Flood Risk Management Newsletter

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Table of Contents

Informal Leadership

Mark Roupas, HQ

Mark Roupas

Informal leadership is a topic that has been on my mind lately. I think that informal leadership is one of the many factors that lead to organizational and programmatic success, including the success we enjoy in the Emergency Management and Flood Risk Management (FRM) Communities of Practice.

For the purpose of this article, an informal leader is someone within an organization or work unit who by virtue of how he or she is perceived by his peers (or others in the organization) is seen as worthy of paying attention to, or following. The distinguishing element between an informal leader and a formal one is that the informal leader does NOT hold a position of power or formal authority.

At its most basic level, the concept of leadership is fairly straightforward; leadership is the process by which we influence others to implement a new product, program or process, or even more simply, accomplish the mission. In a military organization, it is easy to identify who the formal leaders are by looking at the organizational chart or in many cases, a review of the job title associated with the individual.

Formal organizational leaders provide the direction and long-range goals for our enterprise. Examples of this are the USACE vision and mission statement that are part of the USACE

Campaign Plan. Our Campaign Plan outlines how we will attain both the Chief's vision and mission statement through the four stated goals. One of these goals listed under objective 3c is "Enhance interagency disaster preparation and mitigation capabilities." One way that USACE will accomplish this goal will be to make use of the internal and interagency expertise in flood risk management offered by our National Flood Risk Management Program and our externally-focused Silver Jackets program.

I was able to observe the role and importance of informal leadership during the 2014 Interagency Flood Risk Management Project Workshop held August 19-21 in Southbridge, MA. During this working meeting, I was able to observe firsthand the power informal leadership has to define and implement U.S. Army Corps of Engineers (USACE) programs and directions. It is within working meetings such as these that our FRM Project Managers (PM) and Silver Jackets (SJ) Coordinators articulate and inform others about USACE authorities, roles, and missions; and become voices for USACE in advancing our messages of managing flood risk, advancing risk communications, and leveraging the resources of all partner agencies.

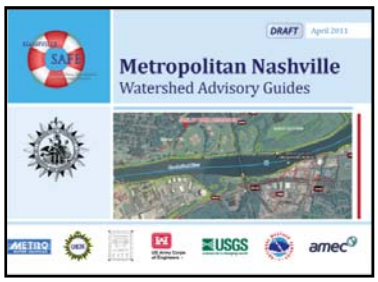
It is my strong belief that our FRM and SJ team members working with our internal and external partners, including partners on these State led interagency teams, play an exceedingly valuable role in our ability to articulate our programs and policies to outside organizations, which forms the basis of success to those agency goals established by our formal leadership.

I would like to close by encouraging everyone involved in the FRM and SJ program team to recognize the role you have to play as an informal leader. The power to ensure that the vision, missions, and programs of USACE, including the National Flood Risk Management Program (NFRMP), are successfully implemented is not insignificant. Further, the ability of an informal leader to get things done will not go unrecognized. If you are not familiar with the concept of informal leadership, I would encourage you to read up on the topic; there are numerous articles and sources of information readily available on this topic. To continue the success that we have had to date through the NFRMP and SJ programs, we will need as many informal leaders as possible, so I encourage you all to continue to serve in this role.

Nashville Flood Preparedness

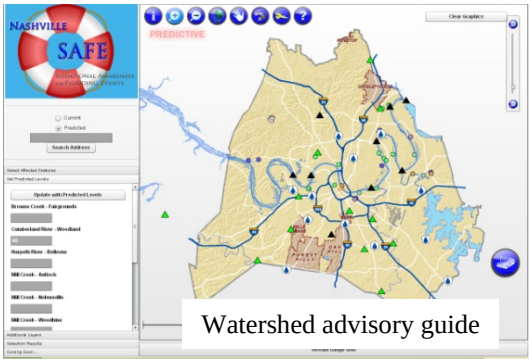
Sue Ferguson, LRN

Nashville Flood Preparedness is a multiagency flood risk management project under Planning Assistance to States (PAS). As a result of the May 2010 flood in middle Tennessee, the city of Nashville is partnering with USACE to update hydrology and hydraulic models for over 400 miles of streams and to develop flood inundation maps for use in the Nashville Situational Awareness of Flood Events (SAFE) program. A multiagency roundtable that includes USGS, NWS, and FEMA was formed. About 70% of the streams in Davidson County have been updated and will be included in FEMA's countywide Flood



