and entailed three robust rounds of discovery, analysis, collaboration, and interaction with county officials, staff, municipal leaders and the public on damage, needs, and strategies. These rounds included onsite meetings and discussion with subject matter experts and planners. The meetings were:

- Meeting 1: Validation and/or discovery of data pertaining to damage and impacts
- Meeting 2: Construction, review, and feedback on first drafts of resilient redevelopment strategies
- Meeting 3: Refinement, feedback, and finalization of draft resilient redevelopment strategies

These plans were delivered to the North Carolina General Assembly on May 1.

For more information regarding this effort, contact Bel Marquez at [Maribel.Marquez@ncdps.gov](mailto:Maribel.Marquez@ncdps.gov) or (919) 415-2729. ▲

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Floodplain Managers  
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2017-2018

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## Giving Voice to Floodplain Managers “In the Trenches”

For the first time in history, ASFPM conducted a comprehensive national survey of local floodplain managers. In the past, ASFPM surveyed state floodplain managers to assess state programs and practices. But this publication, “[Floodplain Management 2016: Local Programs Survey Report](#),” is a snapshot on what local programs are doing in the floodplain management arena. It attempts to provide insight on who the local floodplain managers are and highlights floodplain management programs’ practices, capacity and challenges.

As you all know, there isn’t one “perfect” model for a local floodplain management program. Every local program has its own unique characteristics that shape its approach to managing flood risks and floodplain resources. The geologic and geographic variability of floodplains and their respective risks can vary significantly. The constitutionally-established relationships between states and local jurisdictions also differ considerably from state to state. And political cultures of each state and its local governments often are such that program components that work well in one state, county or community may not be acceptable in another.

The survey was developed to obtain information from municipal or county floodplain managers to better understand the successes, needs and challenges associated with local-level programs. Data collected through this survey act as a baseline that can be used to evaluate the current state of local floodplain management programs and allows for comparison in the future. ASFPM hopes to repeat the survey every five to seven years to track the evolution of local program through time.

The survey, funded by FEMA and developed and conducted by the University of Wisconsin — Survey Center, consisted of 47 questions, and responses were received from 821 communities and counties. **Bill Brown**, director of ASFPM’s Flood Science Center (formally Science Services), compiled the information for this report.

Everyone who looks at this report will be interested in different findings. Following are just some of the highlights ASFPM staff found noteworthy:

- The average number of years as a floodplain manager was eight years, and they averaged 11 years of floodplain management experience.
- Fully 1/3 of floodplain managers are either zoning or building code officials. The next two closest disciplines are planners (11.6%) and engineers (11.3%).
- An overwhelming majority of local floodplain managers say they need more comprehensive, technical assistance.
- When asked what one tool was needed to improve local floodplain management programs the top three were: mapping tools/resources (16%), training (14%), and staff/time (12%). Interestingly, community/management support ranked lower at 6%.
- 62.9% of respondents indicated their community’s regulation standards were **not** more stringent than minimum NFIP standards.
- More than 50% of respondents said they spent 0% of their time promoting flood insurance.
- Many floodplain managers had **no** familiarity with several federal grant programs.
- 69.6% of respondents indicated that they spent 10% or less of their time on flood-

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## In the Trenches (continued)

plain management activities and less than 3% spend more than half their time on floodplain management activities.

- Surprisingly about 50% of communities consider climate change as it relates to flood risk in one or more of their community's plans or standards.
- Only 46% of respondents were familiar with ASFPM (Wow! We have some work to do).

Using this report, we hope communities can benchmark their programs against what others in the nation are doing, make some decisions about what they're succeeding at, what can be improved within their own community and how to prioritize the goals. ▲



## Poll Finds nearly 75% of Voters Support Flood Reforms

Almost three-quarters of registered voters — across party lines — support policies that would enable communities to better prepare for and

respond to floods, according to a nationwide survey. The poll, conducted by the research firm Public Opinion Strategies for The Pew Charitable Trusts, examined attitudes toward flood-related disasters and proposed policy reforms aimed at improving preparedness and reducing recovery costs. Specifically, participants were asked about the National Flood Insurance Program. The flood insurance program is nearly **\$25 billion in debt**. Respondents overwhelmingly support proposals to require property sellers disclose flood risk and communities take steps to lessen flood impacts to reduce the costs of rebuilding. [Click here to see key findings](#) from the poll. ▲



## Funding for National Flood Mapping Program Threatened

When the Trump Administration announced its “skinny” budget March 16, flood risk professionals learned that all funding for flood mapping and a substantial amount of pre-disaster mitigation grant funding were being cut. ASFPM did urge our membership to contact their members of Congress and explain why they needed to protect these programs.

