Flood Risk Management Program Hail and Farewell

00

ALL OOD RISK MANAGENIER PROGRAM

WILLEY

Workshop Focuses on Storm Surge, Coastal Flood Risk in Maryland

Public Involvement in Flood Risk Management Pilot Program Results in Benefits, Challenges nien

Newsletter



Flood Risk Management Newsletter Examples of Engineers July 2015 • vol 8 no 4

CONTENTS July 2015

- P. 1 Flood Risk Management Program Hail and Farewell
- P. 2 SJ Meeting Conversation Leads to Emergency Protection Project
- P.3 First-of-its-kind Workshop Focuses on Storm Surge, Coastal Flood Risk in Maryland
- P.5 Public Involvement in Flood Risk Management Pilot Program Results in Benefits, Challenges
- P.7 Putting Flood Risk on the Map: Looking at GIS Use at NAB
- P.8 FRM Research Area Review Group Meeting
- P.8 Upcoming FRM R&D Program In-Progress Review
- P.9 Other Important Information



FRM Newsletter

Office of Homeland Security 441 G Street, NW Washington, D.C. 20134-1000

FRM Newsletter is an unofficial publication. Views and opinions expressed are not necessarily those of the U.S. Army Corps of Engineers or the Department of the Army.

> FRM Newsletter Editor: Nadia Taylor, RSC

Layout: Winston Bush, RSC

In This Issue



SJ Meeting Conversation Leads to Emergency Protection Project

A side conversation at the State Hazard Mitigation Advisory Group (SHMAG) meeting ultimately led to the development of an emergency protection project under Section 14 of the US Army Corps of Engineers' Continuing Authorities Program in the small town of Hookerton, NC. **P.2**



ON THE COVER

Public Involvement in Flood Risk Management Pilot Program Results in Benefits, Challenges

USACE has developed strategies for improving public involvement in flood risk management (FRM) and has spent the last two years testing these strategies in a Public Involvement in Flood Risk Management (PIFRM) pilot program.

P.5



Putting Flood Risk on the Map: Looking at GIS Use at NAB

A look at how the Baltimore District uses GIS technology as an effective flood risk management tool.

Flood Risk Management Program Hail and Farewell By Frank Randon, Deputy, Office of Homeland Security

Greetings all. We'll open this issue of the FRM newsletter with a hail and farewell to two well known and wellrespected flood risk managers.



Pete Rabbon

First let us bid farewell to Mr. Pete Rabbon. Pete has expertly served the state and Federal flood risk management community for more than four decades. Being the ultimate professional, he selflessly served and led the flood risk community through the trials of initiating the myriad of activities that comprise the FRM program. Pete, we wish you well in retirement (second retirement) and would be honored if you elect to keep in touch.

Now for our hail! The U.S. Army Corps of Engineers (USACE) National Flood Risk Management Program (NFRMP) is excited to welcome Doug Bellomo to the program. Doug will be supporting the NFRMP from the Institute for Water Resources (IWR) where he will assist with NFRMP program implementation, the Silver Jackets program, levee safety initiatives, and interagency coordination relevant to flood risk management, among other tasks.

Doug joins IWR and the program from the Federal Emergency Management Agency (FEMA) where he most recently served as the Director of the Risk Analysis Division within the FEMA's Federal Insurance and Mitigation Administration. In this role, he was responsible for overseeing division activities including flood hazard mapping as part of the National Flood Insurance Program, natural hazard risk assessment, mitigation planning, as well as implementing the National Dam Safety Program within FEMA.

Doug began his career with FEMA in 1997 as an engineer. Since then he has also served as a Branch Chief and Deputy Division Director. During his career, he has managed people and teams, executed projects, overseen significant change, has been responsible for program planning and budgeting, developed partnerships with the public and private sector groups, and interfaced with the broader public, including members of Congress.

