Flood Risk Management Newsletter

April 2014 vol 7 no 3

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Reflections on the Flood Risk Management Program

Mark Roupas, Deputy Chief, USACE Office of Homeland Security

When I was asked to pen an article on my thoughts regarding my first 90 days as the Deputy Chief, Office of Homeland Security as the first in a series of recurring messages to the flood risk management community of practice, my first thought was, "where did the time go?" It has been the most fast-paced, informative, and exciting learning experience in both my military and civilian careers.

It's humbling and an honor and privilege to work with so many talented professionals who make up this enterprise we call the United States Army Corps of Engineers (USACE). In my nine years serving as the USACE liaison to the Office of the Assistant Secretary of Defense for Homeland Defense and Americas' Security Affairs, I focused more on the USACE Emergency Management roles, responsibilities, and authorities. I was able to learn about flood risk management in some of my activities, especially in working on the National Mitigation Framework (NMF) under Presidential Policy Directive 8 (PPD-8), but this was just the tip of the iceberg. In my first 90 days in this office, I have developed a better understanding of USACE's role in flood risk management and a much more detailed practical understanding of what we do. Let me outline some of the many actions, issues and projects on which we are currently working.

Through the Flood Risk Management program we are working to improve the nation's resilience to flooding and to better prepare the United States for the impacts of climate change. This office is directly supporting an interagency group working to create a federal flood risk management standard

for making major federal investments. This effort is part of the President's Climate Action Plan, which directs Federal agencies to "update their flood-risk reduction standard," and part of Presidential Policy Directive #8, National Preparedness. You can learn more about this topic in a more detailed article later in this edition (ed: article by Katelyn Noland, page 6).

The Federal Interagency Floodplain Management Task Force (FIFM-TF), a federal interagency collaborative effort co-chaired by ASA(CW) and FEMA, is actively engaged in several flood risk management efforts. One focus area includes identifying federal expenditures associated with flood loss and flood risk management. The purpose is to better understand how much the federal government spends on flood events in order to develop a set of baseline conditions that can be used to measure our progress as we continue to implement sound floodplain management policies at the national, regional, state, and local levels. Additionally, a sub-group of coastal subject matter experts is engaged in a review of coastal flood risk management resources, to make highly relevant resources more readily available and understood on the National Oceanic and Atmospheric Administration's (NOAA) Digital Coast website. This activity will also review existing coastal needs assessments and identify gaps that the FIFM-TF agencies can work together to fill.

There is also an important ongoing policy revision to highlight. You should be aware by now that USACE has revised and updated its policy for the PL 84-99 rehabilitation program. The final policy was released 21 March 2014, after having draft interim policy guidance released for internal review in mid-February. This effort reflects a larger change in our strategic direction, which advances risk-informed decision making and incorporates broader concepts of flood risk management and risk communications. Updates to the interim policy also incorporate the philosophy and concepts associated with the System Wide Improvement Framework (SWIF). Our SWIF philosophy supports our "fix-the-worst-first" systems approach to reduce risk to life safety, while reducing impacts to the environment and locally impacted economies.

We are making plans for a 2014 Flood Risk Management working meeting, August 19-21 in Southbridge, MA. Attendance at this gathering will be limited in accordance with current conference guidance. In fact, the concept has evolved to a working meeting focused on advancing performance of collaborative interagency projects. The meeting will review successes and challenges of past projects, further develop the strategy for completion of interagency projects, assess interagency project metrics, establish metrics for USACE support to interagency teams, and build a model for improved leveraging in FPMS program execution. Expect to hear more about this working meeting in the coming months as plans are further developed.

There are many other FRM activities working at Headquarters and IWR, such as development and refinement of the National Flood Risk Characterization Tool and finalization of the report "Improving Corps of Engineers' Contributions to Flood Risk Management." My intent is to address more of these efforts in future newsletters. I see this newsletter, along with "The Buzz" (the Silver Jackets Program newsletter), and the new Emergency Management CoP newsletter as opportunities to communicate among our communities of practice internally and externally. I asked my staff to work with the team responsible for developing and editing this newsletter to identify potential changes we could make that would create a stronger communication tool for us all. If you have any suggestions please feel free to share them with us; my point of contact for this is Katie Noland (Katelyn.M.Noland@usace.army.mil).

I hope to be able to meet many of you in person and continue learning about our involvement in flood risk management as budget and schedules permit travel to your locations. Thank you for your many contributions to making USACE the nation's premier engineering organization and for your support in improving our flood risk management community.

