Flood Risk Management Program Leader Selected

Congratulations to Mr. Ray Alexander who was recently selected as the Deputy Chief of Homeland Security, Flood Risk Management, and Critical Infrastructure within the HQUSACE Civil Works Directorate. Leading to his permanent appointment, Mr. Alexander served as Acting Deputy Chief. Prior to the interim position, he served as the HQUSACE Deputy Chief of Operations. Following his retirement from the military with 26 years of service, Mr. Alexander spent five years in private industry.

FEMA Announces New Associate Administrator

In September 2011 Mr. David Miller was appointed the FEMA Associate Administrator for Federal Insurance and Mitigation. Mr. Miller is the former Administrator of the Iowa Division of Homeland Security and Emergency Management from 2004-2011 where he served as the Governor’s Authorized Representative (GAR) for eleven President-declared major disasters. As a GAR, he was an advocate for mitigation and was responsible for the execution of hazard mitigation grant funds in excess of $350 million. He served in several positions with the Iowa Division of Homeland Security and Emergency Management prior to serving as Administrator, including Chief of Staff, Program Manager, and Executive Officer.

He has also served as the President and Vice-President of the National Emergency Management Agency, as well as Chairs of the Legislative, Homeland Security, and Mitigation Committees. He graduated from the Naval Postgraduate School’s Executive Education Program in Homeland Security and also served on the National Advisory Council.

In his new position, Mr. Miller will be responsible for program oversight of the National Flood Insurance Program, RiskMAP, mitigation planning, and several national mitigation grant programs.

Vote for the Silver Jackets Team of the Year!

The third annual USACE Flood Risk Management and Silver Jackets Workshop will integrate people and programs to reduce flood risk in Harrisburg, PA, August 20-24. It is expected that more than 200 representatives, primarily from state and federal agencies, will share information and experience in managing flood risk. A multi-agency planning group is developing the agenda with a strong emphasis on partner perspectives and interests. Highlights include Monday training and an informal welcome, followed by a variety of plenary, breakouts, field trip, poster and networking sessions throughout the week. To assist in planning and to guarantee participation in the workshop, early registration through the conference website www.nfrmp.us/frmpw is encouraged. To take the Certified Floodplain Management (CFM) exam, examinees must register with ASFPM by July 20th at www.floods.org.

Another highlight will be honoring outstanding individuals and teams who exemplify the goal of effective flood risk management within the context of shared responsibility. The team awardee will be determined solely by peer team voting, as described on the workshop website. All team nominations will be posted to the workshop website for consideration by their fellow state teams.

Voting will be open from May 3rd through June 4th. Please take a look and cast your votes! www.nfrmp.us/frmpw/awards.cfm
Nebraska has taken up the challenge. A Silver Jackets charter was recently signed by eight state and federal agencies setting up a partnership to form a unified forum to address the state’s flood risk management priorities. The charter provides a formal and consistent strategy for an interagency approach to planning and implementing measures to reduce the risks associated with flooding and other natural hazards.

The team’s goals are to:

- Create a mechanism to collaboratively address and prioritize risk management issues and implement solutions
- Improve risk communication through a unified interagency effort
- Leverage information and resources such as FEMA's RiskMAP program and USACE's Levee Inventory and Assessment Initiative
- Provide coordinated assistance in implementing the state mitigation plan
- Identify gaps among the various agencies’ programs and barriers to implementation, such as conflicting policies or authorities, and provide recommendations for addressing these issues.

The team is co-chaired by Shuhai Zheng and Crystal Lesmeister, both from the Nebraska Department of Natural Resources, and supported by Tony Krause from USACE Omaha District. Other members represent FEMA R7, USGS, USACE Kansas City District, NWS, Nebraska Emergency Management Agency, and the Bureau of Reclamation (BoR). The team came together during the Missouri River flood of 2011 and continues to build upon the need to reduce the overall effect of flooding throughout the state of Nebraska. With flood recovery efforts taking place up and down the Missouri River, there has been no lack of discussion points for this team to consider.