Prior to joining FEMA, Doug worked for Old Dominion University in the Coastal and Hydraulics Lab and as an engineer for a Virginia firm specializing



Doug Bellomo

in flood hazard identification and other water-related challenges.

Doug is a Professional Engineer and holds a B.S. and M.S. in Civil Engineering. He has been working in the fields of flood hazard identification, risk management, and mitigation since 1993.

Welcome Doug! We look forward to your leadership and guidance for years to come.



Doug Bellomo discusses the FEMA Risk MAP Program during a 2011 plenary session at the USACE Flood Risk Management and Silver Jackets Workshop.

SJ Meeting Conversation Leads to Emergency Protection Project By Jason Glazener, Wilmington District



Contentnea Creek, adjacent to the wastewater lagoon in Hookerton, NC

The interagency collaborative focus of the Silver Jackets program recently produced tangible benefits beyond the Flood Risk Management realm. A side conversation at the State Hazard Mitigation Advisory Group (SHMAG) meeting ultimately led to the development of an emergency protection project under Section 14 of the US Army Corps of Engineers' Continuing Authorities Program in the small town of Hookerton, NC.

During the conversation, local and state authorities discussed that Hookerton was desperately in need of a solution to the threat of severe erosion breaching a wastewater treatment facility dike holding in more than three million gallons of raw wastewater. The consequences of this dike failure would be an environmental disaster on adjacent Contentnea Creek, and cause a disruption of wastewater services for the town. The town was not in a position to act alone. Local authorities wanted to know what, if any, assistance could be leveraged to help. Two follow-up interagency meetings were organized to discuss and identify a solution for Hookerton. These meetings included the town officials as well as State and Federal agencies. Everyone agreed that the situation called for action, and was extremely important – but funding was the challenge. For many organizations, the funding programs for this situation were set up to take action after an event. The final solution was a partnership between the state, town of Hookerton, and the U.S. Army Corps of Engineers to construct an emergency protection project under Section 14 of the Corps' Continuing Authorities Program. The feasibility study is underway and the project will soon be heading into design and construction.

This was a great example of what can happen when the interagency collaborative approach of the Silver Jackets program is applied in real world events. Just like in Hookerton, the relationships and connections formed through the SJ program can bring into the spotlight other problems or opportunities which can be tackled by members of the group, either as a group or through their own agency avenues.



An eroded stream embankment at the wastewater lagoon dike in Hookerton, NC

First-of-its-kind Workshop Focuses on Storm Surge, Coastal Flood Risk in Maryland

By Sarah Gross, Baltimore District



National Hurricane Program Manager Chris Penney, Planning Division, U.S. Army Corps of Engineers, Baltimore District, speaks about storm surge forecasting to more than 70 participants from various agencies to kick off the two-day Maryland Coastal Flood Workshop in Chester, Maryland, March 11, 2015. (U.S. Army Photo by Sarah Gross)

"Wind gets all the notoriety," said Meteorologist Nate Hardin. "But, in reality, water is where our focus should be."

Hardin works for the National Oceanic and Atmospheric Administration (NOAA), National Hurricane Center (NHC), Storm Surge Unit. He spoke to more than 70 participants from various agencies to kick off a two-day Maryland Coastal Flood Workshop, held March 11 – 12, in the small Eastern Shore town of Chester.

The Maryland Silver Jackets team was able to get this first-of-its-kind workshop funded that brought together state, county, and city floodplain managers, emergency managers, planners, and regulatory specialists to talk about storm surge and coastal flood risk for this Mid-Atlantic state. The conversations that surfaced at the workshop – just a few months shy of the start of Hurricane Season - could have great implications for the entire state. Storms are becoming stronger and more prevalent, and they are wiping out entire coastal communities – and not just along the Gulf Coast.

"In the past 50 years, storm surge has caused 49 percent of the deaths in the U.S. attributable to Atlantic tropical storms."