CRP Flood Damage Reduction Benefits to Downstream Urban Areas – An MVD Initiative – MVR Pilot Project

Jason Smith, Chris Hawes, Greg Karlovits - MVR

A pilot project was conducted in 2012-2013 by the Mississippi Valley Division (MVD) and the US Department of Agriculture–Farm Service Agency (USDA-FSA) to address the question, "what flood reduction benefits do Conservation Reserve Program (CRP) lands provide downstream urban areas?" The pilot project utilized the physically-based Gridded Surface Subsurface Hydrologic Analysis hydrologic model (GSSHA), GIS-based scenarios, and an economic structure inventory in order to evaluate the impact of upstream changes in CRP practices on downstream urban flood damages in the Indian Creek 10-digit Hydrologic Unit Code (HUC-10) sub-basin in Linn County, IA.

This pilot concluded that the type and spatial location of these conservation practices has a large effect on the hydrologic response and resulting economic benefits realized over a range of rainfall frequencies and antecedent moisture conditions. In Indian Creek, CRP lands may provide hundreds of thousands to millions of dollars in flood damage reduction benefits to urban areas.

Scenarios that represent reductions and increases in CRP lands from the current extent (2012 data provided by FSA) were simulated in the GSSHA model. Comparison of the reduction scenarios to the existing conditions scenario showed that the CRP practices currently in place have a hydrologic effect and provide economic benefits to urban areas in Indian Creek. Scenarios that increased CRP lands by targeting specific practices were simulated with GSSHA. Evaluation of the targeted riparian buffers and wetlands scenarios show that riparian buffers are most effective dollar for dollar in reducing flood stages and economic losses in Indian Creek. The "without CRP" and "practice specific" scenarios were evaluated across a range of rainfall frequencies and antecedent moisture conditions. Scenarios run for typical and wetter than normal antecedent soil conditions resulted in changes in flood stage and damages for rainfall events greater than the 24-hr, 25-yr storm event. Economic data was spatially aggregated to index points representing clusters of structures within the floodplain. The index points may be compiled in any fashion such that the total cost and benefits may be evaluated for a single point, a stream segment or for the entire basin. Figure 1 displays the change in stage and resulting damage reduction for targeted implementation of riparian buffers versus no CRP at a designated index point in the watershed. Data was aggregated to 28 index points throughout the Indian Creek HUC-10 subbasin.

Table 1 and Figure 2 display the difference in economic losses occurring for the entire Indian Creek basin for the respective scenarios.

