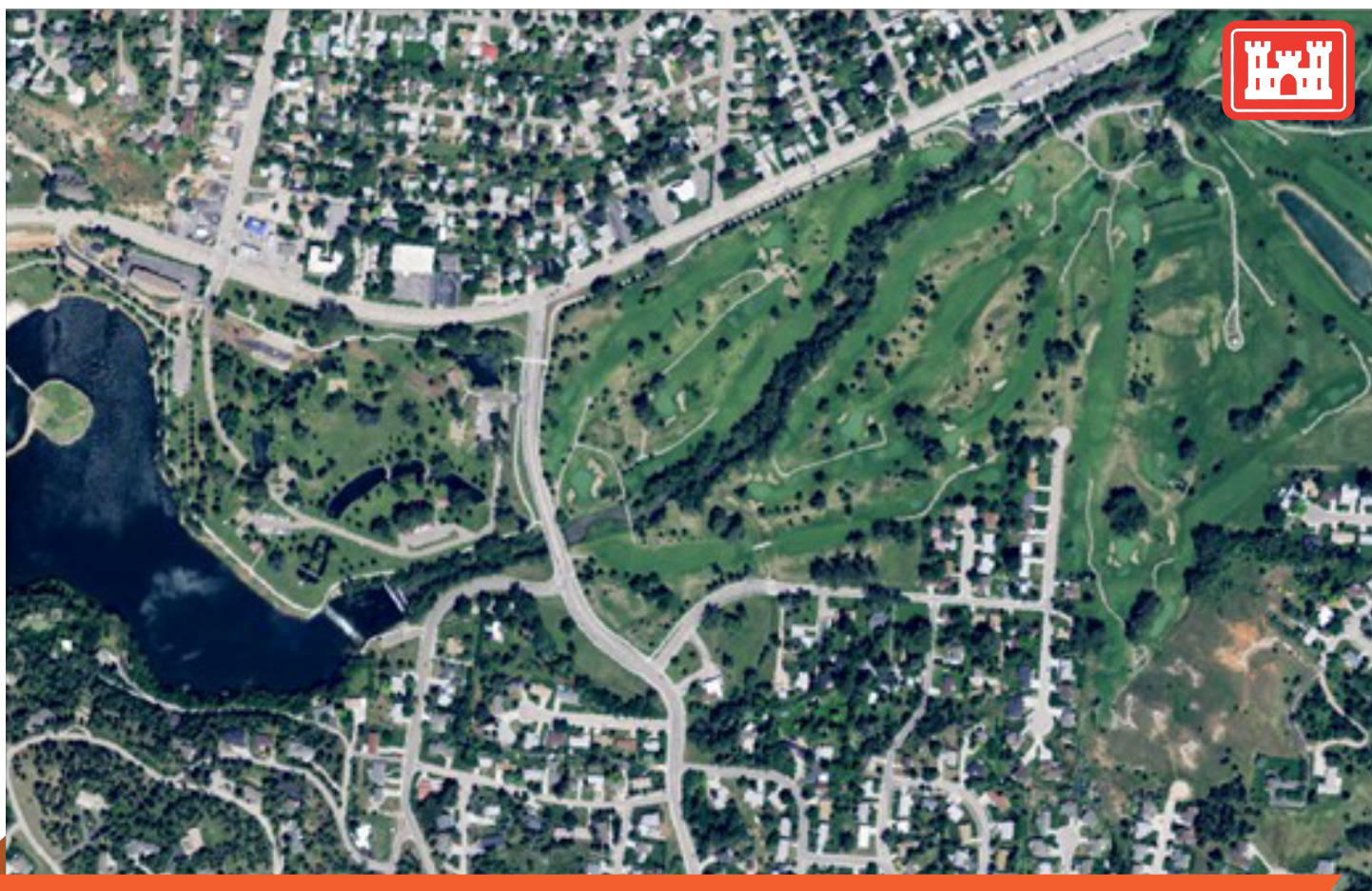


# FRM BUZZ

## NEWSLETTER

### *Reducing Flood Risk: Many Partners, One Team*



50 years after the Black Hills Flood – Rapid City, South Dakota provides a model for adaptive flood risk mitigation planning

p.3

#### **Learning from each other**

Katherine Rowden values building connections through Silver Jackets teams in her role as the newest USACE national Silver Jackets program manager.

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#### **New perspectives and shared experiences**

Volunteering as a BRIC grant reviewer yields new insights and personal connections.

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# FRM BUZZ

## NEWSLETTER



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### Colorado Flood after Fire Webinar Series is a success!

The Colorado Silver Jackets team organized a series of virtual forums to exchange good practices for flood after fire preparation, mitigation and recovery. The virtual forums provided a chance to highlight cutting-edge work local, state and federal agencies in Colorado are doing to aid communities in preparing for and responding to flood after fire risks.

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### Celebrating the 2022 Silver Jackets Team, Silver Jackets Coordinator and Flood Risk Manager of the Year!

The 2022 Silver Jackets Team, Silver Jackets Coordinator and Flood Risk Manager of the year are recognized for their exceptional accomplishments.

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## On the cover

### 50 years after the Black Hills Flood of June 1972, flood risk mitigation at Rapid City, South Dakota

Following the devastation of the Black Hills flood of 1972, Rapid City, South Dakota incorporated forward-looking, collaborative planning for flood risk as part of its rebuilding process. The city's approach to rebuilding serves as a model for other flood-prone communities.

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# Learning from each other

By Christy Jones, USACE Deputy Chief, Office of Homeland Security and Director of the National Flood Risk Management Program

I'm pleased to open this edition of the FRM Buzz by introducing Katherine Rowden as the new USACE national Silver Jackets program manager. Thank you to Lacey Thomason, who served as acting program manager after Ellen Berggren stepped down from the position upon her retirement in August 2022.

Katherine will manage the USACE role in what has grown to be a nationwide network of Silver Jackets teams bringing together federal agencies, states, tribes, U.S. territories and communities at the state level to address state flood risk management priorities. From her prior professional experiences, Katherine understands the importance of the relationships built on Silver Jackets teams and believes that they provide USACE a valuable chance to connect with and learn from the communities it serves.

After completing her bachelor's degree in civil engineering from Gonzaga University and working in private consulting, Katherine joined the National Weather Service in 2010 as the service hydrologist at the Spokane Weather Forecast Office in Washington state. There she gained experience in emergency management and response while coordinating flood forecasting and public flood watches and warnings.

In 2019, Katherine became the Western U.S. Region hydrology program manager for the National Weather Service. In this role, she worked on policy and



Katherine Rowden, USACE national Silver Jackets program manager.

science matters relating to developing and communicating water resources information to the public and other water resources partners. One area of focus for her work was post-wildfire flood risk assessment, which involved identifying areas at risk of flash flooding and debris flows after fires and informing the public of the risks.

During her time with the National Weather Service, Katherine participated on the Idaho and Washington state Silver Jackets teams. She saw both the opportunities and challenges involved in building connections among the participating agencies. She values and

maintains the relationships she developed through Silver Jackets, stating, "I still work with the people I met on those teams over a decade ago. I still reach out to them with questions about their agencies."

She joined USACE in 2021 as an emergency management specialist with the South Pacific Division Emergency Management branch before accepting her current position.

In each of these jobs, Katherine saw firsthand the value of strengthening connections and communication between agencies and across levels of government.

Working closely with emergency managers and responders, she observed the need for federal agencies to coordinate with one another to be sure that the support they provided

addressed a community's most urgent concerns. Poorly coordinated delivery of federal assistance risked overwhelming local capacity or diverting local staff time to lower priority matters. "It is an equity issue," Katherine notes, offering as an example: "A community that doesn't have the staff to apply for grants or manage those grants can't access the wealth of opportunities or resources being offered to them."