Discussion topics included characteristics of storm surge and how to forecast it in Maryland, as well as current warning products and National Weather Service (NWS) tools being used at the local level.

"This conference provides experts in the field with the opportunity to chip away at hurricane misconceptions," said Chris Penney, National Hurricane Program manager, Baltimore District.

You may have heard the adage – run from water; hide from wind. One common public misconception is that the major concern during a hurricane is the intensity of the wind; however, coastal flooding is actually the main hazard of a hurricane most likely to cause death.

In the past 50 years, storm surge has caused 49 percent of the deaths in the U.S. attributable to Atlantic tropical storms. "You can breathe in 100 mph wind, but you can't breathe under 7 feet of water," said Penney.

Another common public misconception discussed is that it is the category of the storm that influences storm surge. Category 1 "Superstorm" Sandy told a different story.

Interpreting surge forecasts and communicating that information to the public is not an easy task. Whereas the public has a tangible frame of reference when hearing a snow prediction of 3 inches, details of storm surge are a little hairier. The NHC is working on tools and improving forecasting models that will aid community leaders in eliminating complexities in how storm surge risk is communicated when a hurricane is bearing down on their area in order to provide simple information that people can act on. The end goal is to minimize severe under or over evacuation.

This year, NWS is unveiling an interactive storm surge watch/warning experimental graphic that compliments the existing storm surge flooding map and highlights areas of life-threatening coastal flooding in order to better execute evacuations. This graphic, including colors, labels and text, was tested extensively by social scientists through focus groups to ensure the most intuitive tool would be put on the street.

The workshop concluded with breakout sessions in which participants discussed the applicability of recent studies, and new tools and approaches to plan for hazard mitigation and resiliency in Maryland's communities. Maryland flood risk tools, as well as FEMA's nonregulatory Mapping, Assessment and Planning (Risk MAP) products were showcased, including a demonstration on using MDFloodmaps.com for importing storm surge data and overlaying the data on floodplain maps for comprehensive risk assessment.

Through this workshop, Maryland officials are now armed to use the latest storm surge forecasting tools available in order to communicate risk in a way that resonates with their community members – to save lives and property.

Other participating agencies at the workshop included Maryland Emergency Management Agency, FEMA, Maryland Department of Natural Resources, and Maryland Department of the Environment.



Meteorologist Nate Hardin, National Oceanic and Atmospheric Administration, National Hurricane Center, Storm Surge Unit, discusses the dangers of storm surge and a new tool being developed to show the potential effects of storm surge during hurricanes at the Maryland Coastal Flood Workshop, Chester, Maryland, March 11, 2015. (U.S. Army Photo by Sarah Gross)

Public Involvement in Flood Risk Management Pilot Program Results in Benefits, Challenges

By Maria Lantz, USACE Conflict Resolution and Public Participation Center of Expertise (CPCX)

Communicating flood risks to the communities we serve is a daunting task. In addition to the communication challenge, it is even more challenging at times working with communities at risk to figure out what should be done about these risks, and who is responsible. This in particular is also one of the most challenging parts of working in the USACE Flood Risk Management Community of Practice.

The consequences of the effectiveness, or lack thereof, of these activities were brought to light in the aftermath of Hurricane Katrina, and USACE has been working ever since to improve the way we communicate about flood risk. As part of this effort, USACE developed strategies for improving public involvement in flood risk management (FRM) and has spent the last two years testing these strategies in a Public Involvement in Flood Risk Management (PIFRM) pilot program.

The PIFRM pilot program was prefaced on experts' conclusions that if we increase engagement with the communities in which we are trying to reduce risks, we will achieve better FRM outcomes and save lives. The pilot program was a joint activity of the National Flood Risk Management Program (NFRMP) and USACE's Conflict Resolution and Public Participation Center of Expertise (CPCX). To foster increased engagement, the PIFRM pilot program's goals were to 1) demonstrate the process for determining the appropriate level of public involvement; 2) improve USACE's capacity to engage the public and agency partners at the county, state, and Federal levels; and 3) identify best practices for improving two-way communication with key stakeholders for various types of flood risk management activities.