The first few Silver Jackets meetings focused on prioritizing flood risk needs. The team concluded that the state's Mapping Needs Report (FEMA CMNS database) and the state Hazard Mitigation Plan sufficiently summarize priorities from which the Silver Jackets team can work. Through this team, the agencies have reached across typical boundaries and hurdles to exchange technical data, formulate ideas for implementation, and move forward on several pertinent activities such as:

**Gage data consolidation** - In 1997, the State of Nebraska took over management of approximately 25% of the USGS stream gaging network in Nebraska. Most of these gages were in the western portion of the state. Additional gages are maintained by USACE, BoR, and local Natural Resource Districts. This diversity in gage ownership has led to a disconnect in data format, access, and availability. The team is developing a plan to assist in gathering and formatting gage data from all agencies into a structure that can be easily accessed.

**Website development** - The DNR has setup a Nebraska Silver Jackets webpage. There is an ongoing effort to identify the best flood risk communication tools from different agencies and organize them within the website. Because agencies have different roles and communication plans, it can be difficult for the average citizen to sift through the haystack due to the disorganization of much of the data, as well as the amount of data available. The website will be called Just the Needles and will direct citizens to different websites in a structured order to understand the probability and consequences of flooding, as well as mitigation options to manage floods.

**Mitigating flooding in North Platte** - The City of North Platte is located at the confluence of the North and South Platte Rivers and is subject to significant flooding. The North Platte River is identified in both the FEMA CMNS database and the Hazard Mitigation Plan as a concern area. Sedimentation due to changing flow patterns, transportation features, irrigation diversions, and invasive flora have decreased flow capacity in the area. The Silver Jackets team is currently discussing ways that it can be of assistance in improving the hydrologic condition of the area and is scoping a pilot project to assist in hydrologic modeling of the area. The team will work together to identify flood risk mapping needs, assess flood stage data and mitigation alternatives, and evaluate the need for further flood preparedness documents.
Wildcat Creek Silver Jackets Flood Hazard Mitigation Project

By Brian Rast, USACE Kansas City District and Kris Lander, NOAA NWS Central Regional Office

In Kansas, an existing multi-agency group, known as the Kansas Hazard Mitigation Team (KHMT), is co-chaired by the State NFIP Coordinator from the Kansas Division of Water Resources and the State Hazard Mitigation Officer from the Kansas Division of Emergency Management. The KHMT has been working on mitigation planning and project funding throughout the state for several years. In 2011, the KHMT joined with the USACE Silver Jackets Coordinator, as well as with other entities such as the NOAA/National Weather Service, US Geological Survey, Federal Emergency Management Agency, City of Manhattan, Wildcat Creek Watershed Working Group, and Riley County in procuring Silver Jackets (SJ) Pilot Project funds to develop a flood risk mitigation plan with a warning system for Wildcat Creek in the Manhattan area. This Pilot Project does an excellent job of demonstrating the advantages of leveraging resources and collaborating on a shared vision for a flood risk management solution.

For the City of Manhattan, known as “the Little Apple”, the economy has not slowed the westward push of development. The airport is flourishing, nearby Fort Riley continues to be a strong presence, and Kansas State University, the current site of the Biosecurity Research Institute, is adding 600 new jobs. Unfortunately, with increased development comes increased flooding. Wildcat Creek that runs through the area has had severe flooding in 2007, 2010, and again in June of 2011. The most recent June event resulted in between 200 to 300 people being asked to evacuate. Flash flooding along a number of tributaries of this 100 square mile watershed has been a problem.

With the recent flooding event fresh in the public’s mind, there is a window of opportunity to promote flood risk management planning. The SJ Pilot Project funds have been approved to support a new flood warning system and corresponding flood inundation maps for the area in and around Manhattan. Flood inundation maps are an excellent tool for enabling public understanding of flood risks. The graphical display of web mapping applications is now easier to use than ever before, as shown in the USACE SimSuite product. For Wildcat Creek, the USACE will utilize a NWS process referred to as the Advance Hydrologic Prediction Service (AHPS) to produce inundation maps that depict extent and depth of flood water in the vicinity of a NWS forecast location. This will allow users to visualize flooded areas for discrete river levels ranging from minor flooding through the largest observed flood of record. Flood categories will follow the commonly used color coding for increasing severity, similar to radar intensities. The final mapping product will allow end users to simply move the mouse pointer over the various stages, and the corresponding inundation map quickly appears.