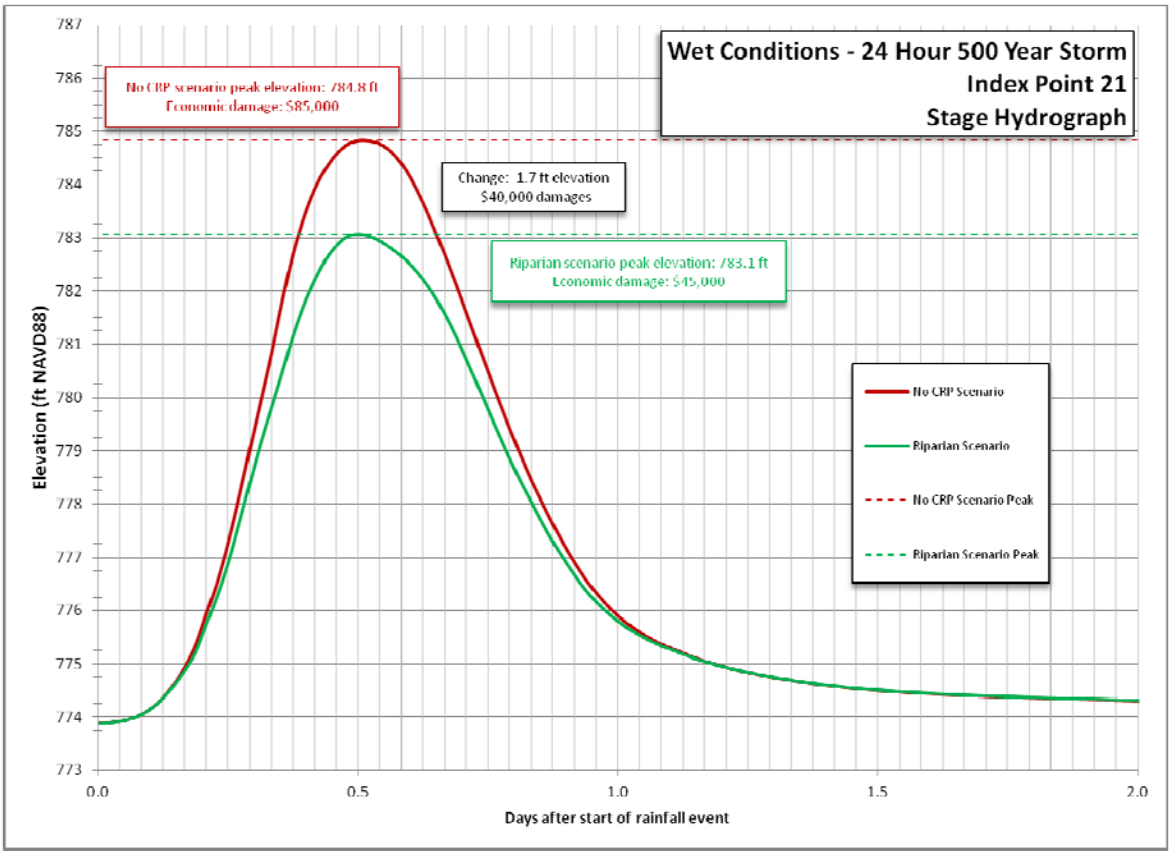

Figure 1. Index Point 21 Stage Hydrographs for the Wet Antecedent Condition 24-hr, 500-yr Rainfall Event Showing the Riparian-Targeted and Total CRP Loss Scenarios

An attempt was made to scale up results from the physically-based GSSHA model in Indian Creek to the entire Cedar River basin using a Soil and Water Assessment Tool (SWAT) hydrologic model developed by USGS-Iowa Water Center. The Total CRP Loss and Targeted Riparian Practice-Type scenarios developed for Indian Creek were evaluated but resulted in no measurable relationship between land use changes and changes in flood stage. An extreme water quality scenario was run through SWAT as a sensitivity analysis and also resulted in no measureable relationship between land use changes and changes in flood stage. Limitations within the SWAT model design and the initial model purpose for the Cedar River SWAT model led to this result.

Table 1 Indian Creek Basin Economic Damages for All Land Use Scenarios for the Wet Condition 24-hour 500-year Storm

Scenario	Damages	Change From Baseline
Total CRP Loss	$926,702	
Partial CRP Loss	$910,688	-2%
Current Land Use	$897,065	-3%
Targeted Wetland Practice-Type CRP Gain	$822,223	-11%
Targeted Riparian Practice-Type CRP Gain	$806,073	-13%
Combined Riparian and Wetland CRP Gain	$752,853	-19%

Results from this pilot effort are presented on a web-based visualization tool to further communicate the spatial significance of conservation practices on hydrology and associated economic losses. The web-based visualization tool is located at http://s-iihr71.iihr.uiowa.edu/home_page/home_page.html.