An aerial view of the Ala Wai Canal, one of 12 projects in the Public Involvement in Flood Risk Management (PIFRM) pilot program. The Ala Wai Canal Project is in the feasibility phase. The feasibility study is investigating and evaluating solutions to environmental degradation and flood damage problems throughout the entire Ala Wai watershed (Manoa, Palolo, and Makiki drainages, including Waikiki and surrounding areas). The objective is to develop a comprehensive integrated plan that recommends a coordinated approach by all Federal, State, and local agencies and the communities to improving the overall watershed health.

"The pilots were able to increase communities' awareness of their flood risks and spurred discussions on how the participants should share responsibility for addressing those risks."

Twelve pilot projects were selected from across the FRM lifecycle and the eight USACE Divisions to pilot different aspects of increased public and partner engagement. Types of projects included Dam Safety Modification Studies, Levee Safety, FRM planning Feasibility Studies, a Hurricane Evacuation Study, and interagency collaboration groups. Nearly all of the pilots involved collaboration by multiple agencies and some were led by interagency teams like Silver Jackets. In one case, a local County hazard mitigation agency initiated and led the pilot, with guidance from the local Corps District, to address flood risk management and communication.

Over the course of two years, collaboration specialists from the CPCX, their contractors, and USACE Public Involvement Specialists provided direct technical support to District staff in an effort to increase internal awareness of the value of public involvement and build the District's capacity to increase public involvement in their FRM activities. Activities included developing public involvement and risk communication plans, facilitating the implementation of these plans and related meetings, and creating stakeholder groups or committees who jointly discussed the project or broader FRM approaches for their community. Through activities such as the development and/or implementation of public involvement plans, stakeholder discussions, or



A view of the Blanchard River flooding Ottawa, OH in March 2011. The Blanchard River Watershed study was one of 12 projects in the Public Involvement in Flood Risk Management (PIFRM) pilot program. The General Investigation/Feasibility Study will be performed to assess flood risk management needs and opportunities for the restoration of fish and wildlife habitat within the Western Lake Erie Basin Blanchard River Watershed. Frequent flooding has impacted the quality of life in the watershed and hindered economic development efforts. The study will provide a framework to support sustainable development in the watershed.

convening stakeholder committees, the pilots were able to increase communities' awareness of their flood risks and spurred discussions on how the participants should share responsibility for addressing those risks.

Despite briefing upper management and building District capacity for engaging communities and raising awareness of flood risks, the pilots encountered many internal barriers to increasing community engagement. Competing requirements and limited funding often pushed public involvement to the bottom of resourcing priorities, the highly technical nature of risks made communicating about them difficult and time-consuming, and there is still widespread inexperience in USACE in organizing or leading collaborative, two-way communication efforts. Some Districts even prefer minimal public involvement so as to limit exposure to potential criticism, while other Districts' complex interactions between technical divisions or "silos" (e.g., engineering-dam safety, planning and emergency management) made coordinating public involvement a challenge.

The pilots revealed that it's best to have a team or contractor with public involvement experience, supporting a designated point of contact who leads the risk communication and public involvement components of the project. The pilots also demonstrated that for risk communication to be effective, stakeholders need to be involved throughout the project lifecycle. Finally, despite agency-wide agreement that we need to do more to communicate risks and engage communities, we still have a long way to go to actualize this increased level of engagement.

A report summarizing the pilot program findings, to include best practices for public involvement and risk communication, will be available in June as a resource for the flood risk management community.