A team effort has and will continue to be required to produce these three dimensional flood inundation maps. The USACE will start with an existing updated hydraulic model recently used by Riley County to update FEMA Flood Insurance Rate Maps. The County and the Kansas Division of Water Resources used current LIDAR to better define flooding delineations. The USGS recently installed two new stream gages on the Creek to augment the gaging network and provide a forecast point. The city, county, and USGS have previously collected high water marks following the June 2011 flood. The USACE Kansas City District will utilize the hydraulic model under the guidance of a NWS hydrologist to follow the AHPS process for establishing a range of flood elevations at a designated forecast point. The USACE will calibrate the model to the high water marks and generate incremental water surface elevations at one-foot increments to a stage above the flood of record. The generated water surface profiles will be processed into depth grids and will meet AHPS web mapping standards. A NWS hydrologist will validate the depth grid, and, then, the final product will be subject to a rigorous quality control by the entire team. By March 2013, the flood inundation mapping will be live on the web as a tool for the public that live and work by the Wildcat Creek.
In conjunction with the mapping, a strategic master plan for managing flood risks in the Wildcat Creek watershed will be completed. The USACE refers to such a plan as a Floodplain Management Plan (FMP). The USACE will work closely with the Wildcat Creek Working Group and their six committees to develop a FMP. The plan will serve as documentation of committee findings and products and meet the requirements to be eligible for both the USACE construction funds as well as FEMA National Flood Insurance premium reduced rates through the Community Rating System. In order for the FMP to be comprehensive, it will include a watershed perspective and address the following elements:

- Description of flood hazards including a flood inundation map
- Statement of goals and objectives for addressing flooding
- Evaluation of structural and non-structural measures to reduce the risk of flooding
- Documentation of public involvement that engages residents and businesses to participate in the process
- Comprehensive list of action items and a completion schedule born out of the strategies and tools considered
- Community resolution adopting the FMP under its bylaws
- Signed charter since several entities and funding sources will be necessary to complete the FMP
- Communication plan to help neighboring communities avoid suffering from the cumulative development in the watershed

Wildcat Creek watershed working group meets monthly. The FMP will be vetted through the Wildcat Creek Working Group committees throughout 2012 with a resolution adopting the FMP expected before 2013.

The SJ Pilot Project is integrating products from a diverse set of agencies, each offering their own square in a patchwork quilt in order to address the flood hazard problem. By the time the FMP will be completed, at least seven different government entities will be involved in providing support in such areas as: hydraulic modeling, LIDAR, GIS, gage installation and maintenance, mitigation planning, and outreach. The Wildcat Creek project is just one example of how multiple agencies can collaborate to develop one flood risk management solution.
Iowa Community Flood Outreach Forums

By Jerry Skalak, USACE Rock Island District

During April and May, several members of the Iowa Silver Jackets Flood Risk Management Team will be supporting and participating in the second annual series of "Iowa Community Flood Outreach Forums" being presented by the Iowa Flood Awareness Interagency Coalition and hosted by the Iowa Insurance Division. A total of 6 forums will be held: Atlantic (April 24), Charles City (May 8), Burlington (May 16), Cedar Falls (May 22), Fort Dodge (May 24), and Iowa City (May 30). The forums will consist of a series of presentations on local flood forecasts, flood maps, flood insurance resources, and flood protection and prevention efforts, followed by a question and answer session with a panel of federal, state, and local experts on flooding, flood preparation/response/recovery, mapping and insurance, and mitigation. These forums provide an important opportunity to communicate and interact with the general public and advance interagency coordination and cooperation.