Katherine's work in the growing field of post-wildfire flood risk assessment and management taught her that federal agencies need to learn from communities about their flood risk challenges to effectively update and adapt federal tools, programs, and

Continued on page 2



approaches to meet evolving community needs. By connecting with communities, she explains, federal agencies are better able to “adjust and adapt to evolving and new needs,” and to “...make sure that our ‘toolbox’ of tools adapts and responds to community needs.” Likewise, when engaged in national water policy work, Katherine found that learning about the conditions and constraints states and communities face when managing flood risk leads to better-informed national policy discussions.

As the new Silver Jackets program manager for USACE, Katherine is eager to serve as a resource to all members of the flood risk management community seeking opportunities to engage with Silver Jackets teams. She values the chance to support collaborative work between agencies to address states’ flood risk challenges. She believes the connections built through Silver Jackets provide opportunities for USACE and its federal partners to more effectively align federal support with local priorities and capacity, adapt federal programs and tools to meet evolving needs, and ensure that national-level policy discussions are grounded in an understanding of the local experience. I invite you to welcome Katherine and share with her any ideas or opportunities you have.

## Recognizing Ellen Berggren



Ellen Berggren

Ellen Berggren stepped down from her position as the USACE national Silver Jackets program manager upon her retirement in August of 2022, after supporting Silver Jackets with great creativity, leadership and team-building skills for over 13 years. Ellen first

participated in Silver Jackets when she joined Walla Walla District in December 2008 as an outreach specialist, where she served as the Idaho team Silver Jackets coordinator when the program was established. In this role, she assembled a diverse and productive state team. In February 2016, she joined the USACE Institute for Water Resources as the national Silver Jackets deputy program manager prior to taking the reins as the national Silver Jackets program manager.

During her time working with Silver Jackets, Ellen promoted collaborative interagency flood risk management efforts and built national-level relationships with other federal agencies and organizations, all with the purpose of leveraging those national relationships to support the interagency teams. The Silver Jackets and National Flood Risk Management Program teams extend their warmest appreciation to Ellen. Her able management, mentoring, and advocacy for Silver Jackets over the years supported the growth and accomplishments of Silver Jackets teams nationwide.



# 50 years after the Black Hills Flood of June 1972, flood risk mitigation at Rapid City, South Dakota

By Thomas Gorman, USACE Omaha District

June 9-10, 2022, marked the 50th anniversary of the Black Hills flood that devastated Rapid City, South Dakota, and left 238 people dead. As the city rebuilt, it worked with federal, state and county partners to plan for and mitigate future flood risks and continued to build on these plans in the decades that followed. The story of Rapid City's recovery from the Black Hills flood provides an example of collaborative, forward-looking and adaptive flood risk mitigation planning that can serve as a model for other communities.

Rapid Creek is usually a quiet mountain stream that drains much of the central Black Hills, with a basin area of approximately 410 square miles at the stream gage located just upstream of downtown Rapid City. Since European settlement in 1878, many floods have occurred on the creek with the largest (pre-1972) in 1907, which inundated much of the land along the stream. As Rapid City grew, significant development occurred along Rapid Creek with little consideration for the flood hazard. In 1972, the city population was about 44,000, with many residences located adjacent to the creek channel.

The Bureau of Reclamation completed Pactola Dam and Reservoir in 1956, located on Rapid Creek approximately 10 miles upstream from Rapid City. The large reservoir provides 43,000 acre-feet of flood control storage and may have led some in Rapid City to believe large floods were no longer possible downstream of the dam.

The city-owned Canyon Lake Dam is located on Rapid Creek at the western limits of the city. The dam was built for recreation by the Works Progress Administration in 1933 at the site of a

previous dam destroyed in the 1907 flood. The water level in Canyon Lake was controlled by a gated spillway. The normal reservoir volume was about 200 acre-feet and did not provide any flood storage.

The weather forecasts for June 9, 1972, brought an expectation for thunderstorms in the afternoon and evening but not that a major disaster was about to occur. Easterly winds at the surface brought in a plentiful supply of moisture. On encountering the Black Hills, the moisture was forced upward, triggering thunderstorms. At the same time, the upper-level winds were particularly light, allowing the growing thunderstorms to become almost stationary. Heavy rains occurred all along the eastern slopes of the northern Black Hills. Between 6 and 10 p.m. intense rainfall (up to 15 inches) occurred over the 92-square-mile uncontrolled basin of Rapid Creek between Pactola Dam and the city.

At approximately 10 p.m., the water level at the U.S. Geological Survey (USGS) stream gage upstream from Canyon Lake began rising rapidly. In the darkness and rain, many residents were not aware of the impending flood. At about 10:30 p.m., Mayor Don Barnett went on local television to warn residents of low-lying areas to evacuate. The fast-rising floodwaters caught many in their homes or in automobiles. The spillway at Canyon Lake Dam became clogged with debris which could not be cleared and the embankment began to overtop between 9:30 and 9:45 p.m. Sometime between 10:45 and 11:30 p.m., the dam embankment failed. The dam failure likely caused an increase to the flood peak, but it was not the primary cause of the disaster.

The water level at the gage upstream of Canyon Lake peaked at 11:15 p.m. about 14 feet higher than the level at 7 p.m., with much of the rise occurring in about one hour. Between 11:30 p.m. and 1:30 a.m. June 10, a flood peak of around 50,000 cubic feet per second devastated the developed areas of Rapid City. By 5 a.m., Rapid Creek was within its banks again through the city. Downstream from Rapid City, the flood wave rapidly attenuated, with a peak of 7,320 cubic feet per second recorded at the USGS Farmingdale gage that afternoon.

The flooding killed 238 people and injured about 3,000 others. In Rapid City, 720 homes were destroyed and 1,400 damaged. Most of the bridges on Rapid Creek through the community were destroyed and massive amounts of debris were deposited throughout the inundated areas.

Other streams along the eastern Black Hills experienced record flood flows but the floodplains along most of these streams were relatively undeveloped and damages were limited. The exception was at the small town of Keystone, located at the eastern entrance to Mount Rushmore. Keystone sustained extensive damage and eight deaths from the floodwaters.

In the aftermath of the disaster, numerous federal and non-federal agencies as well as major relief organizations provided for the immediate and short-term needs of those affected by the flood. There remained the long-term question of how future flood risk would be considered in the reconstruction of the devastated areas.

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The U.S. Army Corps of Engineers investigated to determine if any structural flood risk mitigation measures for Rapid Creek could be implemented. It was determined that a large dam on Rapid Creek in the canyon upstream from the city would not be economically feasible. A program of floodplain management was recommended as well as a limited structural project to protect critical infrastructure.

The potential for loss of life along Rapid Creek from flash flooding at night resulted in the city's engineers and officials developing the plan for a "greenway" (cleared floodway) along the stream. The underlying concept of the greenway adopted by the planning team was that "no one should sleep within the floodway."

All residences and motels within the designated greenway were razed or moved. Commercial establishments were evaluated to determine whether they could remain or would be relocated. Approximately 1,100 parcels of land covering 3,100 acres were purchased by the city. The greenway was developed for parks, recreation and open space. It was largely funded by a \$48 million grant from the Department of Housing and Urban Development. Figure 1 and Figure 2 show the pre-flood flood development and post-flood greenway area immediately downstream of Canyon Lake.

The parks, paths, recreational facilities and open space through the middle of the city are now a very popular amenity for residents and visitors.