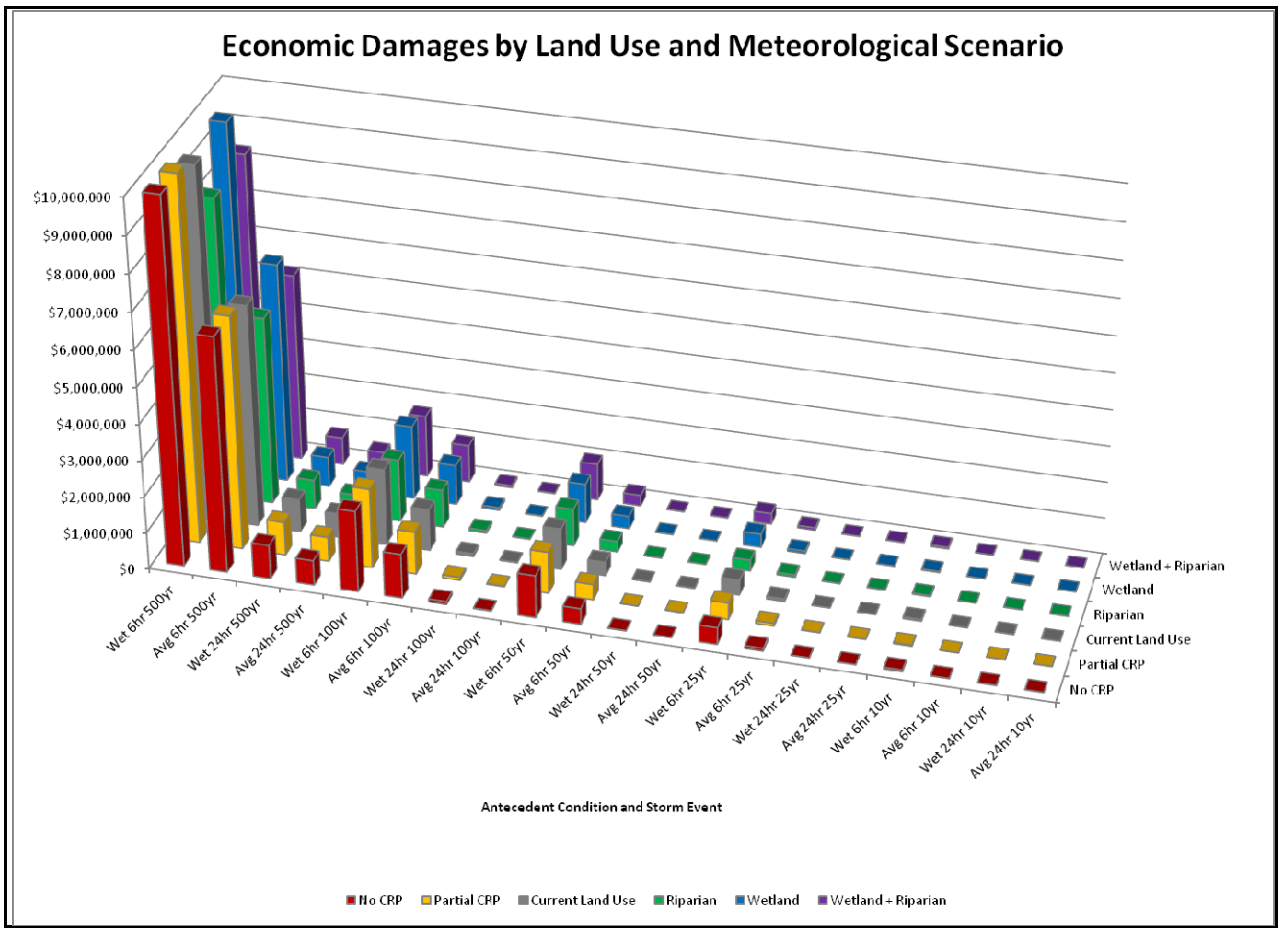

Figure 2. Economic Damages by Land Use and Meteorological Scenario for the Indian Creek Basin

For question please contact Jason T. Smith, Jason.t.smith2@usace.army.mil.

Report Details Full Array of USACE Coastal Risk Reduction Measures

As Hurricane Sandy and other events have demonstrated, coastal areas are particularly vulnerable to hazards. Reducing the risk in coastal areas of the U.S. is important to the nation since these regions are essential economic drivers for the entire country, supporting port commerce, fisheries, and revenue streams for state and local governments. A variety of approaches can be used to reduce the risks of hazards to coastal areas.

"Coastal Risk Reduction and Resilience: Using the Full Array of Measures," a recently published paper, discusses the U.S. Army Corps of Engineers' (USACE) capabilities to reduce risks posed to coastal areas and improve resilience to coastal hazards through an integrated planning approach that draws from the full array of coastal risk reduction measures. Coastal risk reduction can be achieved

through a variety of approaches or combination of approaches, including natural or nature-based features (e.g., wetlands and dunes), nonstructural interventions (e.g., policies, building codes and emergency response such as early warning and evacuation plans), and structural interventions (e.g., seawalls and breakwaters).

The USACE approach to coastal risk reduction considers the engineering attributes of the various measures, the dependencies among features, and the full range of environmental and social benefits produced by component features of each measure. The types of measures employed, their configuration within the network of features, and the planning and engineering approaches that are applied in developing the integrated system of risk reduction will depend on the geophysical setting, desired level of risk reduction, constraints, objectives, cost, reliability, and other factors.

As the report discusses, there has been renewed interest in coastal risk reduction efforts that integrate the use of natural and nature-based features (NNBF). Natural features are created through the action of physical, geological, biological and chemical processes over time. In contrast to natural features, nature-based features are created by human design, engineering, and construction in concert with natural processes to provide specific services, such as coastal risk reduction and other ecosystem services (e.g., habitat for fish and wildlife). This renewed interest in NNBF reveals the need for improved quantification of the benefits, value and coastal risk reduction performance of nature-based defenses. The effective implementation of an integrated approach to flood and coastal flood hazard mitigation relies on a collaborative, shared responsibility framework between federal, state, and local agencies and the public.