Many Agencies Collaborate to Form New York State Silver Jackets Team

By Laura Ortiz, USACE Buffalo District; Alicia Gould, USACE New York District, and Kelli Higgins-Roche, New York State Department of Environmental Conservation

One State with many agencies, one FEMA Regional Office, two USACE Divisions, five USACE Districts, the USGS, NWS, and NRCS – combine those together and you have the New York State Silver Jackets team. Even though the New York team has been meeting over the past few years, the team was considered to be “developing” until the February 2012 meeting when it was decided that the team’s status should be changed to “active” as it was collectively agreed that New York was meeting and functioning as a Silver Jacket team.

The New York state partners include the New York State Department of Environmental Conservation (NYSDEC), Department of State, Division of Homeland Security and Emergency Services, Department of Transportation, and the State Canal Corporation. The New York District leads the USACE effort with primary support from the Buffalo District and participation by the Pittsburgh, Baltimore and Philadelphia Districts. Federal partners include the U.S. Army Corps of Engineers, the United States Geological Survey, the National Weather Service, the Federal Emergency Management Agency and the Natural Resources Conservation Service. NYSDEC executes their responsibility for coordinating meetings and reaching out to the state team members. The team invites new agencies to participate in quarterly meetings. Generally, new participating agencies provide an overview of their specific mission and focus areas at the Silver Jackets meetings. This overview helps to expand the team's knowledge of different agency roles in the Flood Risk Management arena.

The overall vision for New York is to collaboratively work together to address the state’s flood risk needs and support the statewide mitigation plan. The current priorities for the state include funding stream gages and supporting state and federal recovery efforts for Hurricane Irene (DR 4031) and remnants of Tropical Storm Lee (DR 4020) which impacted the southern tier, Catskills, downstate and capital district areas of New York State in late August and September of 2011. Additionally, the team is in the process of tailoring the Pennsylvania Silver Jacket Handbook for New York State’s needs. Although there is not yet an executed signed charter, the team meets regularly with good participation from several agencies, and is actively addressing the state’s needs. The state and participating agencies have made a commitment to the concept of a charter and will continue to evaluate the merits of executing a charter at future meetings.
Discovery within RiskMAP: a new name for a new way of doing business

By Jaime Shipley, FEMA R4/Accenture

The FEMA Risk Mapping, Assessment, and Planning (Risk MAP) program is intended to help communities identify, assess, and reduce flood risk. By combining quality engineering methodologies with updated community data, FEMA provides accurate and easy-to-use flood hazard and flood risk information that can be used to enhance local mitigation plans, improve community risk awareness, and increase local or tribal resilience to floods. The Discovery process within RiskMAP is intended to help communities and tribes identify, not just areas at risk of flooding, but also solutions for reducing that risk.

The Discovery meeting is one of the first steps to determine the needs within a designated watershed. Discovery provides the opportunity for communities and tribes to share local data and mitigation interests with FEMA and other state and federal partners in order to better implement flood hazard mapping, flood risk assessment, mitigation planning, and communication tools for increased risk awareness.

During this meeting, the flood risk data gathered to date and the community or Tribe’s flooding history are reviewed. Additionally, development plans, flood risk concerns, stormwater and floodplain management activities and other daily operations that impact their flood risk (e.g., cleaning of drainage ditches, culverts) are discussed. Invitations are made to the appropriate community or Tribal leaders, emergency managers, GIS specialists, and local planners, as well as federal and state agencies with a vested interest in the watershed’s resources, floodplains, and flood risk. The goal is to be more inclusive regarding all mitigation interests at this time. Ultimately FEMA wants to, not only provide updated Flood Insurance Rate Maps, but also provide additional data for the stakeholders that can be used to make better informed decisions to mitigate, reduce risk and save lives and property from damage.