For more information on the Public Involvement in Flood Risk Management pilot program, contact Eileen Takata (SPL) or Hal Cardwell (IWR). **M**

FRM Projects:

- 1. Whittier Narrows Dam Safety Modification Study, Los Angeles District (SPL), CA
- 2. Ala Wai Canal Feasibility Study, Honolulu District (POH), HI
- 3. Interagency Development of a Flood Risk Reduction Public Information Strategy and Demonstration for the Arkansas River and Tributaries, Tulsa County, Oklahoma, Tulsa District (SWT), OK
- 4. Passaic River Main Stem Flood Risk Management Project, New York District (NAN), NJ
- 5. Minnesota River FRM Community Workshops, St. Paul District (MVP); Rock Island District (MVR), IL
- 6. Clackamas County / Upper Sandy River Flood Risk Action Committee, Portland District (NWP), OR
- 7. Big Blue and Kansas River Confluences Interagency Technical Action Workgroup and Public Action Workgroup, Kansas City District (NWK), MO
- 8. 2013 Georgia Hurricane Evacuation Study, Savannah District (SAS), GA
- 9. Upper Cedar River FRM Community Workshops, Rock Island District (MVR), IL
- 10. Blanchard River Watershed Study, Buffalo District (LRB), NY
- 11. Interagency Floodplain Area Roundtables, Kansas City District (NWK), MO
- 12. Pajaro River Flood Control Project, San Francisco District (SPN), CA

Putting Flood Risk on the Map: Looking at GIS Use at NAB By Sarah Gross, Baltimore District



GIS Program Manager Jared Scott, Baltimore District, demonstrates how to use new internal GIS portal at the District Headquarters, April 2015. (U.S. Army Photo by Sarah Gross)

"Being able to illustrate a complex concept with a single image - whether it's a PDF or web map - is always satisfying," said Jared Scott, U.S. Army Corps of Engineers, Baltimore District GIS program manager. "It's surprising how much information a single image can convey - and is critically important when it can potentially save properties and lives."

The Baltimore District uses Geographic Information Systems (GIS) for a variety of initiatives, including mapping the potential extent of flood stages during storms and delineating floodplains.

GIS is a critical flood risk management tool - both internally and externally - for our stakeholders and the public.

Scott has been hard at work building and developing content for the Baltimore District Geospatial Portal that uses ArcGIS technology to display and share GIS content, internally. This emerging technology allows non-GIS professionals at the district to easily view and even manipulate geospatial data online.

For instance, the Emergency Management Map features layers that include flood risk reduction projects (both federally and locally operated), key stream gauges, and sandbag locations. The Flood Risk Management (FRM) Overview Map shows projects by national flood hazard layer, as well as by Congressional district. These FRM projects may also be sorted by ongoing and recent studies, request for assistance, known flood risk, and Hazard Mitigation Grant Program applicants.

The district's GIS Data Store organizes and stores many major base map layers such as roads, potential flooding, topography and aerial imagery. "This high-quality data can be used to create contour lines for a visual depiction of change in elevation at a specific location," said Scott. "It can also be used within software programs to model water flow through a river."

GIS is much more than a map. It is a pivotal tool that helps depict important information and aids in critical decision making.

Externally, there are several GIS tools available to the general public, such as the National Levee Database (NLD) and the National Inventory of Dams. Each of these tools allows the public to view and search GIS datasets that are managed nationally by the Corps.

Through its easy-to-use map interface, the NLD allows the public to know their risk and insure their risk. This will prove to be a critical tool later in 2015, as the district works with local sponsors to communicate to the public on the risks associated with the levees in their communities upon completion of levee screenings. Results will help prioritize limited resources and urgency for action to drive better flood risk management decisions.

The Baltimore District is home to the National Hurricane Program Office, which centrally manages all Corps technical support as part of the Federal **Emergency Management Agency's** (FEMA) National Hurricane Program. Within this program, the Corps and FEMA work with National Oceanic and Atmospheric Administration (NOAA) to conduct hurricane evacuation studies with the ultimate goal of helping locals understand their evacuation timeline.