A smaller group got together and developed this two-sided placemat that explains how all communities and all taxpayers benefit from the mapping program — not just NFIP policyholders. This graphic is a great tool for anyone reaching out to

their members of Congress, whether by email or in person on The Hill. The graphic was created by ASFPM and our partners, and everyone is welcome to use it. [Here is the link](#) if you'd like to share it electronically, or print it out. ▲

(Reprinted with permission from ASFPM's *News & Views*, February 2017 and April 2017)

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# A Remedy for North Carolina Homeowners Who Need a Lift

A.R. TORSONE, RAM JACK USA

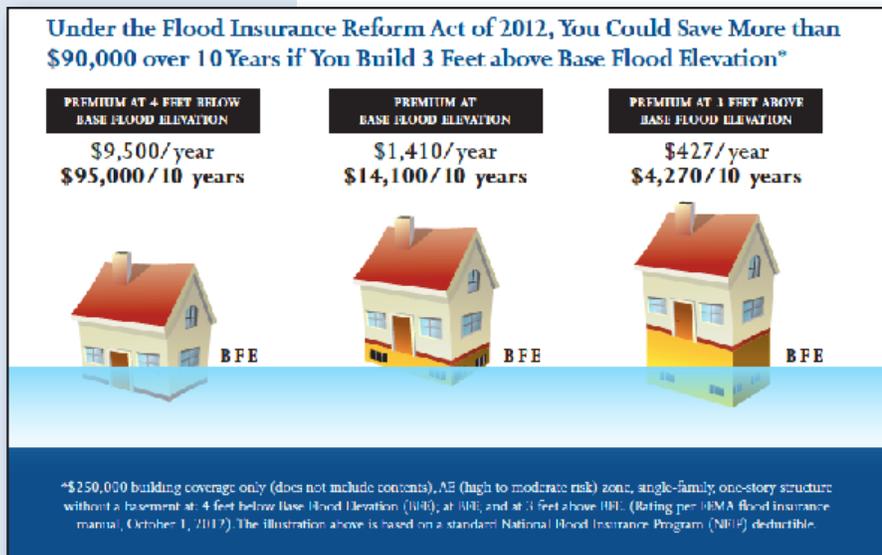
Helical piles and anchors have been used in construction applications for more than 175 years. The first recorded use of helical piles was in 1836 by Alexander Mitchell in England, where they were utilized to stabilize a mammoth lighthouse.

The helical pile industry has seen substantial growth in the last 20 years as most practicing engineers have recognized the strength, versatility, and many applications of the system. The popularity of helical piles has grown so much that the International Code Council (ICC) established acceptance criteria AC358 for helical piles in 2007. ICC inducted helical piles into the International Building Code in 2009. However, helical piles were barely mentioned in undergraduate and graduate civil engineering studies.

## Necessity is the Mother Of Invention

Homeowners are now able to elevate their homes gently, safely, and economically with little to no alteration to their properties in a matter of days, not weeks or months, as was the case in New Jersey after Hurricane Sandy. The old system meant we had to roll the house off its piles, raise it, remove and install new piles, then roll the house back and reattach.

North Carolina residences who own homes in high risk flood zones are now facing flood insurance rate increases of 18% to 25% per year until the new higher rate is reached. This means that a home that is below the Base Flood Elevation (BFE) will pay in many cases over \$10,000 per year for flood insurance compared to \$500–\$1,000 per year for their home that was elevated three feet above the BFE.



The new home elevation process using brackets is a sustainable solution because no new timber resources are used; existing ones are simply recycled to a new height. This system is far less invasive than a traditional lift because the home is never disconnected from its foundation and it is never moved off its existing footprint. Therefore, risks associated with traditional lifting and moving a home are greatly reduced.

The process does not require the homeowner to vacate the home months in advance or for weeks afterwards. Where local officials and utilities are cooperative, homeowners need only vacate a week or two, instead of months.

Recent changes to the Base Flood Elevations have placed many homes below the new height requirements. This benefits residents that cannot afford to stay in their homes, which is like a rescue mission for those who might be losing their homes.

Mortgage lenders are now experiencing problems financing home sales that are not compliant, due to the home's low Base Flood Elevation. ▲

# North Carolina Floodplain Mapping Program

RANDY MUNDT, AICP, CFM  
OUTREACH COORDINATOR, NCFMP RISK MANAGEMENT SECTION

Thirty-three counties have been in the post-preliminary process since 2014, and soon many will be moving towards going effective. The Letter of Final Determination (LFD) for Alamance, Chatham, and Orange counties paperwork has been submitted to FEMA, and it is anticipated that the start of the 6-month compliance window will be May 17th. An August date is targeted for the next LFD group, which should include Duplin, Johnston, Sampson, and Wayne Counties; the effective date will be in February 2018. The next targeted LFD will be in August for the counties of (tentatively) Durham, Granville, Person, Vance, Columbus and Robeson Counties, with an effective date in February, 2018. Then the next LFD should be in October, and should include Brunswick, New Hanover, Wake, Camden, Chowan, Currituck, Pasquotank, and Perquimans Counties; with an expected effective date in April 2018.

Draft revised preliminary data based on data submitted during the appeals process has been shared with the counties of Brunswick, Currituck, and New Hanover Counties, and we are coordinating with FEMA on finalizing the appeal resolutions.

The official 90-day appeal period for the nine central coast counties and Cabarrus and Mecklenburg Counties are pending the Federal Register notifications. We anticipate that will start in late-summer 2017. ▲

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## CFM NEWS | ASFPM

### New Certified Floodplain Managers

The following people have passed the CFM exam since our last issue. Congratulations!