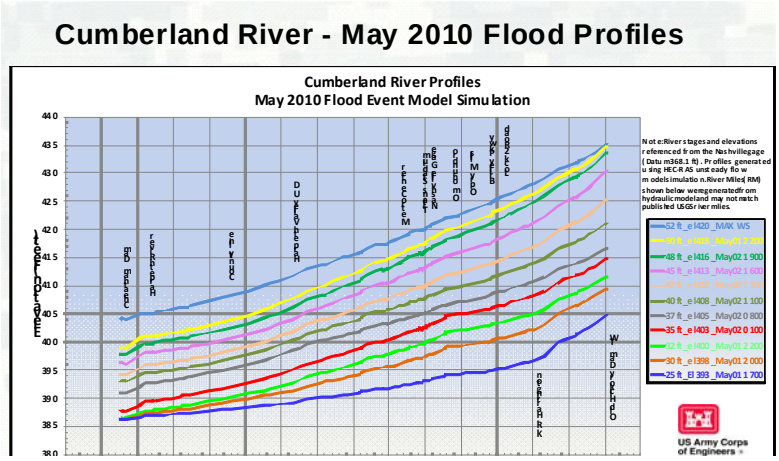
Nashville SAFE home page

Insurance Study update. The remaining streams will be completed as federal funding becomes available.



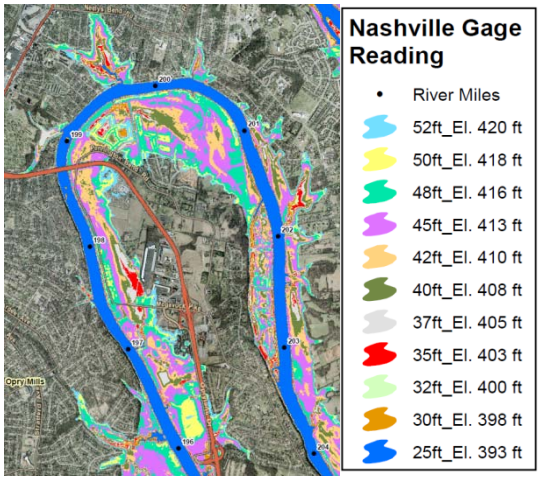
Watershed advisory guide

The models developed by USACE also support inundation mapping for each stream for 11 scenarios. On the Cumberland River, the scenarios are based on river stages (see graph below). For the creeks, which tend to be flashy, the scenarios are based on rainfall amounts. The inundation maps are available in the SAFE tool and Watershed Advisory Guides which are detailed looks at what is vulnerable in each major watershed. GIS-based SAFE is used in Nashville's emergency operations center to help visually track incoming emergency calls and predict where services will be needed. The inundation mapping shows what is likely to be impacted by a specific rainfall amount on a specific creek. It can show when roads and bridges will be overtopped and should be closed, when neighborhoods will need to be evacuated, or where sandbagging is needed. It allows the emergency managers to predict impacts and better leverage resources. The watershed advisory guides are valuable during emergencies and for preplanning.



Profile shows that a NWS prediction at the Nashville gage (Mile 190) can be 8 feet higher at the water treatment plant (mile 205).

Nashville developed another tool, NERVE (Nashville's Emergency Response Visualization Engine), for public notification. It can show road closures, locations of shelters, water distribution centers and much more. Although it is only active during emergencies, the link is http://maps.nashville.gov/nerve/index.html



Inundations based on readings at the Nashville Gage and account for slope of the river

The USGS supported obtaining real-time gage information and added several new gages. They helped convert the city's MS4 rain gage network to real-time reporting. They assisted with new data loggers, supplied web cameras at critical locations, hosted data, and assisted Nashville in obtaining updated LIDAR. The NWS added new forecasting points and updated action levels at existing locations. They also educated city staff on forecasting. FEMA is incorporating as much of the new modeling as practical into the countywide FIS update.

The ideas behind the Nashville SAFE tool are being shared with other cities and counties in Tennessee through Silver Jackets. When the May 2010 rainfall was modeled upstream of Chattanooga, flooding would have been worse than in Nashville. A roundtable with local, state, and federal agencies, including TVA, is ongoing and FIS updates and inundation modeling have begun there. (POC: Sue Ferguson, Sue.L.Ferguson@usace.army.mil)

Yukon River Flood Disaster – City of Galena, Summer 2013

Tim Young, POD

In May 2013 the community of Galena, AK was ravaged by severe flooding when ice jams at Bishop Rock, 30 miles downstream of Galena, caused the Yukon River to overtop its bank. The City of Galena experienced extensive flooding, with some locations under nine feet of water. Nearly every structure in Galena was damaged by floodwater and massive chunks of ice. Approximately 500 residents were displaced. State officials described the Yukon River Flood as the worst natural disaster in Alaska for decades. Subsequently, on 25 June 2013 the President signed a federal disaster declaration, with FEMA taking the lead role in recovery efforts.