Available information and data that FEMA can access and review in preparation for the Discovery meeting includes mitigation plans, previous flood studies, insurance policies, Letters of Map Change, Census data, and national levee and dam inventories. Data from the community, federal and state partners that can be helpful at the meeting may include:

- Areas of nuisance flooding
- Comprehensive plan
- Mitigation and emergency management plans
- Local development and floodplain management plan
- Local historic, ongoing, and planned mitigation projects
- Stormwater management activities
- Infrastructure information, especially for levees, bridges, dams, culverts, and road improvements
- Elevation data
- Regional watershed plans

Because flood hazards change over time, the partnership between FEMA’s Risk MAP program and the Silver Jackets will be vital to our success in identifying flood risks and other needs that may enhance our products and tools for communities and tribes. To learn more, please contact Laura Algeo at 770-220-5515 or Laura.Algeo@dhs.gov.
Tracking and Managing Floodplain Mgmt Services through GIS Software

By Joseph Trimboli, USACE Huntington District

To better serve the customer base, the Huntington District Corps of Engineers in 2008 implemented the Floodplain Management Services (FPMS) spatially enabled Call Log Database. Its purpose is to process calls received through the District’s toll free number (1-866-401-3980). Since its inception, the database has logged over 457 calls with 118 from Ohio, 39 from Kentucky, 286 from West Virginia, and 4 from Virginia. Calls can cover a number of categories, such as inquiries about floodplain impacts on large development projects, federal property rentals, FEMA Digital Flood Insurance Rate Map determinations, base flood elevation (BFE) requests, miscellaneous map requests, and general questions about USACE and the National Flood Insurance Program (NFIP).

In addition to logging calls, the database serves several other purposes. The database’s spatial component allows caller addresses to be geocoded and linked to GIS software. This allows for mapping information from other federal agencies, such as the Federal Emergency Management Agency (FEMA) and the US Geological Survey to be quickly referenced for customer response. In addition, it is also designed to allow for the referencing of spatial data published by the District’s state partners. Information on where the calls originate help to determine outreach activities and program direction. The geocoded web-based map can be viewed through Google Maps at: http://bit.ly/fpms-lrh-gm.

The database allows the Huntington District to evaluate a specific address for Flood Plain Management issues under the NFIP and then provide a technical response in a short amount of time. These services range in cost from $25 dollars to $325 dollars depending on the response time. Although only recently upgraded to categorize call types, flood zone determinations and BFE requests rank high in Ohio. As a result, professional surveyors and engineers from both Ohio and West Virginia where approached to support individuals requesting FEMA NFIP Elevation Certificates were BFEs are not available.

Huntington District considers the database a work in progress, and FPMS team members continually strive to improve the process. Team members are also Certified Floodplain Managers (CFM) and maintain their certification through extensive training. In the future, Huntington District plans to use the database to facilitate collaboration with regional Silver Jackets teams and other Federal agencies.

The database is being documented through an interactive presentation (http://bit.ly/FPMSdb) that allows for a walkthrough of its functionality and provides a basis of discussion for the technical skills needed to support the NFIP. Through the use of this data management tool, the USACE Huntington District planning staff will be enabled to provide timely and comprehensive floodplain management services to the public and the local communities while integrating other agencies’ products.

(An earlier version of a similar article appeared in The Antediluvian, Ohio’s Floodplain Management newsletter, volume XVIII, issue 2.)
Flood Proofing Considerations in the Federal Triangle

By Randy Behm, Chair, USACE National Nonstructural Floodproofing Committee

Amy Tarce of the National Capitol Planning Commission arranged to hold a flood proofing seminar on behalf of the Smithsonian Museum of Natural History (SMNH), the National Gallery of Art (NGA), the National Archives (NA), the Washington Metropolitan Area Transit Authority (Metro) and the recently approved National Museum of African-American History. On October 31, a small group of engineers, facility directors, and flood plain managers gathered in DC to share information on flood proofing federal buildings.

The seminar came about because of an extensive June 2006 rainfall event over DC. Rainfall exceeded the design capacity of the existing stormwater drainage system and caused extensive damages to several culturally significant national icons. Significant flood damages occurred to the SMNH when the curb and gutter storm system capacity was exceeded and water began to inundate museum grounds. A concrete ramp down to the lower level of the museum provided easy access for the floodwaters to enter the structure. Rooftop runoff from this massive facility also added substantial amount of water.