In addition to the greenway, USACE constructed a right-bank levee and channel improvements to protect the water treatment plant, the Bennett-Clarkson Hospital and the Baken Park shopping center. Those facilities were considered too costly to relocate. The structural flood risk reduction project was developed as an integral part of the greenway project. Canyon Lake Dam was



Figure 1. Canyon Lake Area - 1962 (USDA, 1962)

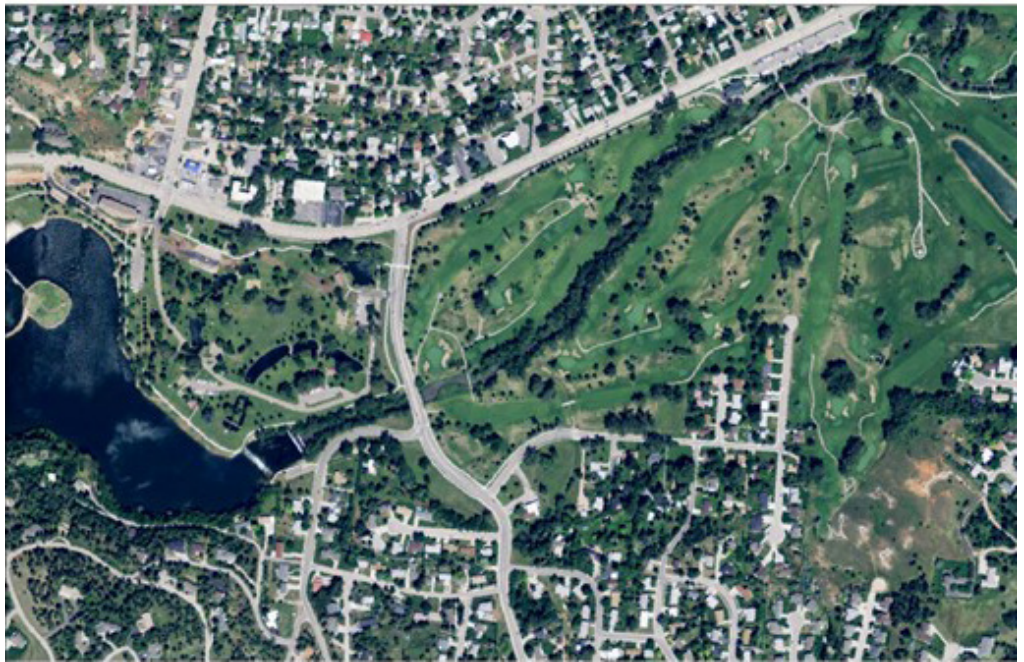


Figure 2. Canyon Lake Area – 2010 (USDA, 2010)

rebuilt for recreation with improvements to pass a flow similar to the 1972 flood without failing. To accommodate an extreme precipitation event upstream of Pactola Dam, the Bureau of Reclamation raised the dam by 15 feet and increased the spillway capacity.

In the decades since 1972, additional flood risk management measures have been implemented. This included a

flood warning system with stream stage and precipitation gages in the basin between Pactola Dam and the city and establishment of a city/county water rescue team. Advances in technology, such as improved weather forecasts, radar measurement of precipitation rates and new means of communication have also contributed to flood risk management.

Continued on page 5

No other floods close to the magnitude of the 1972 event have been recorded in the Black Hills since European settlement. Concerns about the potential for extreme floods resulted in the USGS, FEMA, city of Rapid City and several other agencies cooperating in paleoflood studies on several streams, including Rapid Creek. The studies resulted in a 2011 report which indicated a number of extreme floods occurred on lower Rapid Creek over the past 2,000 years greater than the 1972 peak of 31,200 cubic feet per second at the Canyon Lake gage. Two of the paleofloods in the past 1,000 years may have exceeded 100,000 cubic feet per second.

Floodplain management officials from Rapid City and Pennington County are involved in ongoing outreach efforts to educate the community on the continuing flood risk along Rapid Creek. This includes defending the greenway from proposed development projects within the cleared area. Development could occur because the federal Department of Housing and Urban Development grants used for acquiring most of the land did not prohibit future building construction.

In 2020, USACE partnered with Rapid City, Pennington County and the South Dakota Silver Jackets on a Floodplain Management Services (FPMS) Interagency Nonstructural Flood Risk Management project, the Rapid Creek Inundation Map Library. This project used HEC-RAS hydraulic modeling and mapping software with high-resolution LiDAR terrain data to develop inundation boundaries, depth grids and water surface grids from Pactola Dam downstream through Rapid City and beyond onto the plains. Inundation maps were developed for flows selected by the project partners that ranged from 650 cubic feet per second to 130,000 cubic feet per second, which represents the magnitude of a paleoflood.

The data will be used for risk-informed planning and community outreach. The mapping will be useful for showing the flood hazard to development along Rapid Creek upstream and downstream of the greenway. Color-coded depth grid mapping is especially helpful for showing the locations with the greatest depth/hazard for a particular flow.


In 2023, USACE partnered again with this interagency team for another FPMS nonstructural project to expand on the Rapid Creek inundation work. In this project, LifeSim modeling is being developed to assess life safety risk from Rapid Creek flash flooding. The resulting data will include flood maps identifying high risk areas, estimated population at risk for various flooding events, emergency action plan recommendations, inundation timing for bridges, and evacuation animations that may be used for risk communication. This data can assist local emergency response activities, support continued floodplain management, and improve scripted flash flood warnings issued by the National Weather Service.

Additional images, personal accounts, and responses to the 1972 event across the Black Hills, along with other significant flood events across the state, may be found on the interactive flood history story map available [here](#).

The story map was also developed as an FPMS Interagency Project by the South Dakota Silver Jackets team in partnership with the South Dakota State Historical Society Archives and local communities.

The experience of Rapid City since the flood of 1972 provides an example of what can be accomplished with nonstructural flood risk management. In particular, the greenway provides significant reduction in the risk of life-loss. Reducing the risk of life-loss was very important given the potential for dangerous flash flooding to occur during the night and with the millions of annual

visitors to the Black Hills having little or no knowledge of the potential flood risk.

50 years after the Black Hills flood of 1972, the story of Rapid City's approach to rebuilding serves as a model for other flood-prone communities. The city proactively planned for future flood risks as part of its rebuilding process. It used the expertise and programs available from many different agencies and partners. And, the city continued to monitor and adaptively manage its flood risk mitigation plans over time, taking advantage of new tools and data as they came available. As a result, Rapid City was able to implement complementary structural and nonstructural measures that protect lives and critical infrastructure, while also providing the community with the benefits of open space and recreation areas. 



# New perspectives and shared experiences

## Volunteering as a reviewer for FEMA's Building Resilient Infrastructure and Communities (BRIC) grant program

By Brian Schneider, USACE Memphis District

I volunteered as a reviewer for the Federal Emergency Management Agency's (FEMA) Building Resilient Infrastructure and Communities (BRIC) grant program in March 2022 because I wanted to support the program's work promoting community disaster resilience. What I didn't anticipate were the many ways the experience would end up benefiting me, my district, and the Silver Jackets teams on which I serve.

FEMA's BRIC program is an annual competitive grant program providing funds to states, communities, tribes and territories to carry out activities that mitigate the risks of natural disasters, including wildfires, drought, hurricanes, earthquakes, extreme heat and flooding. Projects supported by BRIC grants focus on ideas to improve resilience and often include funding or in-kind contributions from other private and public sector partners.