The report is available through the Responses to Climate Change website. Report authors include Dr. Todd Bridges (USACE Engineer Research and Development Center), Roselle Henn (USACE North Atlantic Division), Shawn Komlos (USACE Institute for Water Resources), Debby Scerno (USACE Directorate of Civil Works), Dr. Ty Wamsley (USACE Engineer Research and Development Center), and Dr. Kate White (USACE Institute for Water Resources).

Federal Agencies Develop Federal Flood Risk Management Standard for Major Federal Investments

Katelyn Noland, IWR

In compliance with the *President's Climate Action Plan* which directs Federal agencies to "update their flood-risk reduction standard," and as part of Presidential Policy Directive #8, National Preparedness, federal agencies developed a draft Federal Flood Risk Management Standard (FFRMS). The standard provides guidance for minimum level risk management measures to be taken against flood hazards using the best available, actionable science on current and future risks when making major federal investments that could directly or indirectly affect flood risks.

The draft standard was developed by the Mitigation Framework Leadership Group (MitFLG) FFRMS workgroup in consultation with the Senior Advisor for Preparedness and Resilience of the National Security Staff. The workgroup consists of three subgroups: policy, stakeholder engagement, and

science. The U.S. Army Corps of Engineers (USACE) Flood Risk Management program office staff is actively involved in all subgroups and supporting this interagency work to create the standard.

The standard builds on work done by the Hurricane Sandy Rebuilding Task Force, which announced in April 2013 that all federally funded Sandy-related rebuilding projects must meet a consistent flood risk reduction standard. That standard is currently applicable to projects funded by the Sandy Supplemental (Public Law 113-2) and will be applicable to future disaster recovery efforts in the region. The *Hurricane Sandy Rebuilding Strategy* noted in Recommendation 2 that the effort increasing the standard connects to the policy goal in the *President's Climate Action Plan*.

The *Hurricane Sandy Rebuilding Strategy* document directed the National Security Staff (NSS) to coordinate the effort to update flood risk reduction standards for federally-funded projects beyond the Sandy-affected region. The name of the standard was changed from "federal flood risk reduction" to "federal flood risk management" by the MitFLG action officers since the term management better captured all components of actions taken to reduce and minimize flood risks.

In developing the recommendation for the standards, the FFRMS subgroups, comprised of subject matter experts from interested departments and agencies, completed the following:

- reviewed existing implementing vehicles, including *Executive Order 11988, Floodplain Management*, and ongoing efforts to revise EO 11988, and recommended the most appropriate mechanism to implement the revised standard;
- considered the *Infrastructure Systems Rebuilding Principles* developed by the USACE and National Oceanic and Atmospheric Administration (NOAA) following Hurricane Sandy;
- explored options to enhance and restore natural and beneficial functions of floodplains, and considered where avoidance of a flood hazard would be the preferred option;
- explored alternative or additional flood risk data sets and/or risk assessment methodologies that consider regional differentiation of flood risk, coastal versus riverine flood hazards, future flood risk including urbanization, climate change and sea level rise, and the useful life of the asset; and
- developed criteria for future updates to the Federal Flood Risk Management Standard.

The Federal Flood Risk Management Standard was submitted to the MitFLG Principals for approval in March 2014. Following this approval, the draft standard will be presented to the National Security Council for Interagency Policy Committee review by 15 June 2014. (POC: Katelyn Noland, Katelyn.M.Noland@usace.army.mil)

Review of Flood Risk Management and Silver Jackets Program Implementation

Stephanie Bray, HQ

While the Flood Risk Management (FRM) and Silver Jackets (SJ) Programs are implemented in every Division and District within the nation, they are not implemented in the same way in every Division or even in every District within a Division. When Mark Roupas became the Deputy Chief of the Office of Homeland Security and the Director of the Flood Risk Management Program, he realized the importance of understanding these regional variations and requested meetings with the FRM and SJ teams in each Division. This was accomplished through webinars, providing a fantastic

opportunity for Roupas and the FRM and SJ Programs teams at HQ and IWR to better understand the depth and breadth of program activities, as well as for the Division and District teams to share experiences across their Divisions and with HQ.

Many program successes were showcased during these webinars. A number of Divisions highlighted their progress in developing Division-level Annexes to the 2012 National Program Management Plan (PgMP). In the Mississippi Valley Division (MVD), the Commander approved the Division Annex in February 2014. The development experience resulted in a Division-wide dialogue on FRM and increased the engagement of Division leadership with the FRM and SJ Programs. For SWD, meanwhile, the process of developing the PgMP Annex has allowed for the Division and Districts to evaluate where their programs fit into the USACE Campaign Plan.