Scott and his team have created several products for the National Hurricane Program. One GIS product maps the potential extent of inundation during different categories of hurricanes. Scott created a model that compares the outputs from the Sea, Lake, and Overland Surges from Hurricanes (SLOSH) storm-surge model with

topography along the coast to create a detailed hurricane inundation map. This model has even gained national recognition. National Geographic Magazine used this model to create a graphic that shows what may happen to New York in 2100 if a Sandy-like storm surge with a high tide and sea level rise of five feet hit the metropolis: <u>http:// bit.ly/NatGeoSLOSHSandy. For more information of SLOSH, visit http:// www.nhc.noaa.gov/surge/slosh.php.</u> The district's GIS team has also been heavily involved in the GIS component of the North Atlantic Coast Comprehensive Study (NACCS). Building upon lessons learned during Hurricane Sandy, NACCS intent is to help local communities better understand changing flood risks associated with climate change and to provide tools to help those communities better prepare for future flood risks. The GIS team developed several products including a geodatabase that contains vector GIS information from various geospatial analyses. All NACCS Geospatial and Modeling products can be viewed in their own section on the NACCS website: http://www.nad.usace.army.mil/ compstudy.

Help put flood risk on the map. Know the tools and resources available to you, and share them! Remember, a simple image may help save a life.

FRM Research Area Review Group Meeting

By Cary Talbot, USACE Engineer Research and Development Center - Coastal and Hydraulics Laboratory

The Flood Risk Management (FRM) Research Area Review Group (RARG) meeting was held on May 15, 2015 at the Institute for Water Resources (IWR) headquarters in Alexandria, VA. The meeting is held annually to review the Flood & Coastal Storm Damage Reduction R&D Program, discuss strategic needs, and review and prioritize Statements of Need (SoN) submitted by the field through the FRM gateway.

A new procedure for selecting RARG participation was employed this year as described in a draft EC on the Corps' Civil Works R&D process. According to the new procedure, each Business Line Manager (BLM) selects RARG participants from across the business line.

Bob Bank, acting by assignment as the technical BLM for FRM R&D, selected the RARG participants this year, which consisted of: Bob Bank (E&C), Jeff Jensen (FRM BLM), Jennifer Dunn (FRM), Doug Gorecki (Planning-Econ), Chandra Pathak (HH&C CoP), Meg Jonas (HH&C CoP), Chris Westbrook (Structural CoP), Rob Grubbs (EM CoP), and Joe Koester (Geotech CoP).

The RARG reviewed 40 submitted SoNs, each with an advocate from the

various CoP leads or designatees. 18 of the 40 were removed from consideration by the RARG as being already addressed, overtaken by events or combined with other SoNs. The remaining 22 are being ranked based on the prioritization given by each RARG member. The ranked list will represent the highest priority needs for consideration in the FY16 FRM R&D work plan formulation.

The FY15 RARG meeting also included a presentation on the draft FRM R&D Strategic Plan which is being developed with input from Business Line senior leaders, CoP leaders, R&D senior leaders and researchers, academia, industry, and partner Federal agencies. The FRM R&D Strategic Plan aims to lay out a 5-year strategic vision for FRM R&D and define its connection to USACE Campaign Plan goals. The R&D Strategic Plan development is being coordinated by Joan Pope and Sandra Knight and is expected to be finalized by November 2015.

The FRM Gateway and the link for submission of Statements of Need by the Field are located at: <u>http://operations.</u> <u>usace.army.mil/flood.cfm.</u> POC for the FRM RARG Meeting is Cary Talbot (Cary.A.Talbot@usace.army.mil).

Upcoming FRM R&D Program In-Progress Review

By Cary Talbot, USACE Engineer Research and Development Center - Coastal and Hydraulics Laboratory

The annual In-Progress Review (IPR) of the Flood & Coastal Storm Damage Reduction R&D Program work units will take place August 26-27, 2015 at the Coastal & Hydraulics Laboratory on the ERDC campus in Vicksburg, MS.