FEMA's BRIC grant review process includes a qualitative phase for which FEMA brings together volunteers from state, local, tribal and territorial governments as well as other federal agencies to serve as part of a review panel. I learned of the chance to serve on a BRIC qualitative review panel through my Silver Jackets team. I submitted a letter of interest and was accepted. Soon after, I joined a group of fellow panelists in a five-day process to review grant applications from communities around the country.

The qualitative review panel I served on was made up of people from different federal and non-federal government agencies with various specialties and expertise, usually with some connection to disaster or hazard mitigation. Each panelist reviewed 10-12 applications during the week. To ensure equity and



BRIC qualitative criteria (FEMA, 2021)

fairness, each application was reviewed by three panelists following evaluation guidelines. Responding to scoring prompts, panelists assigned one of six scoring levels based on how well the application met each of the qualitative measures. A sidebar "huddle" was required if panelists reviewing the same application scored a single qualitative measure more than two levels apart.

The huddles were essential to ensuring a fair selection process and encouraging panelists to provide a thorough review of each application. Through the huddle interactions, panelists gained new perspectives, whether it be growing aware of previously overlooked information, or just hearing another person's point of view about aspects of the application. The group of panelists I worked with included a range of different ages and backgrounds which resulted in a diversity of perspectives informing and enhancing our huddle discussions.

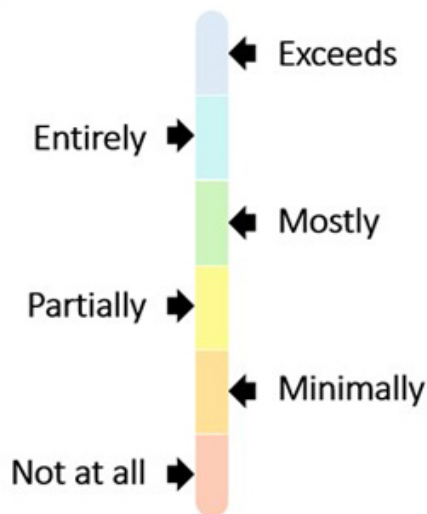
Working collaboratively to review BRIC grant applications undoubtedly

strengthened the BRIC review process by ensuring it was transparent, equitable and inclusive. The experience also benefited me and, by extension, my district and my Silver Jackets team.

For me, participating in the BRIC grant review process gave me new insights into how others viewed disaster response through the panelist orientation training and through the huddle discussions. I learned more about the resource challenges faced by smaller, disadvantaged communities trying to develop a comprehensive grant application. And, I had the chance

to meet and work with people from other agencies with whom I now have a unique, shared experience.

For my district, I was able to bring back knowledge that better equipped me to support communities in the six states that make up the Memphis District. The BRIC grant program emphasizes building the resiliency of underserved and under-resourced communities, a need in many



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areas of the Memphis District. As a reviewer, I had the chance to hear about new and creative ways communities are addressing different hazards. I also learned about ways communities are seeking funding to support hazard mitigation. This new knowledge has helped me have more meaningful conversations with communities in my district and provide suggestions about creative ways to address their own hazards.

My experience as a BRIC reviewer also helped me better support my Silver Jackets team's work to drive down risk through interagency collaboration. It gave me a chance to form personal connections with people from other agencies and made me more aware of other agencies' programs. In my role as the Silver Jackets coordinator for the Memphis District assisting multiple states' Silver Jackets teams, these new connections allowed me to be more effective at developing interagency solutions for assisting communities with risk reduction.

I hope that others in the Silver Jackets and flood risk management community will consider volunteering as a BRIC grant reviewer. For me, participating in the BRIC grant review process gave me new ideas, an expanded network of colleagues and a fresh look at ways to contribute to community disaster resilience. I believe that the FEMA BRIC review process benefits from the involvement of a diversity of reviewers with firsthand experience supporting communities. And, in return, I believe reviewers leave the process with new perspectives and shared experiences that open the door to more creative and inclusive interagency solutions to flood risks and other natural hazards.

Editor's note: Each year, FEMA seeks more than 100 volunteers to review for the BRIC Qualitative Review Panel. Learn more about the [FEMA BRIC program](#) and [the criteria for volunteering](#) as a BRIC grant reviewer on FEMA's website. ♦



Local hazards (Nevada County Local Hazard Mitigation Plan, 2017)



Local hazards (Neuse River Regional Hazard Mitigation Plan, 2020)

# Celebrating the 2022 Silver Jackets Team, Silver Jackets Coordinator and Flood Risk Manager of the Year!

By Katherine Rowden, USACE National Silver Jackets Program Manager

The 2022 Silver Jackets Team of the Year, Silver Jackets Coordinator of the Year, and Flood Risk Manager of the Year awards were announced at the National Flood Risk Management Program (NFRMP) Virtual Workshop in July 2022. These awards are given annually by the NFRMP to recognize exceptional individuals and teams whose work has strengthened connections between federal agencies, states, tribes and communities involved in flood risk management. Through collaboration, facilitating information sharing, and promoting a deeper understanding of diverse community needs, these awardees help ensure that communities have access to the full range of resources and expertise available for managing flood risks. The Silver Jackets Team of the Year is selected through peer voting by state team members, while the Flood Risk Manager and Silver Jackets Coordinator of the Year awards are determined by a panel from USACE Headquarters and the Institute for Water Resources.

Congratulations to the following recipients!

## 2022 Silver Jackets Team of the Year

[The Iowa Silver Jackets Team](#) is the 2022 Silver Jackets Team of the Year!

The Iowa team is being recognized for its exceptional response and recovery work in the face of historic flooding across Iowa in 2019. The team supported levee rehabilitation efforts, nonstructural buyouts, and other nonstructural flood risk mitigation efforts, and participated in a Levee Task Force initiated by the governor of Iowa as part of the recovery efforts. The team also conducted multiple interagency efforts focused on communities most impacted by the 2019 flooding, such as the city of Davenport, where they provided innovative interagency support for, and assessment of, nonstructural flood risk management options. The team has also focused on interagency collection and processing of data to enable rapid modeling and mapping of floodplain areas for future needs. The team's successful accomplishments are attributed to strong partnering from the many dedicated team members and agencies, demonstrating shared responsibility in action.



Iowa Silver Jackets, Team of the Year, 2022

Continued on page 9



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## 2022 Silver Jackets Coordinator of the Year

**Mr. Matt Shanks from the USACE Great Lakes and Ohio River Division (LRD) is the 2022 Silver Jackets Coordinator of the Year!**

In his role as Silver Jackets program manager, Matt coordinates regularly with the district Silver Jackets coordinators within LRD's area of responsibility, ensuring they have the support and resources needed to successfully support state Silver Jackets team partners and providing them feedback to help strengthen district efforts. He also coordinates regularly with the HQ National Flood Risk Management Program (NFRMP) team, providing valuable and appreciated feedback on the needs of the districts as well as the overall direction of the program. Matt introduced a structure to the LRD NFRMP team, including instituting quarterly team meetings with flood risk managers and Silver Jackets coordinators from all districts to increase focus on program execution. Matt also provided strong support to the districts by leveraging other USACE opportunities to support state Silver Jackets team priorities, such as the Floodplain Management Services Program.



2022 Silver Jackets Coordinator of the Year, Matt Shanks

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## 2022 Flood Risk Manager of the Year

**Mr. Nik Richard from USACE New Orleans District is the 2022 Flood Risk Manager of the Year!**

In his role as district flood risk manager, Nik brought together multiple state and federal agencies to better manage flood risk. He worked closely with state, local, and other partners to understand the need; and coordinated closely with technical subject matter experts to leverage resources and opportunities to provide support. Nik traveled extensively across the state of Louisiana, strengthening relationships with numerous partners at all levels of government. He leveraged these partnerships to increase USACE's presence across the state in support of flood risk management needs, including focusing on delivering flood risk management support to traditionally overlooked communities. He also played an integral role in supporting and assisting communities facing immediate hurricane recovery needs following devastating hurricanes in 2020 and 2021.