Ice Jam Flooding on Yukon River, City of Galena - May 2013

The Silver Jackets (SJ) Core Team Charter was executed on 7 May 2013, creating the State of Alaska Silver Jacket SJ Interagency Flood Risk Management (FRM) Team in anticipation of the imminent flood threat posed to communities along the Yukon River. A primary goal of this charter was to ensure continuous collaboration between Federal, State and regional/local agencies for flood mitigation and response and recovery activities before, during and after flooding.

The Corps took an active recovery role in the Galena floods. Mission assignments included providing regional support by activating the emergency operations center and assigning emergency response personnel to the joint field office in Anchorage; surveying high water marks and preparing a baseline study; delivering project management support for long term recovery and infrastructure development; conducting geotechnical investigation of the existing levee at the Galena airport to determine its structural integrity; conducting a study of ice-affected flood stage frequency; and providing technical assistance with debris removal.

There is also a long term goal. The Pacific Ocean Division's Flood Risk Management (FRM) Annex supplements the National FRM PgMP in addressing public safety and reducing flood damages to local communities and tribes through flood risk management programs and authorities. A letter of request was received by the Corps in April 2014 from the City of Galena seeking assistance for a Section 205 Flood Control Study along the Yukon River in the vicinity of Galena. POD is currently awaiting funding and approval to initiate a Continuing Authorities Program (CAP) new start for this study. The program will continue to foster open and collaborative planning between partners and stakeholders in achieving the primary goal of flood risk reduction. (POC: Tim Young, Timothy.D.Young@usace.army.mil)

6th International Conference on Flood Management

Lisa Bourget, IWR

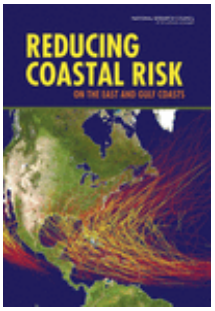
Mr. James Dalton joins an international panel to present lessons learned from recent floods.

USACE participated in the 6th International Conference on Flood Management (ICFM6), 16-18 September 2014 in São Paolo, Brazil. The conference, "Floods in a Changing Environment," provided an interdisciplinary forum for sharing experience on flood hazard assessment, vulnerability analyses, and flood risk management strategies, better equipping those attending to address the special requirements imposed by changing environments and climate. The triennial international conference is the only recurring international conference focused on flood management, drawing hundreds of participants from over 30 nations. USACE participation allowed for engagement with these flood risk management professionals. Mr. James Dalton, Chief, Engineering and Construction, HQUSACE, presented information on lessons learned from various recent disasters during the event's closing plenary session. Mark Roupas (HQ), Lisa Bourget (IWR), and Chris Dunn (HEC) presented five technical papers about examination of the calculation of flood losses in the United States, accomplishments of the Silver Jackets program, development of national flood risk characterization, and advancements in USACE Hydrologic Engineering Center's software development and use. Poster displays provided information regarding two additional technical papers about the North Atlantic Coast Comprehensive Study (Roselle Henn, NAD) and the effectiveness of federal floodplain management in the United States (Stephanie Bray, HQ). Chris Dunn joined plenary session discussions regarding an International Flood Initiative being promoted through a UNESCO water centre in Japan (the International Centre for Water Hazard - ICHARM) and supported by a UNESCO water center headquartered at USACE-IWR (the International Center for Integrated Water Resources Management – ICIWaRM.) Lisa Bourget facilitated U.S. plenary invitations, including one to Dr. Jerad Bales (USGS) on floods and climate change, and led an international review of conference poster submissions for an award issued through the organizing committee. Technical papers are available in online conference proceedings and will be considered for possible publication in the International Journal of Flood Risk Management. ICFM7 is planned

for September 2017 in Leeds, UK, under the title “Resilience to Global Changes – Expecting the Unexpected.” (POC: Lisa Bourget, Elizabeth.C.Bourget@usace.army.mil)

New NAS Report on Coastal Flood Risk Released

Lauren Leuck, IWR



The National Academy of Sciences recently released a report on coastal flood risks along the East and Gulf Coasts. Population and expanding development in the coastal zone of these regions has led to a significant increase in coastal storm-related losses over the past century. Climate change and relative sea-level rise will only intensify the impacts of coastal storms in the future.