Principal Investigators (PIs) for each of the program's work units will present the FY15 progress achieved towards delivering the products and capabilities in their respective project management plans.

IPRs are conducted in person and open to all but will also be made available for remote participation by interested Corps employees via webinar and telecom. The exact schedule of presentations as well as remote participation information will be made available in early August.

The POC for the FRM IPR is Cary Talbot (Cary.A.Talbot@usace.army.mil). ₩

Other Important Information

Conferences

This listing is for information only and is not a complete list of FRM-related meetings. These meetings are not endorsed by the Corps of Engineers unless specifically stated. If we have failed to list a conference/meeting/symposium that would be of interest to the Flood Risk Management community, please forward the conference details to us.

8-11 September 2015 – Floodplain Management Association – FMA 2015 Annual Conference – Rancho Mirage, CA - <u>http://</u> floodplain.org/annual-conference

9-11 September 2015 – **Coastal Structures '15** – Boston, MA – <u>http://www.asce.org/templates/membership-communities-</u> <u>committee-detail.aspx?committeeid=000010043917</u>

20-22 September 2015 – **EcoSys Conference** – Orlando, FL – <u>http://www.ecosys.net/information-center/user-</u> <u>conference-2015/</u>

19-22 October 2015 – **MTS/IEEE Oceans '15** – Washington, DC – <u>http://oceans15mtsieeewashington.org/</u>

26-28 October 2015 – **"Dune Management Challenges on Developed Coasts" Workshop** – Kitty Hawk, NC Denver, CO POC: Nicole Elko, nelko@elkocoastal.com

16-19 November 2015 – American Water Resources Association (AWRA) Annual Conference – Denver, CO – <u>http://</u> www.awra.org/meetings/Denver2015/

10-14 January 2016 – **96th American Meteorological Society** Annual Meeting – New Orleans, LA – <u>https://ams.confex.com/</u> ams/ 21-24 March 2016 – **National Hurricane Conference** – Orlando, FL - <u>http://hurricanemeeting.com/</u>

19-24 June 2016 – Association of State Floodplain Managers (ASFPM) – Grand Rapids, MI – <u>http://www.floods.org/index.asp?menulD=223</u>

27-29 June 2016 – **13th International Conference on Modeling, Monitoring and Management of Water Pollution** – San Servolo, Venice, Italy – <u>http://www.wessex.ac.uk/16-</u> <u>conferences/water-pollution-2016.html?utm_source=wit&utm_</u> <u>medium=email&utm_campaign=wp16cfp&uid=183374</u>

29 June – 1 July 2016 – **5th International Conference of Flood Risk Management and Response** – San Servolo, Venice, Italy - <u>http://www.wikicfp.com/cfp/servlet/event.</u> <u>showcfp?eventid=45833</u>

Good to Know

FRM Statements of Need: Submitting "Statement of Need" is the first step in the process of a concept becoming a requirement for research and development. If USACE District personnel have problems or situations they feel should be addressed by research, the Flood Risk Management Gateway, http:// operations.usace.army.mil/flood.cfm, is the place to submit these research Statements of Need (SoNs).

Past issues of this newsletter, various links, news items, and presentations, are all available on the Flood Risk Management Gateway, http://operations. usace.army.mil/flood.cfm. Check it out!

Save the Date

2015 Flood Risk Management Workshop,

30 Nov-4 Dec 2015, Southbridge, MA

This newsletter is a product for and by the Flood Risk Management Community. The views and opinions expressed in this unofficial publication are not necessarily those of the U.S. Army Corps of Engineers or the Department of the Army.

If you would like to submit an article or an idea for an article for the next edition of the newsletter, or if you have any comments or questions about articles in this edition, please email <u>Stephanie.N.Bray@usace.army.mil.</u>





US Army Corps of Engineers