Congratulations to the Iowa Silver Jackets Team, Matt Shanks and Nik Richard for their exceptional achievements and unwavering commitment to building stronger partnerships for improved flood risk management. 🙌



2022 Flood Risk Manager of the Year, Nik Richard

# An update on the National Levee Safety Program

By Jennifer Laux, USACE Levee Safety Center, Vicksburg District

In December 2021, the U.S. Army Corps of Engineers (USACE) and the Federal Emergency Management Agency (FEMA) initiated development of the new National Levee Safety Program. This program is focused on supporting a more consistent approach to managing levees in the U.S. by providing best practices and guidance to levee owners and communities that may not have USACE interaction or other direct support.

Through extensive stakeholder and tribal engagement over the past two years, numerous resources are being developed under the National Levee Safety Program including a consistent set of national best practices, tools to assist levee owners/operators with day-to-day levee activities, a framework for states and tribal nations to set up formal levee safety programs, and improvements to the existing National Levee Database.

At the end of June 2023, the National Levee Safety Program successfully wrapped up the second phase of stakeholder engagement activities, which included a series of topic-specific webinars and in-person workshops. These events provided stakeholders with a chance to learn more about the draft products being developed and participate in breakout discussions to ask questions and provide feedback.

Draft products included:

- Sample content from the National Levee Safety Guidelines.
- An outline for a new Levee Management Guide for levee owners/operators.
- Excerpts from operations and maintenance manuals and emergency action plan templates.

- A new levee-cost brochure.
- Activities that states can implement as part of a levee safety program.
- Updates to the National Levee Database, including new public facing webpages and a customizable dashboard to help states manage data for their levee portfolios.

Nearly 300 people participated in the latest stakeholder engagement activities. All feedback is currently being reviewed and a summary report will be available for download at [www.leveesafety.org](http://www.leveesafety.org).

For more information about the National Levee Safety Program, including upcoming stakeholder engagement opportunities and to sign up for program updates, visit <https://www.leveesafety.org/pages/get-involved>.

www  
leveesafety.org

## NATIONAL LEEVE SAFETY PROGRAM

[www.leveesafety.org](http://www.leveesafety.org)

### PROGRAM OVERVIEW

*The U.S. Army Corps of Engineers (USACE) and the Federal Emergency Management Agency (FEMA) are leading a national discussion to develop tools and resources to help communities behind levees reduce their impacts from flooding and increase their resilience.*

*There are four major components that are intended to work together to accomplish the goals of the program:*

- » National Levee Safety Guidelines
- » Integrated Levee Management
- » National Levee Database
- » Implementation Support

### National Levee Safety Guidelines Overview

**OVERVIEW**

The goal of the National Levee Safety Guidelines is to serve as a national resource of voluntary best practices to help achieve nationwide consistency in improving the reliability of levees and resiliency of communities behind levees throughout the United States. The guidelines are being developed with stakeholder input and are intended to be used by a broad audience from multiple disciplines and sectors. The intent of the guidelines is for:

- » Levee owner/operators to have a common resource of best practices for all phases in the life of a levee.
- » Local officials and communities to have a common resource for best practices in levee risk management in the context of broader flood risk, emergency management, and enhanced community resilience.
- » The private sector to have an available reference document for levee-related activities.
- » Federal, state, regional, and tribal organizations to use in association with their levee safety programs.

Primary topics in the National Levee Safety Guidelines range from basic concepts and terminology to consistent approaches for levee-related activities throughout the life of a levee. Strategies to reduce flooding impacts to people, property, and the environment are also covered. The guidelines recognize the importance of understanding the needs of underserved communities. The value of addressing how climate change impacts levees and integrating natural and nature-based solutions is also emphasized throughout the publication.

**Includes Full Life Cycle of a Levee:** The National Levee Safety Guidelines are intended to apply to all phases of the life of a levee: planning a levee project, design, construction, operation and maintenance, emergency management, levee rehabilitation, modification, and removal.

**Scalable and Adaptable:** Levees throughout the Nation vary greatly due to ownership, benefits provided to the community, local climate and watershed conditions, design, and availability of materials used for construction. Therefore, the National Levee Safety Guidelines aim to be as useful as possible to the widest number of stakeholders and situations. To achieve this, risk-informed concepts are proposed as a way to help users effectively scale their efforts and adapt them to local conditions.

**Future Updates:** Periodic updates to the National Levee Safety Guidelines will be based on stakeholder feedback, advances in science and technology, and changes in legislation.

**PROCESS TO DEVELOP THE NATIONAL LEEVE SAFETY GUIDELINES**

**Sources of Information:** The initial step for the development of the guidelines included a literature review of existing USACE levee-related practices. This effort was then expanded to evaluate additional levee-related documents from international, federal, state and local sources. Over 1,500 documents were identified as potential sources of information related to levee practices. Each document was evaluated on several factors including the method of review (independent/peer, agency/organization, public, none) and whether the document was produced through a formal process. Documents with a higher level of review and those that

1 / National Levee Safety Guidelines Overview / March 2022



Fact sheets and other resources are available on the program's website. ([NLSP Fact Sheet](#), 2022)



# Colorado Flood After Fire Webinar Series is a success!

By Lacey Weber, Flood Risk Management Program Intern, Sacramento District

Editors Sarah Moore, Planner, Albuquerque District; Rachael Orellana, Flood Risk Program Manager, Sacramento District; and Amy Snively, Outreach Program Specialist, Kansas City District

The threat of wildfires continues to sweep across the western half of the United States, and Colorado saw proof of this when devastating fires struck in 2020. Although flooding and fires are seemingly opposite crises, flood risk significantly increases after a wildfire because the soil properties are altered. Burned ground and vegetation are unable to absorb the falling rain, producing runoff conditions much like a parking lot. Post-fire flooding can be especially dangerous because runoff may contain toxins and debris from fires, making flood risk reduction even more crucial.

After Colorado faced historic wildfires in 2020, there was a clear need for exchanging good practices for flood after fire preparation, mitigation, and recovery. The Colorado Silver Jackets team created a virtual forum for key conversations to exchange good practices for supporting communities through the flood after fire risk life cycle.

The forum established a three-part series of webinars highlighting the cutting-edge work local, state and federal agencies in Colorado are doing for communities to prepare for and respond to flood after fire risks. On Oct. 18, 2022, [the first webinar](#) focused on the first six months following a wildfire with an emphasis on how communities can reduce their flooding risks. Over 100 participants from all over the state, including participants from every major watershed, attended the two-hour webinar.