The report explores strategies to reduce risk from coastal storms and their associated storm surges. Information about the costs, benefits, and performance of risk reduction strategies, including structural, nature-based, nonstructural and building design measures, were reviewed by the study. The report identifies the need to further quantify and investigate the risk reduction benefits of nature-based solutions.

The study reviews two different approaches for determining investments in coastal risk reduction: a benefit-cost approach and a risk-standard approach and provides the strengths and weaknesses of both. The study also presents principles that could guide future investments in risk reduction strategies.

The report committee explored the institutional landscape of federal, state, and local coastal risk reduction efforts. From this review, they determined that the lack of alignment at these various governmental levels has resulted in inappropriate incentives and inefficiencies that increase exposure to risk. Exacerbating these issues, funding to address coastal risks is typically only provided after a disaster occurs through emergency supplemental appropriations. The report also calls for a national vision to inform the management of coastal storm risks taking into account life-safety, environmental, economic, and social benefits. The need for a long-term view and regional solutions are also discussed. The study identified the need to comprehensively evaluate coastal risks on a regional basis but it was also noted that in order for the USACE to effectively do this, Congressional authorizations and appropriations would be needed to analyze these risks on a regional or national level.

This study was sponsored by the U.S. Army Corps of Engineers and is part of a five-year effort with the USACE to explore a range of engineering, scientific, and water resources planning issues. More information, including the report, can be found at: http://dels.nas.edu/Report/Reducing-Coastal-Risks-East/18811.

2014 Interagency Flood Risk Management Project Workshop – A Success

Stephanie Bray, HQ, & Katie Noland, IWR

The 2014 Interagency Flood Risk Management Project Workshop, held at the Executive Management Training Center, a Defense Department facility in Southbridge, MA, from August 19-21, was a huge success. The focus of this workshop was to learn from our collective experience with interagency projects over the last several years and to improve future efforts that use interagency projects to develop shared solutions to flood risk management challenges. The workshop brought together 125 partners. Approximately 55 percent of participants were USACE representatives, 19 percent represented partner Federal agencies, and 26 percent represented state and local government partners.

Ms. Karen Durham-Aguilera, Director of Contingency Operations, Homeland Security, and Regional Integration Team Leader for the Northwestern and Pacific Ocean Divisions, opened the workshop by providing participants with broader context about current topics in flood risk management. She highlighted some key focal areas of the workshop, including the need to improve our efforts to leverage the resources of all partners and the need to continue to work together to get to action that reduces flood risk through interagency projects.

Participants next heard from a panel of Federal agency representatives about the benefits their agencies had experienced through participation with Silver Jackets teams. This session focused on demonstrating the value that Silver Jackets teams can offer other Federal agencies that may not participate broadly on teams, to assist in better communicating these benefits to new potential partners. A second panel presented programs and resources of other Federal agencies that may not be well known among the Silver Jackets teams. Both panels helped teams think of new partners to involve and new ways to engage with these partners to further increase the range of resources, programs, and authorities available for leveraging.

Additional panel discussions focused on interagency projects. During one session, a group of representatives from the Minnesota and Wisconsin, Nebraska, and Washington teams provided an overview of the interagency projects that have been conducted or are underway. Another panel focused on trends, drivers, and developments in flood risk management that may influence future interagency projects. Both panels spurred new thinking about topics and approaches to consider in future interagency projects. The final interagency project panel focused on details of how to get a successful interagency project started.A number of common themes were identified that are also broad common themes that help develop a successful team.

The workshop provided a significant amount of time for interaction between the participants, allowing futher sharing of ideas and lessons learned. Topics of group discussions included communicating the successes of interagency projects, identification of challenges and development of possible solutions to these challenges, and development of a communication

strategy for teams and participants to use when they returned to their home offices and normal business.

In identifying and discussing common challenges faced by teams in implementing interagency projects, participants developed a prioritized list of the most critical challenges and a list of challenges that were believed to be the "easiest" to address. Challenges that appeared on both lists were identifying interagency partner resources within various funding cycles and the funding constraints faced by all partners. Other critical challenges included preventing future at-risk development; developing nonstructural measures in a structural culture; and identifying shared goals among all partners that will be acted on at the conclusion of a project.

Mark Roupas, Deputy for Homeland Security, closed the workshop with some of observations and his challenge to participants. A few important points Mark emphasized were: 1) keep the big picture (which is reducing flood risk) in mind by focusing on the team rather than an individual agency; 2) find local champions or sponsors who will use the product of the interagency project and engage them early; and 3) reach out and engage all partners, including the partners that have not been traditionally engaged. Mark challenged all participants to continue to be advocates for the Silver Jackets approach by communicating to each potential partner the benefits of participation and by using examples to highlight the successes experienced through the program, teams, and projects.