Klaus Albertin, CH2M Hill, Inc.  
Christy Armstrong, City of Durham  
Matthew Boswell, City of New Bern  
Vivian Bou Gomez, City of Greensboro  
Joshua Cash, NCDDEM  
Mary Clark, Wake County  
Trenton Cormier, HDR Engineering, Inc.  
Christopher Cox, NCDDEM  
Bobby Croom, City of Goldsboro  
Richard DelConte, Moore County  
Glynn Fleming, Alley, Williams, Carmen and King, Inc.  
Catherine Grimm, Town of Tarboro

Jamie Heath, Town of Williamston  
Charles Hill, Moore County  
Brian Johnson, Town of Boone  
John Larch, City of Fayetteville  
Hiram Marziano, Town of Sunset Beach  
Kimberly Rivenbark, Town of Burgaw  
Jake Serago, Research Triangle Institute  
Mitul Shah, HDR Engineering, Inc.  
John Tahquette, Eastern Band of Cherokee Indians  
Julianne Teel, Mecklenburg County  
Robert Testerman, Town of Kitty Hawk  
Sean Tuttle, City of Durham

### The National Flood Insurance Program (NFIP) for North Carolina – April 2017

at a  
GLANCE

Currently there are 130,104 flood insurance policies in North Carolina. Of that figure, 77,622 are in an A-Zone and 6,160 are in a V-Zone, with the remainder in an X-Zone. \$107,204,791 in premium is paid to provide \$31,979,619,600 of total coverage. Over a billion dollars in claims have been paid since 1978.

North Carolina has 579 participating communities. The towns of Micro (Johnston County) and Ronda (Wilkes County) are the newest participants. In Robeson County, the town of Parkton's application is currently under review.



The CFM exam will be offered at the Fall Floodplain Institute in Charlotte in October. Other opportunities will be listed on our website. Application must be submitted at least two weeks before the test. All information is available on the [NCAFPM Certification webpage](#).

## ASFPM Opposes President's FY 18 Federal Budget

President Trump just released his proposed FY18 federal budget and ASFPM opposes it. The budget fails to make America safer from natural disasters, especially floods, the leading cause of disasters in this nation. The budget cuts myriad federal programs in FEMA, HUD, Corps of Engineers, NOAA, EPA and USDA that communities and states use to build safer and protect citizens from the frequently occurring flood disasters.

The proposed budget cuts FEMA's flood mapping program by \$190 million, and the entire pre-disaster mitigation program. In addition, the administration proposes a 16 percent cut to USACE, 31 percent from EPA and technical assistance to farmers for conservation programs from USDA watershed programs that assist in not only clean water, but help reduce flood losses. It zeroes out more than \$250 million in targeted NOAA grants and programs supporting coastal and marine management, climate change programs, research and education. This would include the Coastal Zone Management Program and the widely popular Sea Grant Program.

All of this is occurring during a period of increased natural disasters. During 2016, the nation experienced some of the greatest disaster costs according to NOAA's National Centers for Environmental Information, which tracks U.S. weather and climate events that have great economic and societal impacts. Since 1980, the U.S. has sustained 203 weather and climate disasters where the overall damage costs reached or exceeded \$1 billion (including adjustments based on the Consumer Price Index, as of January 2017). The cumulative costs for these 203 events exceed \$1.1 trillion.

Federal budgets must help communities prepare for and mitigate the risk and costs of these disasters. The federal budget proposal cuts essential community development, housing and transportation programs utilized by communities across the nation. At a time when cities and towns face significant challenges to infrastructure investment, affordable housing and economic development, the elimination of critical and proven federal programs will make communities less safe and increase disaster costs.

Flood mapping and mitigation programs are the foundation for communities and states to manage flood risk, build community resilience and strengthen their economies. These programs have been successful, had bipartisan support and help leverage sustainable private sector investments. Additionally, the cuts in this budget also make our communities more vulnerable and less safe.

We believe the scope of these cuts places jobs, development projects and public health at risk. We do not believe the cuts are consistent with the expressed priorities of President Trump, ranging from infrastructure investment to boosting growth and jobs.

Floodplain managers stand ready to work with Congress and the administration on policies and programs that will reduce future flood risk and damage, and lessen the disaster costs for communities and the federal taxpayers. The federal programs must be partners with communities and states to create stronger and more economically vibrant places to work and live. This budget does not do that.

## **ASFPM Member Alerts** *(continued)*

It is important to remember this is only the first step in a long federal budget process. Congress reviews the president's budget, but they are ultimately responsible for the final federal spending plan. ASFPM will work with Congress to reject these cuts and instead support essential investments in the future of our communities. We urge our members to become involved in this process and to have your voice be heard. We will be working with you over the next months as the budget process unfolds, keeping you informed and asking for your assistance. Stay tuned for more alerts from ASFPM and be prepared to take action.

## **After ASFPM Input, FEMA Revises Elevation Certificate**

FEMA announced in a March 1 bulletin that the newly revised Elevation Certificate (FEMA form 086-0-33) can now be accessed at <https://www.fema.gov/media-library/assets/documents/160>.

Bruce Bender, ASFPM Insurance Committee co-chair, said of the announcement, "After the initial release of the Elevation Certificate, the ASFPM Insurance Committee began gathering feedback about issues users were having. Last October at a Flood Insurance Producers National Committee (FIPNC) meeting, which the Insurance Committee sits on, FEMA stated they were aware of issues with the EC (including a major rounding issue), and were addressing them. The Insurance Committee continued to gather EC issues and ASFPM formally shared them with FEMA in January." ([View document here.](#))

Bender said, "At the February 28 FIPNC meeting, FEMA announced they were issuing a corrected EC. This reflects some of the recommended changes, including the rounding issue. Here is the Bulletin that was issued. As you use the Elevation Certificate, please provide any suggested changes or comments to [InsuranceCorner@floods.org](mailto:InsuranceCorner@floods.org)."