Larimer County, Colorado, was highlighted as a case study in the inaugural webinar, Flood After Fire: The First 6 Months. Following the Cameron

Free

Virtual

## Colorado Flood After Fire Webinar Series

<b>The First Six Months</b> --- Tuesday 18 Oct. 2022	<b>Recovery &amp; Mitigation</b> --- Tuesday 10 Jan. 2023	<b>Preparation &amp; Training</b> --- Tuesday 7 Mar. 2023
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**All Webinars are from 9:30 - 11:30 MST**

Join the Webinars by Copying and Pasting the Link:  
<https://usace1.webex.com/usace1/j.php?MTID=md86f6d65b5e28dd3815a7ab8da1258c4>

The Colorado Flood After Fire Webinar series (Source: available [here](#) as of 7 May 2023)

Peak Fire in 2020, the community brought together representatives from many sectors and municipalities in Larimer County to create the [Larimer County Recovery Collaborative](#). This team was expanded to include state and federal agencies, Larimer County, watershed partners, and other partners dedicated to recovery from this wildfire. Kohl Parrott, Larimer County emergency management coordinator, shared the value of the early establishment of the recovery team, "By the time the fire was declared contained, the partners had established recovery goals and multiple projects were already underway for recovery and future mitigation." This recovery plan included risk assessments,

coordination through technological advancements, and community outreach. Parrott's presentation offered an example of how Colorado communities can proactively plan for recovery and flood mitigation following a wildfire.

The virtual forum additionally provided participants with flood after fire resources from a state resources panel sharing expertise focused on how to reduce flood risks within the first six months of a wildfire. The Colorado Water Conservation Board (CWCB) discussed the importance of identifying

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Debris removal / hazard tree removal efforts following the Cameron Peak Fire. Note the water source at the bottom of the steep hill. (Source: K. Parrott Presentation, 18 Oct 2022)

the location of people, properties and infrastructure that are susceptible to flood after fire hazards and described the types of analytic support the CWCBC can provide. The Colorado Geological Survey discussed how they can provide assessments and mapping following a wildfire. The Colorado State Forest Service introduced tree planting, collaborative groups, and various forestry services for a post-fire environment. The Colorado Division of Homeland Security and Emergency Management supported recovery through conducting damage assessment and a state recovery task force. Having representation from four agencies at this webinar provided valuable insight on topics that will better the odds for flood after fire preparedness throughout Colorado.

The federal panel followed the state resources panel, providing an array of federal resources to assist in preparing for the possibility of flooding after a wildfire. The National Weather Service discussed warning systems for the public and communities at risk, which are a crucial aspect of preparedness. The U.S. Geological Survey covered a wide range of topics from hazard assessments to monitoring resources. The National Resources Conservation Service highlighted their Emergency Watershed Protection Program and the work they do implementing emergency recovery measures. Resources from FEMA highlighted the National Flood Insurance Program and National Risk Index.

Since the first webinar, Colorado communities have come together for two additional webinars during which

they discussed how to prepare for, recover from, and mitigate wildfire impacts. One webinar, held Jan. 10, 2023, focused on recovery and mitigation and was attended by 147 participants. The other, held March 7, 2023, hosted 111 participants and addressed topics related to [preparation and training](#). In total, the webinars reached 237 individuals with over 40% of participants attending at least two of the webinars in the series.

Wildfires are disastrous for communities, and having a flood occur on the heels of a fire can be devastating. Collaborative discussions and presentations, such as those that occurred during the Colorado Flood After Fire Webinar series, provide a critical opportunity to discuss how to best mitigate flood after fire risks. ♦



# Watershed University Summit 2022 – Floodplain Management in the 21st Century

By Lindsay Floyd, USACE, Sacramento District

The California Silver Jackets team put on another successful Watershed University Summit held April 26-27, 2022. The virtual event brought together floodplain managers, emergency managers and other water professionals from local, state and federal agencies for a free two-day summit. The event focused on floodplain management in today's day and age, bringing together experts to talk about modern-day floodplain management, nature-based floodplain management solutions, the transformation of the Community Rating System (CRS), and non-structural solutions.

Watershed University offers free educational and networking opportunities designed for professionals in floodplain management, water management, emergency management and related fields. Events hosted by Watershed University include in-person and virtual summits, as well as subject-specific webinars. They are organized by the California Silver Jackets team as a cooperative effort by the California Department of Water Resources (CA DWR) and the U.S. Army Corps of Engineers' (USACE) Sacramento and Los Angeles districts.

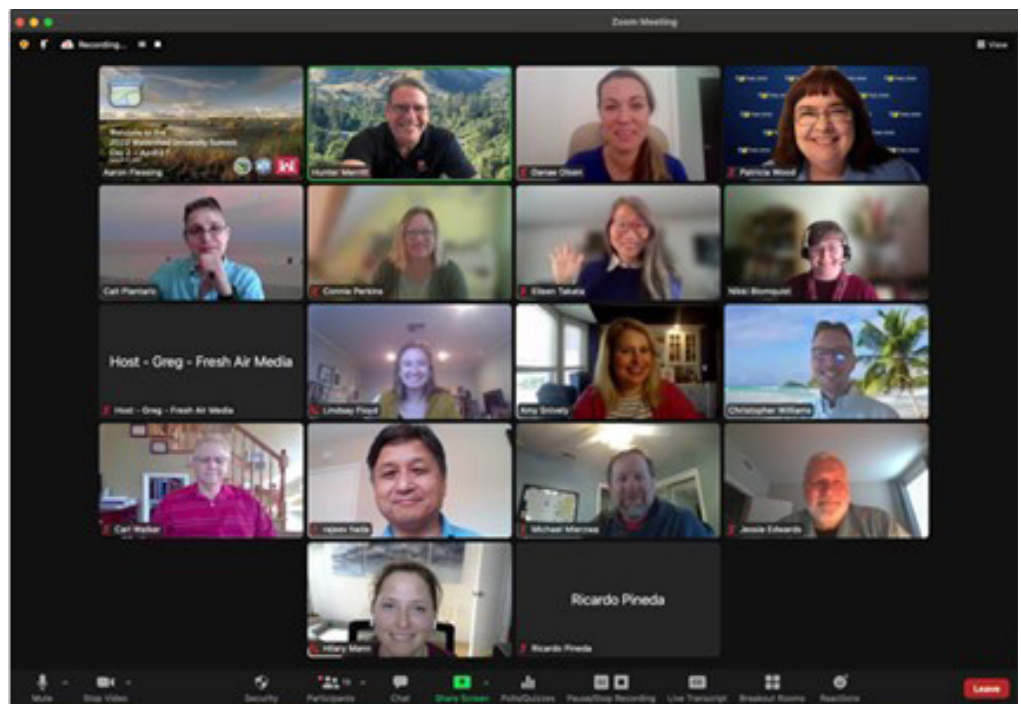
The 2022 Watershed University Summit virtual sessions drew audiences of up to 100 people. Session participants heard from experts who discussed relevant topics in today's floodplain management landscape. On day one, the current and former state floodplain managers gave an engaging and informative history of floodplain management, highlighting some of the most pivotal floodplain management policy drivers responsible for defining California's approach to floodplain management, including Gilbert White's 1942 dissertation and the 2002 California Floodplain Task



Day 1 Watershed University welcome slide with an image of the Yolo Bypass, a notable nature-based project. (CA DWR, 2022).

Force Report. The second panel on day one was a thought-provoking panel presented by Dr. Todd Bridges (USACE) and David Martasian (CA DWR). Their

session covered nature-based flood management solutions and ended with a robust panel discussion to answer the audience's questions.