To prevent floodwaters from entering the lower level of the museum, facility managers are considering a small berm, similar to an asphalt speed bump, at the top of the ramp to direct ponding and running water away from the building. An underground cistern has been constructed so that rooftop runoff will enter this concrete reservoir during rainfall events and not the stormwater system. Additionally, a pump system will be added to the cistern and connected to the underground sprinkler system for watering the museum lawns. Additional techniques are currently being considered by NGA officials such as inflatable tubes for barriers against advancing floodwaters.

Metro emphasized the importance of preventing floodwaters from entering the subway ventilation system. A shutdown of the subway due to the penetration of water into the ventilation equipment would be a disaster. An existing ventilation shaft has been retrofitted with a concrete collar to direct floodwaters away from the ventilation system. Due to pedestrian traffic and land management regulations for the Federal Triangle, Metro officials are searching for a barrier which does not impede pedestrian traffic and is aesthetically pleasing.

Floodwaters caused severe damages to the National Archives as waters entered the electrical and mechanical areas of the structure through lower level ramps. The mechanical ventilation system, which is located below street level, was elevated because the previous at-grade ventilation system allowed water to enter and destroy much of the equipment. In addition, exterior doorways were retrofitted with watertight barriers. An extensive set of flood barriers have been incorporated into the lower level of the structure design. The flood barriers are hydraulically activated by rising water exceeding the capacity of the stormwater system.

It is interesting to note that the Federal Triangle was constructed upon wetlands and the land was drastically changed as these mammoth buildings were constructed. No longer does this area provide storage and natural protection during large rainfall events. The next time you have the opportunity to walk along Constitution Avenue, challenge yourself to identify the many nonstructural measures hidden from plain view that protect our national treasures.
Mitigation Funding through Public Assistance Breaks the Cycle

In a federal disaster declaration, the Federal Emergency Management Agency (FEMA) may consider funding mitigation measures that enhance a public facility’s ability to resist similar damage in future events. This is often referred to as 406 Mitigation, as it is authorized under Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act and should not be confused with Section 404 which authorizes the Hazard Mitigation Grant Program.

Section 406 provides discretionary authority to fund mitigation measures in conjunction with the repair of the disaster damaged facilities. FEMA pays a minimum of 75 percent of both the repair and the mitigation activity. The state and local governments provide the remaining matching funds, allowing towns to utilize FEMA funding to try new approaches. These opportunities usually present themselves during the repair efforts.

The mitigation measures must be associated with eligible disaster-related damages and must directly reduce the potential for future, similar disaster damages. This work should be performed on parts of the facility that were actually damaged by the disaster, and the mitigation should provide protection from subsequent events to reduce or break the damage-repair-damage cycle.

Mitigation measures must be determined to be cost-effective, technically feasible, and in compliance with statutory, regulatory, and executive order requirements. In addition, the measure cannot cause a negative impact to the facility's operation, surrounding areas, or susceptibility to damage from another hazard.

As towns rebuild infrastructure battered by Hurricane Irene and Tropical Storm Lee, state and federal officials are reminding local officials that funding is available to make repairs that are better able to withstand future disasters. A recent press release from FEMA noted that of the more than $200 million that FEMA is expected to reimburse Pennsylvania for infrastructure damage from these two storms, more than $30 million of that will be used to rebuild infrastructure to a higher standard and make it more disaster resistant.

Examples of such projects in Pennsylvania follow:

- Little Britain Township in Lancaster County experienced flooding well above the 100-year flood stage during Lee. A township-owned bridge that served as the sole means of access to a rural housing area collapsed. Officials were able to mitigate future disaster damage by more than doubling the size of the culvert over which the bridge was constructed and substituted a larger concrete box culvert for the original metal arch.
- Lee left several inches of swift moving water which covered Douglas Road in Chanceford Township, York County and washed away two large sections of road surface and the adjacent slopes. During repairs, road crews mitigated future washouts by adding as much as 82 tons of riprap.
- Rushing floodwater from Lee scoured streambeds in Catawissa, Columbia County, exposing and bending a lateral water line that supplied Sunset Lane. To mitigate against future disaster damage, workers will encase a section of the water pipe in a larger ductile iron pipe and then encased in reinforced concrete.