"One comment received already is that C2.a-h, Section E and G8-G10 forces the entry of two decimal places (whether the data was captured to 2 place-accuracy or not). Section E instructions have been updated to reference the two decimal places ("nearest hundredth"); however, C2 was not," he said.

"This form expires November 2018. FEMA officials at the FIPNC meeting agreed that it would be good to have industry users 'test drive' future forms before officially releasing it," Bender said.

## **FEMA Sending Letters to Policyholders to Clearly Communicate Flood Risk**

FEMA has now begun the next phase of implementation of Section 28, Clear Communication of Risk, of the Homeowner Flood Insurance Affordability Act of 2014, which requires the agency to clearly communicate full flood risk determinations to individual property owners.

To meet this requirement, the National Flood Insurance Program reviewed the flood risk and underwriting information for every flood insurance policy, and is writing to all NFIP policyholders to explain the current risk level for their property and the relation of the risk to their premium rates.

— *continued on next page*

## ASFPM Member Alerts (continued)

As of January 2017, policyholders are receiving letters about two months after their policy renews. Policyholders who renewed policies in October 2016 through December 2016 also received their first mailing. FEMA will continue to mail the letter at each subsequent renewal.

Because policy information varies from one policy to the next, the letters encourage policyholders to contact their insurance agent to discuss their unique situation, or visit [FEMA.gov/cost-of-flood](http://FEMA.gov/cost-of-flood) to learn about their options.

All policyholders will eventually receive a letter upon the renewal of their policy. The NFIP has identified seven categories of policyholders to receive unique information based on their risk and current premium rates. The letters for each policyholder category are as follows:

- Letter A: Newly mapped into the Special Flood Hazard Area, or high risk flood zone
- Letter B: Standard X Zone (moderate risk), not grandfathered
- Letter C: Standard X Zone (moderate risk), grandfathered
- Letter D: Pre-FIRM subsidized, primary residences
- Letter E: Pre-FIRM subsidized, non-primary residences and businesses
- Letter F: Preferred Risk Policy (PRP)
- Letter G: Post-FIRM, full risk

Information for insurance agents, copies of each category of letter, details about what each letter means, and tips for how individual policyholders can lower their flood risk (and potentially their flood insurance premiums) can be found at [FEMA.gov/cost-of-flood](http://FEMA.gov/cost-of-flood). For a PDF of a list of frequently asked questions, [click here](#).

As you are aware, HFIAA requires gradual insurance rate increases for properties currently receiving artificially low (or subsidized) rates, rather than immediate full-risk rate increases. HFIAA requires increases to premiums for most subsidized properties of no less than 5 to 15 percent annually, but no more than 18 percent for an individual policyholder — with limited exceptions — until the premium reaches its full-risk insurance rate.

The information that NFIP policyholders will receive, will help them make the best decisions about their flood risk, including how to better prepare for flooding disasters in their community. ▲

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ESP  
ESP Associates, P.A.

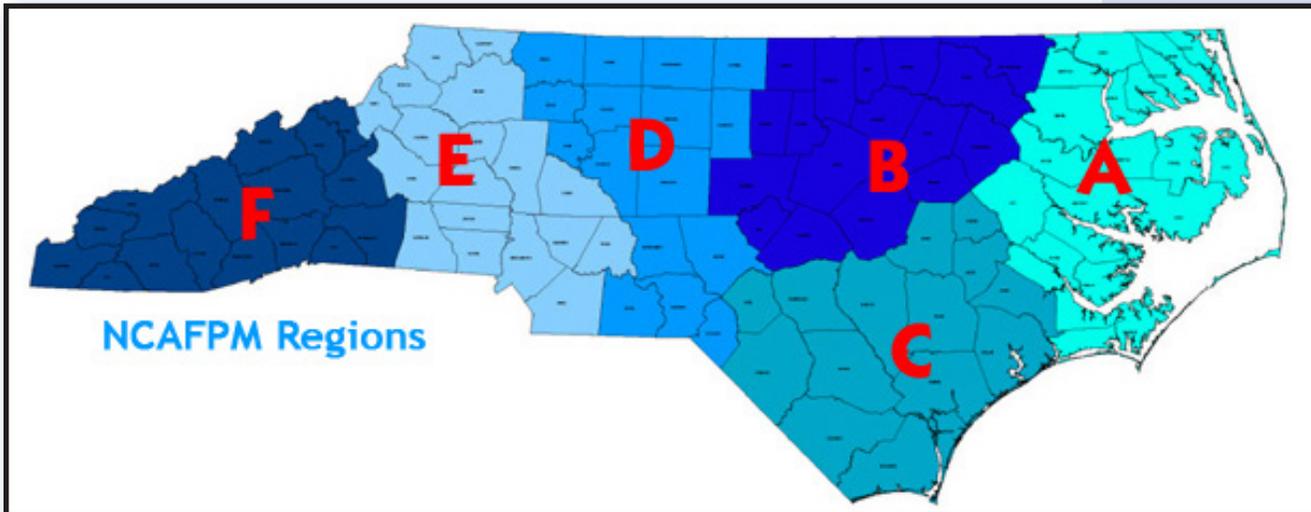
RAMJACK™

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## Thank you to our *FlashFlood News* sponsors!