The 2022 Watershed University planning and facilitation team before Day 1 kickoff. The team included California Silver Jackets partners from CA DWR and USACE. (Hunter Merritt, 2022)

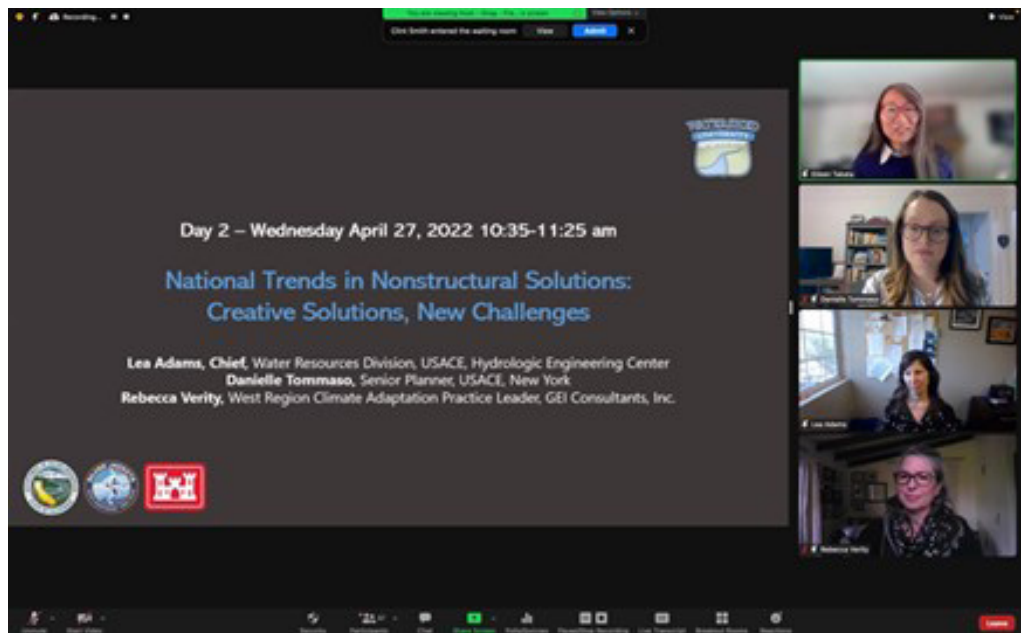
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On day two, a panel of local CRS coordinators from across the state shared their perspectives, experiences and ideas for improvements to FEMA's CRS program. In August 2021, FEMA provided the opportunity for the public to provide feedback on transforming the CRS program to be more accessible and equitable. This panel reviewed the feedback FEMA received.

Finally, the summit wrapped up with a presentation from experts in non-structural solutions. The presentations, which provided an overview of nonstructural solutions and case studies from across California, received positive feedback from the audience. George Qualley (CA DWR) noted, "The presentations and discussion on nonstructural solutions were all excellent!"

The 2022 Watershed University Summit employed several strategies to address the challenges of operating in a virtual environment. Each day was limited to a half-day's worth of sessions, a format that was well received by participants. The summit facilitator kept the event moving smoothly and used ice breaker games to engage participants. CA DWR secured contractor support to manage Zoom sessions and meeting logistics, which freed the event planning team to better facilitate and monitor chats. To recreate the type of face-to-face interactions that naturally happen at workshops around the coffee table, the team factored in 15 minutes each day to hold small breakout groups giving participants a chance to meet new people and socialize.

The California Silver Jackets team has a longstanding history of putting on Watershed University events, which originated from the recognition that some communities cannot afford the investment of time and money required to send floodplain managers and other professionals to conferences. In 2011, Ms. Kathy Schaefer, then



Day 2 session on national nonstructural trends with presentations from Lea Adams (USACE HEC), Danielle Tommaso (USACE New York District), and Rebecca Verity (GEI Consultants). (USACE, 2022)

affiliated with the Federal Emergency Management Agency (FEMA) Region IX, conceived of Watershed University as a cost-free alternative to conferences, enabling certified floodplain managers to fulfill their continuing education requirements. The first Watershed University Summit took place in Redding, California, that same year. As the initiative gained momentum, subsequent in-person summits were held in 2012 and 2015.

In 2017, significant flooding events across the state led to the deployment of many presenters and participants. As a result, the California Department of Water Resources (CA DWR) and the U.S. Army Corps of Engineers (USACE) adapted by organizing a series of monthly Watershed University webinars, replacing the in-person gatherings. This shift led to the establishment of the Watershed University Webinar series, which garnered a distribution list of 600+ interested professionals. Archived recordings of these sessions can be accessed [here](#).

Nothing can replace in-person experiences, and one of the most ardent supporters of California Silver Jackets,

retired Col. Carl Morrison, pushed for a return to the traditional gathering. As the retired vice commander of the South Pacific Region of the Civil Air Patrol, Morrison sought opportunities for Silver Jackets and the Air Patrol to work together. He offered to facilitate hosting an in-person 2018 Watershed University Summit at March Air Force Base and to recruit the Civil Air Patrol as a local partner. Tragically, Morrison passed away that spring. In 2020, the team was planning for the fourth in-person Watershed University Summit to be held in Los Angeles to honor Morrison's vision. However, the team had to make a last-minute decision to hold the event virtually due to the emerging COVID-19 pandemic. The event was a success with over 350 registered attendees.

The California Silver Jackets team looks forward to more collaborative Watershed University efforts in the future! ♦



Watershed University Logo (CA DWR, 2022)



# Round the National Silver Jackets table

By Katherine Rowden, USACE National Silver Jackets Program Manager

The National Silver Jackets Team is composed of several federal agencies that meet quarterly. “Round the Table” is a standing agenda item at National Team meetings, with each agency sharing new tools, publications and initiatives, and exchanging information and learning opportunities. Contact the National Team at [IWR.SilverJackets@usace.army.mil](mailto:IWR.SilverJackets@usace.army.mil).

## EPA:

- EPA’s Watershed Academy has launched a [Hazard Mitigation Module: Creating Co-Benefits Through Hazard Mitigation Planning and Water Resource Management Module](#).
- Learn more about [EPA’s Municipal Ombudsman here](#) – an independent, impartial, and confidential resource for communities navigating clean water. To subscribe to a weekly list of federal clean water resources with a municipal focus, send an email with the word “subscribe” in the subject line to [municipalombudsman@epa.gov](mailto:municipalombudsman@epa.gov).
- EPA is making available [\\$50 million in grants to upgrade stormwater and sewer infrastructure](#). Funding is through the Sewer Overflow and Stormwater Reuse Municipal Grant program (OSG) to help communities address stormwater and sewer infrastructure needs. States may now apply for grant assistance to fund projects that will help municipalities strengthen their stormwater collection systems against increasingly intense rain events and prevent contaminants from polluting waterways.
- EPA recently released the [Investing in America: Climate Action Funding Resource Guide](#), which was developed to help states, metropolitan statistical areas, tribes, and territories locate climate-related federal funding opportunities.
- EPA has made available a [guide](#) and [webinar](#) providing information on funding sources for green infrastructure and nature-based solutions.

## NOAA NWS:

- Most of NOAA’s Bipartisan Infrastructure Law funding opportunities have already gone out; all program-specific opportunities are available on [NOAA’s Bipartisan Infrastructure Law website](#).
- Through the Inflation Reduction Act-supported [Climate-Ready Coasts and Communities](#) initiatives, NOAA will work

with state, local, and tribal governments, tribes, and tribal and Native organizations, NGOs, and the private sector in coastal and Great Lakes communities to develop and support durable, local capacity to adapt to climate change impacts, while growing economies, protecting fisheries, and developing a climate-ready workforce. These Climate-Ready Coasts and Communities initiatives include: [Climate Resilience Regional Challenge](#), [Tribal Priorities](#), [Climate-Ready Fisheries](#), [Climate Resilience Accelerators](#), and [Climate-Ready Workforce](#).