All workshop materials will be posted online and available through either the NFRMP (http://www.iwr.usace.army.mil/Missions/FloodRiskManagement/FloodRiskManagementProgram.aspx) or Silver Jackets (http://www.nfrmp.us/state/index.cfm) websites. POC: Stephanie Bray (Stephanie.N.Bray@usace.army.mil).

FRM-EWN Collaborative Meeting

Since the 1970's, the fields of engineering and ecology have come together only in fits and starts to better engineer in harmony with natural forces, particularly in development of infrastructure and the built environment. No practice has been substantiated as a fully-fledged solution to the problem of developing and operating infrastructure in balance with natural systems. Recent advances in knowledge and practice for engineering and ecological systems offers an opportunity to integrate these practices into a single collaborative approach for infrastructure development that provides economic, social, and environmental benefits – Engineering With Nature (EWN).

The core EWN Strategy encourages adoption of EWN principles and practices across USACE business lines and mission areas by first engaging internal leaders and early adopters and then reaching out to external partners and stakeholders to effectively collaborate to establish and achieve common goals. Navigation was the first mission area to embrace EWN.

An opportunity was created to introduce and build support for EWN into the practices within Flood Risk Management (FRM). On 10-11 June 2014, approximately thirty scientists from the FRM and EWN teams around the Corps came together for a collaborative meeting sponsored by Todd Bridges, Senior Research Scientist for Environmental Sciences, Bill Curtis, Technical Director for Flood and Coastal Systems, and Jeff Lillycrop, Technical Director for Navigation. The purpose of the workshop was to introduce the FRM team to the principles and practices of EWN, along with progress to date, then work collaboratively to: a) define potential demonstration projects in FRM; b) define an EWN research agenda for FRM and c) determine how best to incorporate EWN into FRM guidance.

Participants represented diverse backgrounds, interests and expertise, as well as a range of experiences. Each was assigned to one of two Breakout Groups. With the support of a facilitator and dedicated note taker, each Group systematically identified opportunities to build support for EWN into the practices of FRM.

The groups identified challenges, opportunities and next steps for integrating EWN and FRM. They also listed possible partners, documents to write, policy challenges, and possible R&D directions. All of these are under consideration by the meeting coordinators.

Flood Risk Communication Webinar Series

Stacy Langsdale, IWR

This monthly series is a venue for presenting everything on flood risk communication - hot topics, lessons learned, and training. This is a great opportunity to generate dialogue around this topic that is critical to our mission. The first three webinars have been well-attended and are stimulating conversation among our organization! Past webinar slides and audio recordings are available at the Risk Analysis Gateway – Learning Management Center – http://corpsriskanalysisgateway.us/lms/webinars.cfm .

Topics to date:

- FEMA's National Flood Risk Awareness Survey (see next article)
- "DSAC I, 100-Year Floods and other Myths" – *Dr. Charlie Yoe*
- "Boosting Local Preparedness – Stories from the Georgia Hurricane Evacuation Study & Northwest Flood Fighting Training Workshops' – *J. Morris, M. Lantz, and L. Miller*.

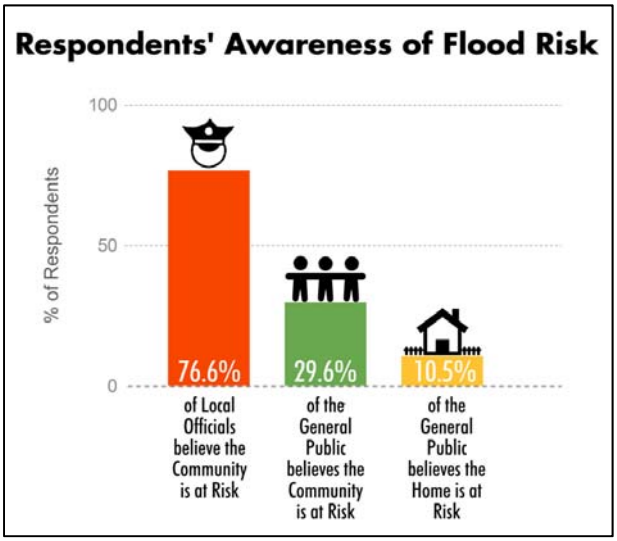
Upcoming Events – 22 October 2014, 2 p.m. EDT **–** "Can we Achieve a Risk Informed, Cost Responsible Approach to our Nation's Flood Risk Management?" – *L, Shabman, Resources for the Future; Paul Scodari, IWR*

If you have questions or ideas for future topics, please contact Stacy Langsdale at Stacy.M.Langsdale@usace.army.mil.