*FlashFlood News* is funded by sponsorships from consultants and vendors. Please see the [Media Kit](#) on our website with details about the newsletter, sponsorship options, and deadlines for submittal. We hope that you will consider sponsoring our next newsletter (which will be Spring 2017 as we publish two issues per year). If you are interested in sponsoring or would like more information, contact Kelly Keesling at [kgkeesling@carolina.rr.com](mailto:kgkeesling@carolina.rr.com).

# NCAFPM Regional Reports



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**Region F** | Nathan Pennington, CFM — [nathan.pennington@buncombecounty.org](mailto:nathan.pennington@buncombecounty.org)

The impact of Hurricane Matthew is still being felt in Region B. Not surprisingly, the floodplain administrators of Region B were very busy responding to, and are still in the process of recovering from, the most significant flooding to affect the area since Floyd in 1999, where many areas saw flooding that approached the 500- to 1000-year recurrence levels. (See next page for graphic.)

The State Initiative to develop Resilient Redevelopment Plans for a total of 50 NC counties are being addressed in nine counties in Region B: Edgecombe, Nash, Franklin, Wake, Harnett, Johnston, Wilson, Halifax, and Northampton. By the time of this publishing, all have worked through the three meetings of this process.

With the exception of Halifax, Harnett, Lee, Northampton, and Warren counties, Region B counties either have recently new flood hazard data or are now in the post-preliminary process. Chatham and Orange counties should be receiving their Letter of Final Determination (LFD) from FEMA May 17, which will set their FIS/FIRM effective date for November 2017. It is anticipated that in September, Durham, Granville, Person, and Vance counties may be receiving their Letter of Final Determination (LFD) from FEMA, which will set their FIS/FIRM effective date for March 2018. During their 90-day appeal period, Wake County communities submitted a number of challenges/appeals to their

## Region B

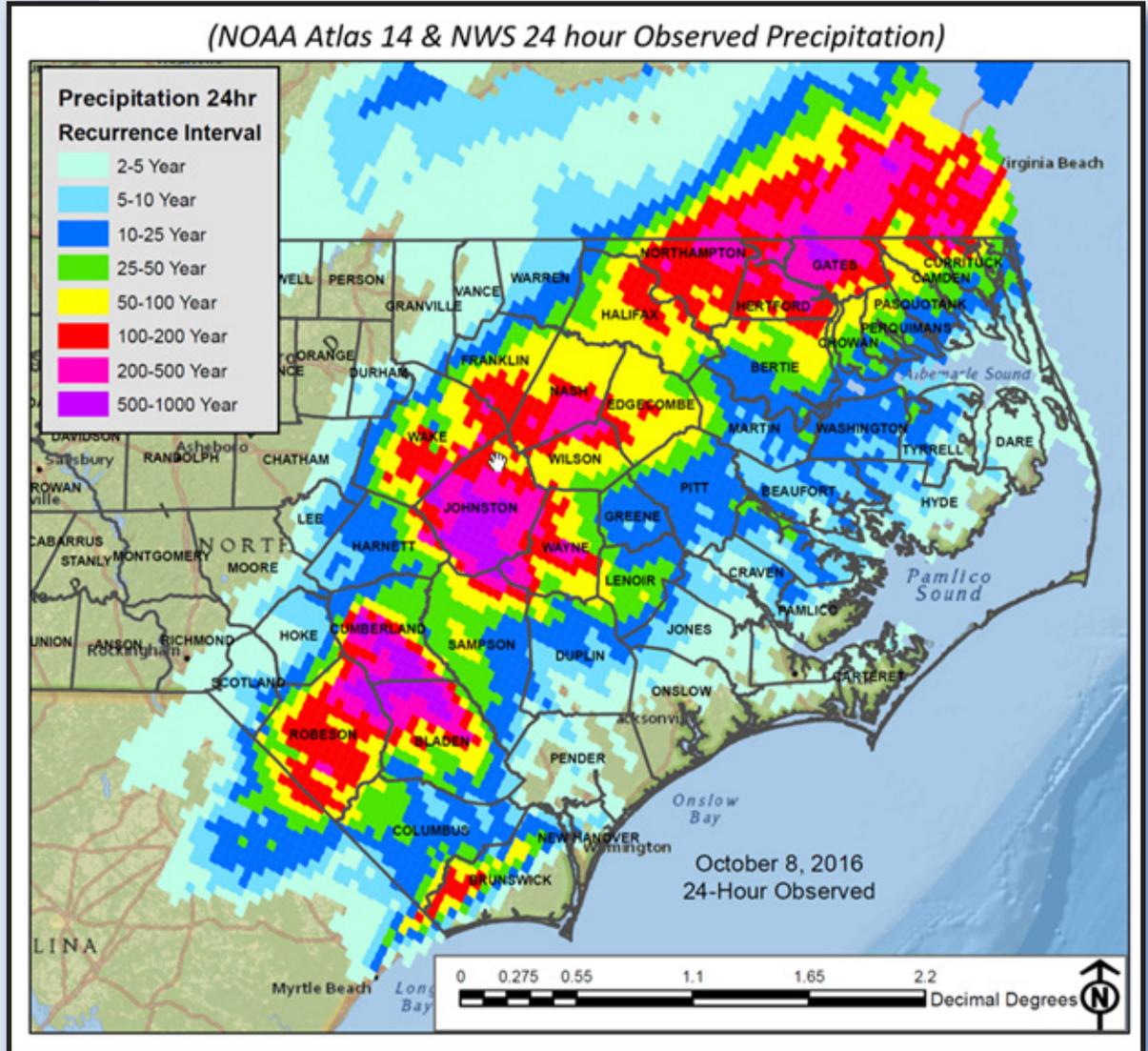
Randy Mundt,  
AICP, CFM

— continued on next page

## Regional Reports (from previous page)

preliminary data, and a round of revised preliminary data should be issued in May/June in 2017 with a 30-day comment period.