Recovery officials are currently working with more than 1,900 applicants to develop specifications and costs for an estimated 6,000 Public Assistance projects.

FEMA and the Pennsylvania Emergency Management Agency continue to identify those projects that will qualify for the special mitigation program. By adding mitigation money to repair costs, the project becomes better able to withstand future disasters. Extra money spent now can reduce future impacts and costs.

For more information on the Public Assistance mitigation program visit http://www.fema.gov/government/grant/pa/9526_1.shtm.
Interagency Task Force Opens the Door for Department of HUD Community Development Block Grant Funding Levee Repairs within Missouri River Basin

From March through July 2011, a record amount of runoff from melting snowpack and heavy rains entered the Missouri River, resulting in record reservoir levels and releases, overwhelming the floodplains, saturating and overtopping levees, and forcing hundreds of homeowners, farmers, and business owners to evacuate. In the states affected by the Missouri River flooding (Montana, Wyoming, North Dakota, South Dakota, Nebraska, Iowa, Kansas, and Missouri) the cost of direct flood damages and response and repair activities borne by USACE are expected to total about $1 billion. The total cost of direct and indirect damages to homes, buildings, farms, businesses, and public facilities will be far greater and has not yet been estimated. According to the USACE records on the Missouri River dating back to 1898, the 2011 annual runoff was 61.0 million acre-feet near Sioux City, Iowa, which far exceeds the previous record of 49 million in 1997. The record volume equated to an average daily rate of 83,500 cubic feet per second.

The Missouri River is the longest river in the United States, extending 2,619 miles from its source at Hell Roaring Creek. The basin touches on 10 states and has a total drainage area of over ½ million square miles. The size of this watershed and the extent of flooding have resulted in many challenges for all levels of government regarding the immediate and long-term restoration of the Missouri River floodplain.

To meet this challenge, the Missouri River Flood Task Force (MRFTF) was created and has been providing a temporary forum for coordination, collaboration, and cooperation among federal, state, local, and tribal officials within eight states. The Task Force is co-chaired by FEMA Region VII, USACE Northwestern Division, and the Natural Resource Conservation Service Central Region. The mission of the Task Force is to complete initial repairs to government-supported infrastructure in early 2012 and to conduct long-term activities while keeping comprehensive flood risk reduction as a top priority. Early on, participants decided to seize the opportunity to shape the future of the floodplain and to set conditions for success by streamlining governmental processes, accelerating assessments and permits, and addressing long-term flood risk management solutions.

Several Working Groups, including a Levee Repair Working Group, were established to support the objectives of the Task Force. From the start, it was obvious to the Group that leveraging resources was necessary to repair the extensive amount of damages to the levee systems throughout the basin. There were many levees that the USACE, NRCS, or FEMA did not have the authority to fully fund, so a funding gap existed. Levees that were not federally authorized, designed, and built but qualify under PL 84-99 for USACE levee rehabilitation assistance require an 80/20 cost-share which often is a financial burden for the sponsor or levee district. The Task Force and the Working Group coordinated closely with the Missouri Department of Economic Development and Regional Planning Commissions (RPCs) on a novel solution by supporting the use of Department of HUD Community Development Block Grant (CDBG) funds for local cost share to address levee repairs or the entire cost if a levee district is not part of the USACE system. The application packages were coordinated by the state and RPCs and then presented to the Governor’s Office for his approval. As a result, Governor Nixon was able to publicly announce in January and February that a total of $5.5 million CDBG funds had been approved to assist thirteen levee districts with repairing levees damaged by last year’s floods with more approvals expected. The key to this success was the forum and networking that the Task Force and Working Group provided, along with relationship building at the state level through the Silver Jackets teams or similar state groups, which allowed agency partners to leverage resources and do creative problem solving. In the end, common flood risk management objectives were met through the combined efforts of federal, state, regional planning commissions, and counties.