National Flood Risk Awareness Survey Highlights Opportunities to Improve Risk Communication with Communities

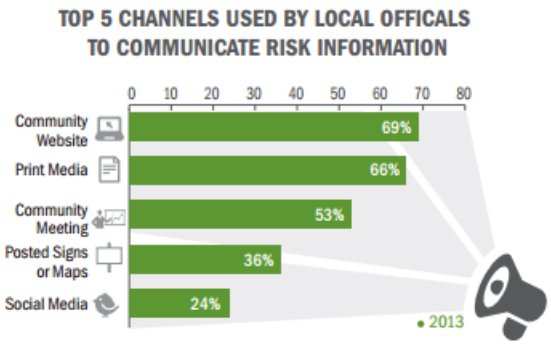
Stacy Langsdale, IWR

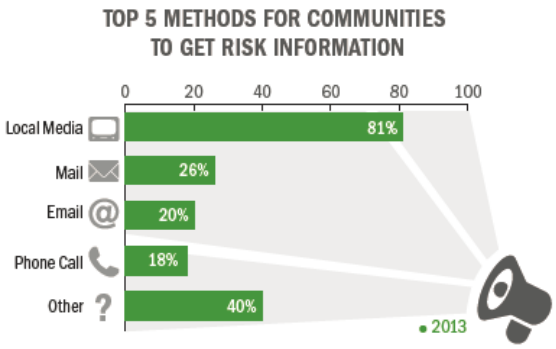
The Federal Emergency Management Agency (FEMA) annually conducts a Flood Risk Awareness survey of both local officials and the general population of the U.S. Presented here are some key results from the 2013 survey that are quite relevant to flood risk communicators. The responses, from 1710 local officials and 1022 members of the general public across the country, reveal citizens are much less aware of their community's flood risk than their local officials, and that local officials do communicate risk, but not by the modes where people would prefer to receive their information. This suggests that by better matching preferred communication modes, local officials may more effectively build awareness of flood risk among their communities.



Flood Risk Awareness. Seventy-seven percent of local officials identified their community as being at risk of flooding. This is an increase in the level of awareness among local officials compared to previous years. However, the level of awareness among the general population was less than half this value! Among the general population, only thirty percent of respondents believe their community is at risk of flooding, a level that has been fairly consistent in all four years the survey has been administered. Furthermore, the majority of respondents who believed their community was at risk did not believe their home was at risk.

How Flood Risk Information is Communicated and Received. The general public respondents overwhelmingly prefer local media as a source of information about flood risk in general. Four out of five survey respondents identified "local media" (e.g., newspapers, TV, radio) as one of the top three ways they would like to receive information about their flood risk.





US Army Corps of Engineers

ERDC Engineer Research and Development Center

Despite the public's preference for local media, local officials typically rely on different communication channels to deliver flood risk information. When asked to describe their community's methods to inform and educate citizens about flood hazards and mitigation actions, local officials cited community website (69%) and traditional print media (66%). Community meetings were also a commonly cited channel (53%).

When and What to Communicate? Additional key findings include:

- One in four survey respondents reported looking for flood risk information. A recent move to a new residence was the single most commonly cited reason for flood risk research.
- Seven out of ten respondents reported taking at least one form of hazard risk mitigation action. Of the respondents who had acted to reduce their risk, their safety and the safety of their families was the most commonly cited reason. Nearly half of respondents raised their furnace or water heater, about a quarter bought flood insurance and another quarter sealed their basement walls.

Summary. The findings from this study can be leveraged to inform or adjust outreach, community engagement, and marketing strategies. Despite increasing awareness of flood risk among local officials, there continues to be a need to increase awareness among the general public. Local media continues to be a great resource for getting these stakeholders flood risk information. The survey results also indicate that raising the furnace or water heater can be used as a tangible example of a mitigation activity that could increase a home's value and resilience during or after a flood. Findings also suggest that a recent residential move is a prime opportunity to deliver flood risk information to citizens, to help them protect their investment through mitigation action or insurance.

To learn more about the 2013 Flood Risk Awareness Study findings, visit http://www.fema.gov/protecting-our-communities/local-official-survey-findings-flood-risk or http://www.fema.gov/protecting-homes/public-survey-findings-flood-risk . For questions, contact Vince Brown at Vincent.Brown@fema.dhs.gov or Stacy Langsdale at Stacy.M.Langsdale@usace.army.mil .