Otherwise, nothing to report beyond the continued principal activity of floodplain managers in Region B addressing questions about flood risk, sound floodplain management practices, and processing floodplain development permits for their communities. ▲



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# RAMJACK™

When Rick Sykes, the owner of Ram Jack Foundation Solutions LLC in Durham, NC, experienced the obstacles that raising homes on timber piles presented, he engaged his Ram Jack engineers and designed and patented a system of elevating homes on timber piles. This new system of elevating structures changed the way homes on timber piles would be elevated.

The old system meant rolling the house off its piles, raising it, removing and installing new piles, then rolling the house back and reattaching it. This caused vibrations that damaged the home and displaced the family much longer than if elevated by the **Ram Jack Hurricane Sandy Bracket System.**

What Ram Jack does is really a public service effort. Their professional elevation experts can develop a plan for any house raising challenge, and will work with the homeowner to find the most cost effective solution.

## FLOOD VENTS

For homes built on timber piles that also have enclosed foundation structures Ram Jack can install “vents” that will open when flood waters rise. These vents equalize the hydro pressure by allowing the flood water to pass through the foundation. After the flood water recedes the vents close.

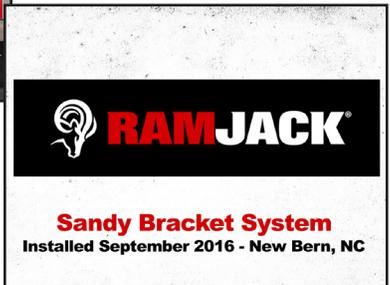
## RAM JACK EZ PAY

For property owners that do not qualify for a Flood Mitigation Assistance Grant, (FMA), this North Carolina company offers financing that often creates payments that are less than the insurance payments.



Click graphic at left to read a presentation about the Sandy Bracket System.

Click graphic at right to watch a demonstration of a home elevation in New Bern, North Carolina.



All structure lifts are designed and approved by NC licensed engineers.

No one in the state of North Carolina, has more home elevating experience than Rick Sykes, owner of Ram Jack LLC. He elevated hundreds of homes after hurricane Katrina and hurricane Sandy, he was the force behind the design and development of the “Sandy Bracket System.”

Homeowners throughout the state will greatly benefit from the years of experience that this North Carolina company has to offer.

For more information, see “A Remedy for North Carolina Homeowners Who Need a Lift” in this issue of *FlashFlood*.

**This North Carolina company is the solution.**

Ram Jack | 888.330.2597 | [www.ramjack.com/ramjackusa](http://www.ramjack.com/ramjackusa)

# NFIP Coordinator's Corner

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Greetings, all, and thank you for tuning in to my inaugural “Coordinator’s Corner” of the NCAFPM *FlashFlood News*. At the beginning of this year, I took over as North Carolina NFIP Coordinator from the legendary John Gerber. John has been vital to both NCAFPM and ASFPM through the years, and he is and will be missed. But duty calls, and John has taken an assignment with the US Army in Fort Bragg for a year. He still is available by email and I am sure he would love to hear from you.

There is a lot going on in North Carolina right now, and keeping on top of everything has been daunting. However, I’d like to touch on a few of the areas in which we’re heavily involved, so you can get a good idea of where we are heading over the next year.

## Hurricane Matthew Recovery

Recovery efforts continue from Hurricane Matthew and the flooding of October 2016. Practically before the water receded, the state had set up a website related to all things Matthew: [ncdps.gov/hurricane-matthew-2016](http://ncdps.gov/hurricane-matthew-2016). FEMA quickly set up a Joint Field Office in Durham to coordinate their recovery efforts. They’ve assisted communities with substantial damage estimates, provided outreach training to insurance agents, and helped communities and citizens with claims and assistance. We expect much of their work to wrap up this month.

## Resilient Planning Report

Also in May, the legislature will receive the Resilient Planning Report prepared by the Risk Management Office and our consultants. We’re holding multiple meetings with all 50 affected counties to establish a plan and priority list for not only recovery, but resilient rebuilding so that the next time (and there will be a next time), we can recover and get back to our homes and businesses quicker. Many communities are now seeing that flood damage is not just a problem for individual homeowners and businesses. When businesses can’t open, residents can’t come home, and debris makes the streets and sidewalks impassible, we all suffer.

One takeaway I’ve seen from the meetings I’ve attended is the need for communities to have shovel-ready projects. Communities should develop a priority list for flood (and other hazard) mitigation, so they can take advantage when funding becomes available.