For other activities and successes of the Task Force and Work Groups, please go to http://www.nwd.usace.army.mil/MRFTF/default.asp.
Stream channels are dynamic landscape features that continually adjust their location and course. Stream channels naturally establish a geometry that is adjusted to the volumes of water and sediment generated within the basin through the processes of stream bank erosion, floodplain construction, and meandering. In many cases, the meandering nature of a stream channel is viewed as one of the most aesthetically pleasing characteristics of natural waterways in that it provides a general sense of symmetry, balance, and solitude; but, in some areas, the erosion is a hazard. The “fluvial erosion hazard” (FEH) represents a significant concern in areas where human development and infrastructure are established in close proximity to natural waterways. Through the processes of stream bank erosion, streams can threaten to undermine structures placed within their meandering pathway.

For example, a comparison of the two aerial photos below that were taken five years apart at the same location on the White River near Centerton, Indiana, shows that local agricultural land has been lost to the river, the channel has migrated 290 feet to the northwest, and the existing utility poles are potentially threatened by future fluvial erosion.

Understanding the risks involved, the Indiana Silver Jackets Team has initiated a multi-agency program to identify, study, and provide mitigation planning resources so individuals and communities may better recognize areas prone to natural stream erosion processes and adopt FEH avoidance strategies. The FEH effort being undertaken in Indiana is modeled after a FEH program developed by the Vermont Department of Environmental Conservation and will greatly benefit from the well documented strategies, protocols, and products established within the Vermont program. While supported by all agencies and groups active on the Indiana Silver Jackets Team, three participating groups share the primary responsibilities for implementing this program: the Center of Earth and Environmental Science at Indiana University-Purdue University at Indianapolis (IUPUI), the Polis Center at IUPUI, and the U.S. Geological Survey-Indiana Water Science Center. Working with shared resources, staff, and goals, these three groups are currently conducting a broad variety of science, mapping, and education activities related to the FEH program in Indiana. Funding for this program has been provided by the Indiana Office of Community and Rural Affairs.

This long term education process, which is not expected to be completed until June 2014, will involve several FEH presentations and workshops throughout the state. The team will fully utilize a FEH Web portal to share resources and tools. Some of which include:

- Guide to field indicators of bankfull stage
- Regional curves for wadeable streams in Indiana
- Bank-stability assessment protocols
- An FEH screening methodology for bridges
- Examples illustrating FEH mapping protocols

Of all the natural hazards experienced in Indiana, flooding is the most frequent, damaging, and costly. While flood losses caused by inundation can produce significant damage and costs, it is often seen that total damages from a flood are dominated by fluvial erosion processes. Therefore, FEH concerns should be an important component of flood risk management. For more information on the FEH program in Indiana, contact either Robert Barr at rcbarr@iupui.edu or Bret Robinson at barobins@usgs.gov.
Upcoming Events

April

• 23rd Annual Environmental Virginia Symposium, “Collaboration, Innovation, and Results”, April 10-12
• Mid America GIS Consortium, Kansas City, MO, April 22-26

May

• NFIP Community Rating System Webinar, "How the changes in the CRS can affect your agency", sponsored by FEMA and USACE and supported by the Silver Jackets program, May 1st at 1:00 EST, further details can be found in the Silver Jacket website.
• NWS presentation on New Ensemble River Hydrographs Experimental Guidance Product, sponsored by MN AFM and SAME, Fort Snelling, St. Paul, MN, May 26

June

• Region V Sustainability Grantees Symposium, “Federal Partnerships for Sustainable Communities”, Chicago, IL, June 5-6

July

• Third Annual Hazard Mitigation Practitioners Workshop, Broomfield, CO, July 17-18

August

• USACE Flood Risk Management & Silver Jackets Workshop, Harrisburg, PA, August 20-24
• The Whole Community Approach to Floodplain Management hosted by Northwest Regional Floodplain Management Association, Idaho Silver Jackets, and TetraTech, Boise, ID, August 2-3

September

• Northwest Regional Floodplain Management Association Annual Conference, Spokane, WA, Sept 19-21
• American Planning Association four State Conference (MN, IA, IL, and WI), Madison, WI, Sept 27

October


November

• MN Association of Floodplain Managers Conference, Rochester, MN, Nov 14-16