Engagement with external partners at all levels of government and even outside the government sector was also frequently highlighted as a success:

- Huntington District holds annual meetings with FRM project sponsors, and with other federal or private sector partners when beneficial, to ensure regular engagement;
- other Districts have worked to develop increased partnerships and non-conventional partnerships for improving our collaborative efforts;
- the North Atlantic Division (NAD) highlighted the benefits of engaging SJ teams before, during, and after Hurricane Sandy, ensuring that all partners knew each other's roles and responsibilities, thus avoiding duplication of effort in the immediate response and recovery; and
- involvement in the Joint Field Office (JFO) is an emerging opportunity that was highlighted several times for future events or that has been recently implemented.

These webinars also encouraged discussion of program implementation challenges. The need for further integration of internal programs related to FRM was highlighted several times. Internal coordination and collaboration are critical tenets of the FRM and SJ Programs as many aspects of flood risk management fall under the responsibility of other programs or Communities of Practice. External coordination challenges, especially with state partners, were also highlighted since the structure of state government can make it difficult to bring all relevant state partners to the table.

In this fiscally constrained environment, funding was another common challenge identified, especially as related to limiting face-to-face interaction with partners - meetings which help build relationships and establish trust. We must find a way to continue allowing for this direct interaction. Managing flood risk in coordination with other water-related challenges, such as fluvial erosion, drought, or wildfire, was also discussed. For instance, how does the SPD FRM and SJ team maintain a focus, internally or externally, on flood risk management challenges in the midst of a severe drought in California?

Throughout the Divisions, numerous common approaches and activities were identified, including involvement in:

- various Flood Plain Management Services (FPMS), Planning Assistance to States (PAS), or Section 205 studies addressing FRM challenges in their areas of responsibility;
- the Levee Safety Program, through inspections, screenings, and levee safety outreach;
- development or implementation of Hazard Mitigation Plans and support of long-term state plans such as Hazard Mitigation Plans or Comprehensive Plans; and

- participation in FEMA's Discovery Meetings, associated with the Risk Mapping, Assessment, and Planning (RiskMAP) efforts, which strengthens our partnership with FEMA and enables us to jointly educate communities on their flood risk, options for managing that risk, and our abilities, jointly and independently, to assist them.

While it was informative to learn about Division similarities, it was equally informative to learn about distinctions in approaches and activities. For example, program guidance recommends focusing on all four phases of the flood risk management life-cycle. Almost all Divisions, Districts, and state teams are heavily involved in planning and mitigation activities; however, the level of involvement in the preparation, response, and recovery phases varies. The approaches being taken to develop Division PgMP Annexes also varies. In some Divisions a single division-level regional Annex is being prepared, while in others each District will prepare their own Annex to supplement the Division Annex. Some Divisions have used the Annex development process as a method to obtain stronger leadership engagement with these programs.

A distinction among the SJ teams was the perceived value of formal team charters. Attitudes toward charters range from the belief that they are necessary to formalize the team to not being able to develop a charter due to state regulations or requirements. For both the PgMP Annex and the SJ state team charter, the key point is that whatever the form, these documents serve to organize the program structure and efforts.

These webinars provided valuable insight into Division and District implementation of the FRM and SJ Programs and demonstrated that the programs have made tremendous progress since the release of implementation guidance in October 2009. It was also clear from these webinars that there are a number of exciting activities and initiatives on-going which provide more opportunity for program growth, and this team is excited to get involved. There may still be challenges to overcome and gaps to fill while continuing to implement and improve the programs, but the dedication and passion of USACE's FRM and SJ staff and their commitment to working with both internal and external partners to continue to improve flood risk management in the nation was clear on every webinar. (POC: Stephanie.N.Bray@usace.army.mil)

Coastal Resilience: The Environment, Infrastructure, and Human Systems

A technical conference on Coastal Resilience will be held on 21-23 May 2014 at the Westin New Orleans Canal Place in New Orleans, LA. The conference will bring together members of the international technical community of scientists, engineers, industry, and government to consider and discuss the challenges and opportunities to enhancing the resilience of our coastal systems. The conference will include a series of plenary presentations from representatives of the international technical community and panel discussions designed to share information about the science and engineering relevant to coastal resilience. Information regarding conference registration and logistics is available at: http://el.erdc.usace.army.mil/dots/training/class.cfm

Additional information about the conference can be obtained by contacting the Conference Chair, Dr. Todd S. Bridges at Todd.S.Bridges@usace.army.mil or the Conference Organizer, Ms. Cynthia Banks at Cynthia.J.Banks@usace.army.mil.