## Preliminary Flood Maps

The question I get asked most often is, “When are the preliminary flood maps for my community going to be effective?” This is a very hard question to answer, because there are so many steps in the process of releasing a flood map. The scoping, surveying, engineering, and mapping take several years to complete before the public ever gets their first views of the maps. With each map release, there are comments and appeals to be examined and resolved. As we have seen, this can be an iterative process. Once the appeals are complete and all resolved, it will still be several months before the Letters of Final Determination can be prepared, and then up to another six months before the maps are officially adopted by the community. That being said, we expect Alamance, Chatham, and Orange counties to have LFD issued in May, and counties currently preliminary will

hopefully have their appeals and comments resolved by the end of the year.

## Digital Products

You will also be seeing some big changes coming to our digital products this year. FIMAN 2.0 will be rolling out with inundation mapping over entire reaches of stream, not just concentrated at gage locations. The [ncfloodmaps.com](http://ncfloodmaps.com) website is undergoing a major renovation and upgrade, with more tools, links, documents, and information available to citizens, floodplain administrators, engineers and surveyors, insurance agents, and real estate professionals. With the new effective maps, FRIS will be including more risk products, insurance estimators, coastal A-Zones, and the long-awaited non-encroachment area mapping.

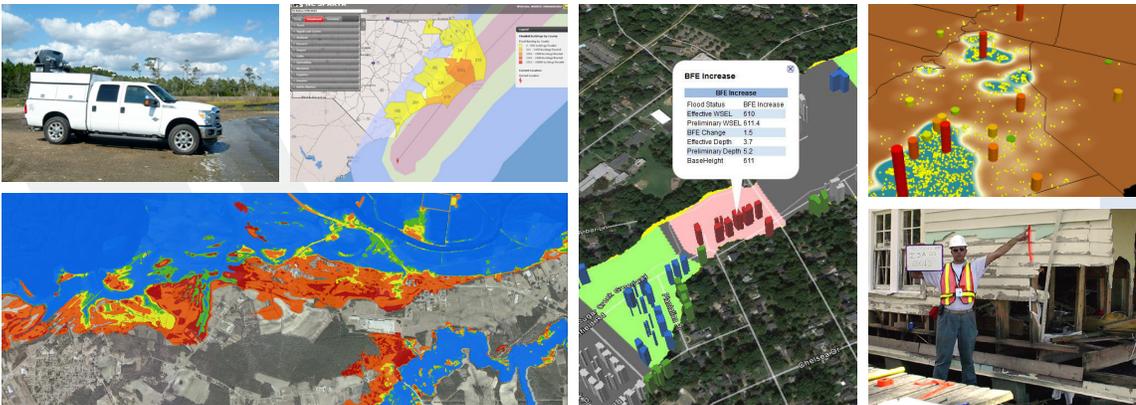
## Legislature

We're also keeping a close eye on the NFIP reauthorization, and how the new leadership in Washington will treat flood mapping, mitigation, and insurance. More to come on that, I'm sure.

There is plenty of good information in this issue of *FlashFlood News* expanding on the topics I've noted. I encourage you to look through it, and see where you fit in the big picture of floodplain management and flood damage prevention. ▲

# NFIP Coordinator's Corner

## ADVERTISEMENT



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# 2017 Conferences & Events

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## The National Flood Mitigation & FloodProofing Workshop

August 14-17 | Renaissance Woodbridge Hotel – Iselin, New Jersey

Flooding is the nation's #1 hazard. Add to that a lot of infrastructure and development that is either at moderate or high risk of flooding. How do we mitigate against this flood risk? How do we make sure what is being developed now isn't at risk in the future?

The National Flood Mitigation and FloodProofing Workshop focuses on these questions and in the workshop you will learn tools and techniques that floodplain managers, emergency managers, property owners, and others can use to reduce flood risk. We will highlight the latest in mitigation and floodproofing techniques (elevation, acquisition wet and dry floodproofing, codes and regulations, easements, warning systems, etc.), products, success stories, funding programs and funding application processes and much more! Tuesday and Thursday feature plenary sessions, mini-workshops, and break-out concurrent track sessions offering detailed presentations on engineered mitigation and flood-proofing projects, policy, grant funding, natural and beneficial uses including stream restoration, mitigation planning and outreach. In keeping with our past, all attendees will participate in our Wednesday field tours to see these techniques being applied in the field. For more information, go to [floods.org](http://floods.org)

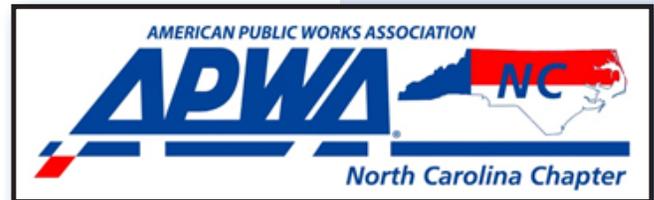


## 2017 APWA-NC Stormwater Management Division Conference

September 17-19 | Greenville Convention Center

The 2017 APWA-NC Stormwater Management Division Conference will be in Greenville on September 17-19 at the Greenville Convention Center. Issues and concerns related to water quality and stormwater management continue to play a significant role in the world of public works, shaping technical focus and policy throughout government and private industry.

Join us as we once again provide a variety of learning opportunities in a fun and friendly atmosphere. Presentation topics and case studies will be focused on the stormwater industry, regulatory compliance, program management, innovative engineering and technology, as well as other topics relevant to the stormwater community. For more information, go to [northcarolina.apwa.net](http://northcarolina.apwa.net).