FEMA's 4-Day 273 Course
Managing Floodplain Development Through the National Flood Insurance Program

The FEMA Emergency Management Institute (EMI) G273 course will be offered 10-13 November in Conway, AR. Cosponsors are ASFPM, FEMA, and the Arkansas Natural Resources Commission. This course is designed to provide an organized training opportunity for local officials responsible for administering their local floodplain management ordinance. The course will focus on the NFIP and concepts of floodplain management, maps and studies, ordinance administration, and the relationship between floodplain management and flood insurance. It is a great opportunity for CFMs to complete their CEC requirements for this certification year.

A separate (optional) CFM exam will be held on Friday, November 14th. Course attendance is NOT required to sit for the CFM exam. Please see the course flyer, at http://www.floods.org/n-calendar/uploads/AR_273_Promo_FILLABLE.pdf, for more information.

Course registration is free, but you must be registered to attend.

USACE Sea Level Change ETL Published

USACE Sea Level Change Technical Letter, ETL 1100-2-1, *Procedures to Evaluate Sea Level Change: Impacts, Responses, and Adaptation*, is published and available at http://www.publications.usace.army.mil/USACEPublications/EngineerTechnicalLetters.aspx . This technical letter provides guidance for understanding the direct and indirect physical and ecological effects of projected future sea level change on USACE projects and systems of projects and considerations for adapting to those effects. This ETL addresses adaptation to changing sea levels. It includes a broadly applicable method encompassing four USACE mission areas and also provides insight into use for multipurpose projects. The information presented here is applicable to the full range of USACE projects and systems, from simple to complex, from small to very large, and over the full life cycle. The expiration date is 30 March 2019.

Other Links – Information, Newsletters, Fun Stuff

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!

Climate Change Newsletter: An online newsletter produced by the U.S. Army Corps of Engineers as an unofficial newsletter under the provisions of AR 360-1, to provide information about USACE climate change adaptation issues, policies, tools, and methods. It is available at http://www.corpsclimate.us/cca.cfm. Click on the 'Latest News' in the left column, then look in the right-hand column for the newsletter link.

CIRP Newsletters are available at http://cirp.usace.army.mil/ in the "Publications" drop-down.

The Silver Jackets website, with newsletters – http://www.nfrmp.us/state/.

Flood Risk Management Program (FRMP) –
http://www.iwr.usace.army.mil/Missions/FloodRiskManagement/FloodRiskManagementProgram.aspx

CEIWR-HEC newsletter - http://www.hec.usace.army.mil/newsletters/HEC_Newsletter_Fall2013.pdf

The National Ocean Council's portal for data, information and tools supports planning for the future of the ocean, our coasts, and the Great Lakes. This site hopes to become a one-stop hub to support planners and to provide useful information to the public – http://www.data.gov/ocean

The U.S. Department of Interior periodically releases its newsletter, "Newswave." The Spring 2014 issue has just been announced. The site also contains archived issues. All are available on the DOI Ocean, Coasts & Great Lakes Activities homepage at – http://www.doi.gov/pmb/ocean/news/Newswave/index.cfm .

SELECT FY15 PROSPECT COURSES

FY15 Prospect Courses		
Streambank Erosion and Protection	Vicksburg, MS	23-27 March 2015
Water and the Watershed	Davis, CA	17-21 November 2014
Corps Water Management System Modeling	Davis, CA	1-5 December 2014
Risk Analysis for Flood Damage Reduction Projects	Davis, CA	26-30 January 2015
Dam Safety	Grenada, MS	2-5 February 2015
	Grenada, MS	2-5 March 2015
	Grenada, MS	30 March-2 April 2015
	Branson MO	4-7 May 2015
	Royal, AR	8-11 June 2015
Wetland Development and Restoration	Apalachicola, FL	23-26 February 2015
Coastal Project Planning	Duck, NC	27 April-1 May 2015
	Duck, NC	4-8 May 2015
Risk Communication and Public Involvement	Huntsville, AL	21-23 April 2015
Wetland Stream Ecology Basic	Kalispell, MT	17-20 August 2015
Wetland Development and Restoration	Olympia, WA	31 August-2 September 2015
Wetland River Function/Ecology	Kalispell, MT	6-9 October 2015

FY15 Purple Book course listings and schedules – http://ulc.usace.army.mil/

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.