ASBPA in the News

The November 2013 issue of "Coastal Voice," the newsletter of the American Shore & Beach Preservation Association (ASBPA), has an article of interest – 'The USACE Perspective of Regional Sediment Management,' by Linda Lillycrop, Coastal and Hydraulics Laboratory. See page 12 at http://www.asbpa.org/1113asbpa.pdf.

Also, abstracts for the ASBPA National coastal Conference, in Virginia Beach, VA, 14-17 October, are due 9 May. The theme this year is "Promoting Healthy Coasts," which opens paper submissions to a wide spectrum of topics ranging from storm damage reduction to habitat and recreation.

Deadline Extended for POSTERS ONLY Restore America's Estuaries & The Coastal Society

There was such a response to the Call for Proposals that RAE is extending the submittal deadline until April 30 – for posters only!! Submittal details for posters are in the Call for Proposals document, which can be accessed at http://www.estuaries.org/summit.

Deadline Extended for Oceans'14 MTS/IEEE Abstracts

The OCEANS'14 Local Organizing Committee along with the Marine Technology Society and the Institute of Electrical and Electronics Engineers OES is pleased to announce the extension of the deadline for the Call for Abstracts for the September 14-19, 2014 event. The new deadline for Submission of Abstracts is Friday, April 18, 2014 at 11:59 p.m. NST (Newfoundland Standard Time). For further information on the submission process and other pertinent information please visit the website, http://www.oceans14mtsieeestjohns.org/main.cfm/CID/18/Technical-Program/ . Please note that the Student Poster Competition as well as the Call for Tutorials also close at the same time and date as the Call for Abstracts.

EWN Article in Dredging Publication

An Engineering With Nature (EWN) Action Project is featured in the February 2014 issue of *World Dredging*. The article, "Island Building in the Atchafalaya River, Louisiana USA – An Engineering With Nature Demonstration Project," describes a project led by Dr. Burton Suedel of the U.S. Army Engineer Research and Development Center (ERDC). Team members are Dr. Tom Fredette, Dr. Jacob Berkowitz, Dr. Nathan Beane, Mr. Darrell Evans (all of ERDC) and Mr. Jeff Corbino of the U.S. Army New Orleans District. Additional information on EWN can be found at www.EngineeringWithNature.org.

Calls for Abstracts

Two highly successful conferences, which together have produced over 2100 papers, are planned again for 2015.

SEDHYD 2015

joint

10th Federal Interagency Sedimentation Conference

5th Federal Interagency Hydrologic Modeling Conference

April 19 through 23, 2015

Peppermill Hotel, Reno, Nevada, USA

The Federal Interagency Sedimentation Conferences (FISC) began in 1947, and the Federal Interagency Hydrologic Modeling Conferences began in 1998. Starting with the 2015 conference, these conferences will become one conference, a joint Public/Private activity, and will have a new name – **SedHyd**. The Joint Conference will provide federal and non-federal scientists and managers from various disciplines the opportunity to discuss recent accomplishments and progress in research, on technical developments in the physical, chemical, and biological aspects of sedimentation, and on the development and use of models addressing surface water quality and quantity issues. The Joint Conference will include formal presentations, poster sessions, mini-workshops, and model demonstrations. A separate student poster paper session and competition for cash prizes is also scheduled. See http://www.sedhyd.org/2015/

Coastal Sediments 2015 – Understanding and Working with Nature

Abstracts for Coastal Sediments 2015, "Understanding and Working with Nature," are due 1 September 2014. The conference will be held in San Diego, CA, 11-14 May 2015. The Coastal Sediments 2015 conference is the eighth in a series which began in 1977, and provides an international forum for exchanging information among coastal engineers, geologists, oceanographers, and others interested in the physical processes of coastal sediments and morphology changes. See http://coastalsediments.cas.usf.edu/

Other Links – Information, Newsletters, Fun Stuff

The Flood Risk Management Gateway, http://operations.usace.army.mil/flood.cfm, is an excellent source of FRM information and the place to submit research Statements of Need (SoNs). If USACE District personnel have problems or situations they feel should be addressed by research, the FRM Gateway is the place to submit a "Statement of Need," the first step in the process of becoming a requirement for research and development. Past issues of this newsletter are also available, as are various links, news items, and presentations. Check it out!