## SESWA Annual Regional Stormwater Conference

October 11-13 | Galt House in Louisville, Kentucky

Join us in Louisville, Kentucky's largest city, for the 12th Annual Regional Stormwater Conference. This year's event will focus on Stormwater Solutions in Region 4 by providing attendees with a wide array of technologies and strategies to address challenges in stormwater management across the southeast. Attendees will be eligible for up to 15.75 continuing education credits. For more information, see the website at [seswa.org](http://seswa.org).



# Calendar

DETAILS ABOUT MANY OF THE CONFERENCES listed on this calendar is available throughout this newsletter for NCAFPM events and on page 27 for other conferences and events.

## August 14-17, 2017

NATIONAL FLOOD MITIGATION & FLOODPROOFING WKSHP  
Iselin, New Jersey  
[floods.org](http://floods.org)

## September 17-19, 2017

APWA-NC STORMWATER MANAGEMENT DIVISION CONFERENCE  
Greenville, NC  
[northcarolina.apwa.net](http://northcarolina.apwa.net)

## October 11-13, 2017

SESWA ANNUAL REGIONAL STORMWATER CONFERENCE  
Louisville, KY

## October 24-27, 2017

NCAFPM ANNUAL FALL FLOODPLAIN INSTITUTE  
Charlotte, NC  
[ncafpm.org](http://ncafpm.org)

# Floodplain Management

# Resources

## Technical Assistance (State)

### NC Emergency Management National Flood Insurance Program

**NFIP State Coordinator:** Dan Brubaker, PE, CFM  
[dan.brubaker@ncdps.gov](mailto:dan.brubaker@ncdps.gov) | 919-825-2300

#### NFIP Planners

**Central Area:** Milton Carpenter, CFM  
[milton.carpenter@ncdps.gov](mailto:milton.carpenter@ncdps.gov) | 919-825-2302

**Eastern Area:** Heather Keefer, CFM  
[heather.keefe@ncdps.gov](mailto:heather.keefe@ncdps.gov) | 919-825-2289

**Western Area:** Terry Foxx  
[terry.foxx@ncdps.gov](mailto:terry.foxx@ncdps.gov) | 828-228-8526

### NC CLOMR/LOMR Submittals

[www.ncfloodmaps.com/mt-2\\_forms.htm](http://www.ncfloodmaps.com/mt-2_forms.htm)

#### LOMC Manager/Community Development

**Planner:** Steve Garrett, CFM  
[steve.garrett@ncdps.gov](mailto:steve.garrett@ncdps.gov) | 919-825-2316

## Maps & Flood Insurance Studies

### FEMA Map Information eXchange (FMIX)

1-877-336-2627 (1-877-FEMA-MAP)

### Meck. Co. CLOMR/LOMR Submittals

Technical assistance, LOMA/LOMR Requests  
877-336-2627 (877-FEMA-MAP) (toll free)

### NC Floodplain Mapping Program

919-715-5711  
[www.ncfloodmaps.com](http://www.ncfloodmaps.com)

## Technical Assistance (FEMA)

### National Flood Insurance Program Floodplain Management and Insurance Branch: FEMA Region IV

[www.fema.gov/about/regions/regioniv/](http://www.fema.gov/about/regions/regioniv/)

**Branch Chief:** Susan Wilson, CFM  
[susan.wilson@fema.dhs.gov](mailto:susan.wilson@fema.dhs.gov) | 770-220-5414

#### Natural Hazards Program Specialist

Roy McClure, CFM  
[roy.mcclure@fema.dhs.gov](mailto:roy.mcclure@fema.dhs.gov) | 770-220-8835

#### FEMA Region IV Insurance Specialist

Janice Mitchell  
[janice.mitchell@fema.dhs.gov](mailto:janice.mitchell@fema.dhs.gov) | 770-220-5441

### Individual Lot LOMA/LOMR

FEMA LOMA DEPOT  
3601 Eisenhower Avenue  
Alexandria, VA 22304-6425  
Attn: LOMA Manager

### Flood Insurance Policy Issues

**Regional Manager:** Lynne Magel  
[lmagel@ostglobal.com](mailto:lmagel@ostglobal.com) | 813-788-2624

**Regional Liaison:** David Clukie  
[dclukie@ostglobal.com](mailto:dclukie@ostglobal.com) | 813-767-5355

## Websites

NCAFPM..... [www.ncafpm.org](http://www.ncafpm.org)  
ASFPM ..... [www.floods.org](http://www.floods.org)  
FEMA..... [www.fema.gov](http://www.fema.gov)  
NFIP..... [www.floodsmart.gov](http://www.floodsmart.gov)  
NCEM ..... [www.nccrimecontrol.org/nfip](http://www.nccrimecontrol.org/nfip)  
NC Maps ..... [www.ncfloodmaps.com](http://www.ncfloodmaps.com)

**FlashFlood NEWS** is a semi-annual online publication which offers information and education on topics that are of current interest in the field of floodplain management and the National Flood Insurance Program.

Information and opinions do not necessarily reflect the views of the North Carolina Association of Floodplain Managers.

All inquiries and article ideas should be directed to Kelly Keesling at [kgkeesling@carolina.rr.com](mailto:kgkeesling@carolina.rr.com).

For more information about the North Carolina Association of Floodplain Managers, see our website at [ncafpm.org](http://ncafpm.org).

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