1-6 November 2014 – 7th National Summit on Coastal and Estuarine Habitat Restoration – Washington, DC – http://www.estuaries.org/conference/

4-5 November 2014 – 6th Annual Texas Flood Warning Workshop - The Highs and Lows of Hydrologic Extremes – Grand Prairie, TX – **RESCHEDULED to Fall 2015** http://www.hydrologicwarning.org/content.aspx?page_id=0&club_id=617218

8-11 December 2014 – ACES (A Community on Ecosystem Services) 2014 – Washington, D.C. – http://www.conference.ifas.ufl.edu/aces/

16-18 December 2014 –5th International Conference on Energy and Sustainability 2014 – Putrajaya, Malaysia – http://www.wessex.ac.uk/14-conferences/energy-and-sustainability-2014.html

4-8 January 2015 – American Meteorological Society – Phoenix, AZ - http://annual.ametsoc.org/2015/index.cfm/registration/

13-14 Jan 2015 – International Conference of Flood Resilience – ICFR – 2015 – Zurich, Switzerland - https://www.waset.org/conference/2015/01/zurich/ICFR

23-25 February 2015 – International LiDAR Mapping Forum – Denver, CO – http://annual.ametsoc.org/2015/index.cfm/registration/

27-28 February 2015 – 7th World Water Forum – Gyeongju, Republic of Korea – worldwaterforum7.org

6-8 Mar 2015 – 5th International Conference on Water and Flood Management – Dhaka, Bangladesh - http://forum.susana.org/forum/categories/21-events/8413-5th-international-conference-on-water-and-flood-management-6-8-march-2015-dhaka-bangladesh

23-24 Mar 2015 – National Flood Determination Association – 18th Annual Conference – Scottsdale, AZ - http://www.nfdaflood.com/conferences-events/

30-31 Mar 2015 - 3rd IMA International Conference on Flood Risk – Swansea, Wales, UK - http://physicsworld.com/cws/event/2015/mar/30/3rd-ima-international-conference-on-flood-risk

19-23 April 2015 – SEDHYD 2015 – 10th Federal Interagency Sedimentation Conference & 5th Federal Interagency Hydrologic Modeling Conference – Reno, NV - http://www.sedhyd.org/2015/

27-28 April 2015 – Global Water Summit: The Water Value Revolution – Athens, Greece – http://www.watermeetsmoney.com/

11-14 May 2015 – Coastal Sediments 2015 – San Diego, CA – http://coastalsediments.cas.usf.edu/

12-14 May 2015 – 2nd National Adaptation Forum – St. Louis, MO – http://ecoadapt.org/programs/awareness-to-action/national-adaptation-forum

17-20 May 2015 – National Flood Conference – Washington, DC – http://pcievents.cvent.com/events/national-flood-conference/event-summary-a9531dd9e9e7459b8409e3442669a1db.aspx

18-21 May 2015 – MTS/IEEE Oceans 2015 – Genova, Italy - http://www.oceans15mtsieeegenova.org/index.cfm

20-22 May 2015 4th International Conference on Disaster Management and Human Health: Reducing Risk, Improving Outcomes – Istanbul, Turkey – http://www.wessex.ac.uk/15-conferences/disaster-management-2015.html

31 May – 4 June 2015 – 2015 Society of Wetland Scientists: Changing Climate; Changing Wetlands – Providence, RI - http://www.sws.org/

31 May – 5 June 2015 – Association of State Floodplain Managers – Atlanta, GA – http://www.floods.org/n-calendar/dayevents.asp?id=3814&type=6&date=5/31/2015

3-5 June 2015 – 10th International Conference on Ecosystems and Sustainable Development – Valencia, Spain – http://www.wessex.ac.uk/15-conferences/ecosud-2015.html

15-17 June 2015 – Water Resources Management 2015 - 8th International Conference on Sustainable Water Resources Management, A Coruña, Spain – http://www.wessex.ac.uk/15-conferences/water-resources-management-2015.html

15-18 June 2015 – NHWC 2015 Training Conference & Exposition – Indianapolis, IN - TBA

17-19 June 2015 – River Basin Management 2015 – 8th International Conference on River Basin Management - A Coruña, Spain – http://www.wessex.ac.uk/15-conferences/river-basin-management-2015.html

7-9 July 2015 – Coastal Cities 2015 – International Conference on Coastal Cities and their Sustainable Future – New Forest, UK – http://www.wessex.ac.uk/15-conferences/coastal-cities-2015.html

15-17 July 2015 – Water and Society 2015 – 3rd international Conference on Water and Society – A Coruna, Spain – http://www.wessex.ac.uk/15-conferences/water-and-society-2015.html

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We would also appreciate your feedback. Contact Dinah McComas, Managing Editor, Dinah.N.McComas@usace.army.mil or Doyle Jones.