New Newsletter! The USACE Climate Preparedness and Resilience Steering Committee recently released the inaugural issue of its newsletter, "Climate Change." This is 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 from the webpage http://www.corpsclimate.us/cca.cfm. Look in the right-hand column for the link.

CIRP Newsletters are available at http://cirp.usace.army.mil/news/ .

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 Winter 2013 issue has just been released. 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 .

Subscribe – Unsubscribe – Feedback

To subscribe/unsubscribe: *http://operations.usace.army.mil/flood.cfm*.

We would love your input – recommended article length is ½ to 1 page. Articles should be submitted to Doyle L. Jones, Canvassing Editor, Doyle.L.Jones@usace.army.mil.

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

FY14 PROSPECT COURSES

Coastal Ecology	Newport, OR	16 June 2014 – 20 June 2014
Coastal Project Planning	Duck, NC	21 April 2014 – 25 April 2014 9 June 2014 – 13 June 2014
Consequence Estimation with HEC-FIA	Davis, CA	5 May 2014 – 9 May 2014
Dam Safety	Grenada, MS	9 June 2014 – 12 June 2014
Dam Safety	Branson, MO	5 May 2014 – 8 May 2014
Risk Communication & Public Participation	Huntsville, AL	3 September 2014 – 5 September 2014
For more information: http://ulc.usace.army.mil		

FY 2014 Purple Book – http://ulc.usace.army.mil/downloads/PurpleBook2014.pdf

FY 2014 Projected Schedule – http://ulc.usace.army.mil/CrsScheduleNewFY.aspx

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.

6-9 May 2014 – 25th Flood Warning Systems Training Symposium & Expo – Reno, NV – http://www.alertsystems.org/

14-16 May 2014 – 2nd International Conference on Environmental and Economic Impact on Sustainable Development – Ancona, Italy – http://www.wessex.ac.uk/14-conferences/environmental-impact-2014.html

21-23 May 2014 – Coastal Resilience: The Environment, Infrastructure, and Human Systems – New Orleans, LA - http://el.erdc.usace.army.mil/dots/training/class.cfm

1-6 June 2014 – ASFPM 38th Annual National Conference – Seattle, WA – http://www.floods.org

4-6 June 2014 – Risk Analysis 2014 – New Forest, UK – http://www.wessex.ac.uk/14-conferences/risk-analysis-2014.html

11-13 June 2014 – 4th International Conference on Mobile, Adaptable and Rapidly Assembled Structures – Ostend, Belgium - http://www.wessex.ac.uk/14-conferences/maras-2014.html

17-19 June 2014 – Sustainable Irrigation 2014 – Poznan, Poland – http://www.wessex.ac.uk/14-conferences/sustainable-irrigation-2014.html

18-20 June 2014 – 4th International Conference on Flood Recovery, Innovation and Response – Poznan, Poland – http://www.wessex.ac.uk/14-conferences/friar-2014.html

11-13 July 2014 – Society for Conservation GIS Conference – Monterey, CA - http://www.scgis.org/conference

28 July - 1 August 2014 – Conference on Ecological and Ecosystem Restoration – New Orleans, LA – www.conference.ifas.ufl.edu/CEER2014

14-19 September 2014 – Oceans 2014 MTS/IEEE – St. John's, Newfoundland and Labrador, Canada – www.oceans14mtsieeestjohns.org

16-18 September 2014 – 6th International Conference on Flood Management (ICFM6), "Floods in a Changing Environment" – São Paulo, Brazil – http://icfm6.com/index.php

21-25 September 2014 – Association of State Dam Safety Officials Dam Safety 2014 – San Diego, CA – http://www.damsafety.org/conferences/?p=8faca187-a4b0-406d-b9d6-f71c8ba9d192

23-25 September 2014 – Sustainable City 2014 – 9th International Conference on Urban Regeneration and Sustainability – Siena, Italy - http://www.wessex.ac.uk/14-conferences/sustainable-city-2014.html

24-27 September 2014 – FSBPA Annual conference – Bonita Springs, FL – www.fsbpa.com

14-17 October ASBPA National Coastal Conference – Sheraton Virginia Beach Oceanfront – Virginia Beach, VA - http://www.asbpa.org/conferences/2014ASBPACallforPapers.pdf

21-23 October 2014 – Meteorological Technology World Expo 2014 – Brussels, Belgium - http://www.meteorologicaltechnologyworldexpo.com/

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

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

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

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

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