## FEMA:

Under the authority of the Community Disaster Resilience Act of 2022, FEMA is implementing the use of Community Disaster Resilience Zones (CDRZs) to prioritize and integrate federal, local and private funding for risk mitigation efforts. FEMA is using the [National Risk Index](#) (NRI) and the [Climate and Economic Justice Screening Tool \(CEJST\)](#) to designate CDRZs. The NRI is an online mapping tool that identifies communities most at risk to 18 natural hazards and provides communities with standardized natural hazard risk data. FEMA designated 483 census tracts on September 6, 2023, for all 50 states and Washington, DC. An additional cohort for tribal lands and U.S. territories will be designated later this fall. Additional cohorts will be announced in 12-18 months after updates to the NRI based on feedback through the Request for Information process. CDRZs will be used to facilitate cross-agency coordination and direct technical assistance and federal resilience funding to those areas in the greatest need of resilience planning. As one example, FEMA will increase to 90% the federal cost share for projects funded under the FEMA [Building Resilient Infrastructure and Communities](#) program. ♦

**FEMA updates the National Risk Index with new data and enhanced methodology.** FEMA has released major updates to the National Risk Index. The National Risk Index is an online mapping tool from FEMA. It shows the communities most at risk to 18 natural hazards. Data and methodology updates include:

- Use of the CDC's Social Vulnerability Index.
- Census 2020 data.
- Estimated loss profiles for U.S. territories.
- Updated and refined data from Hazus, NOAA, and the National Land Cover Database.
- New risk value metrics to capture the trending of risk.
- A clear and measurable percentile approach.
- Improved risk categorization.
- New Expected Annual Loss rate metrics of buildings, populations, and agriculture for all hazards.

FEMA officially launched the National Risk Index in August 2021. Since then, it has become a key tool to help communities better learn and reduce their risk. It has provided many local communities with localized and tailored data. These data can replace or support current data resources. It also has a full analysis of many risk factors for a wide range of assets. This helps communities learn what to protect.

The Risk Index can support mitigation planning, community preparedness, and emergency management. To learn more about how to use the National Risk Index for your community, visit the [National Risk Index Best Practices web page](#). For more information on the updates and to learn your level of risk, visit the [National Risk Index](#).

**Natural Hazards Center's [Research Counts](#) platform releases the "[Disaster Cycle Special Collection](#)," a compilation of articles that can assist communities with adapting to disasters in every phase of the disaster cycle.** Developed in collaboration with the [International Journal of Mass Emergencies and Disasters](#) (IJMED), "Research Counts" condenses research recently published in IJMED that addresses the disaster cycle. The collection contains two articles for each of five disaster cycle phases, including:

- Preparedness.
- Emergency Response.
- Impacts.
- Recovery.
- Mitigation and Resilience.

The articles included in this special collection draw on both domestic and international experiences and are written for a broad audience, including emergency managers, public health practitioners, policy makers and journalists. The full collection is available [online](#) and as a downloadable PDF.

### **[Hazard Mitigation Planning and Water Resource Management Module](#) is now available from EPA's Watershed Academy.**

This online course presents options for addressing water quality issues or integrating nature-based solutions into local Hazard Mitigation Plans. The course module series provides an introduction to nature-based solutions and hazard mitigation, discusses integrating water quality and hazard mitigation programs, and examines how watershed planning and hazard mitigation planning can align. Case studies and examples are provided to assist hazard mitigation planners with integrating water resource programs into Hazard Mitigation Plans.

### **FEMA's updated State Mitigation Planning Key Topics Bulletins assist states with the mitigation planning process.**

The four bulletins supplement the [State Mitigation Planning Policy Guide](#), which became effective April 19, 2023, and contains FEMA's official policies on the development and review of state mitigation plans. The bulletins offer relevant resources and "how-to" instructions for state hazard mitigation officers, state planners, and other members of the state mitigation planning team. Each bulletin addresses a different step in the mitigation planning process. The [Planning Process](#) Bulletin discusses considerations in creating an equitable planning process, as well as how to document the process and adopt a plan. The [Risk Assessment Bulletin](#) describes the five steps to state risk assessments, discusses the use of climate projections in planning, and examines ways to keep risk assessments up to date with changes in development. The [Mitigation Capabilities Bulletin](#) covers ways to assess the effectiveness of local mitigation capabilities. The [Mitigation Strategy Bulletin](#) explains how to update goals, add and prioritize mitigation actions, and identify funding sources.



# UPCOMING EVENTS

## Workshops and Conferences

[2023 Annual Massachusetts Association for Floodplain Management Conference](#). October 23, 2023. Worcester, MA.

[Alabama Association of Floodplain Managers 2023 Fall Conference](#). October 23-25. Florence, AL.

[2023 Living Shorelines Tech Transfer Workshop](#). October 24-25, 2023. Galveston, TX.

[New Jersey Association for Floodplain Management 18th Annual Conference](#). October 24-26, 2023. Atlantic City, NJ.

[Wisconsin Association for Floodplain, Stormwater, and Coastal Management 21st Annual Conference. November 1-2, 2023.](#) Green Bay, WI.

[2023 Minnesota Association of Floodplain Managers Conference, Living with Levees - Flooding of the Midwest Plains.](#) November 1-3, 2023. Moorhead, MN.

[Arizona Floodplain Management Association Fall 2023 Conference](#). November 1-3, 2023. Tucson, AZ.

[Maryland Association of Floodplain and Stormwater Managers \(MAFSM\) Annual Conference](#). November 8, 2023. Linthicum Heights, MD.

[2023 New Mexico Floodplain Managers Association Fall Workshop](#). November 8-9, 2023. Bernalillo, NM.

[27th Biennial Coastal and Estuarine Research Federation Conference](#): Resilience & Recovery. November 12-16, 2023. Portland, Oregon.

[Virginia Floodplain Management Association \(VFMA\) Annual Conference](#). November 13-14, 2023. Richmond, Virginia.

[ICFRMP 2024: 18. International Conference on Flood Risk Management and Planning](#). February 19-20, 2024. New York, NY.

[Illinois Association for Floodplain and Stormwater Management Annual Conference](#). March 12-13, 2024. Peoria, IL.

[Texas Floodplain Management Association Annual Meeting](#). March 19-22, 2023. Grand Hyatt, San Antonio, TX.

[2024 National Flood Association Annual Conference](#). March 24-26, 2024. Scottsdale, AZ.

[After the Flames Conference and Workshop, Tools and Tactics for Communities and Agencies Impacted by Wildfire](#). April 15-17, 2024. Estes Park, CO. December 15, 2023 is the deadline for submission of presentations.

[Florida Floodplain Managers Association \(FFMA\) Conference](#). April 23-26, 2024. Sandestin, FL.

[National Flood Conference](#). Co-hosted by [American Property Casualty Insurance Association](#) and [Reinsurance Association of America](#). June 2-5, 2024. Co-hosted by Washington, DC.

[Association of State Floodplain Managers \(ASFPM\) Conference](#). June 23-27, 2024. Salt Lake City, UT.

[National Association of Flood and Stormwater Management Agencies 2024 Annual Meeting](#). October 27-30, 2024. Colorado Springs, CO.

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## UPCOMING EVENTS

### Courses, Webinars and Resources

[Making Mitigation Work Webinar Series](#) presented by The Natural Hazards Center, in partnership with the Federal Emergency Management Agency. These free, one-hour webinars feature innovative speakers and highlight progress in mitigation policy, practice, and research.

[ASDSO Webinar Program](#) provides access to dam and levee safety-related webinars in both live broadcast and previously recorded OnDemand versions.

[ASDSO 'Dam Owner Academy' Videos](#) offer dam owners, and those conducting owner outreach programs, information about different aspects of dam ownership. Videos are accompanied by supporting fact sheets. Recent additions to the video series include: [Plants & Animals on Dams](#), [Seepage, Slope Stability & Seismic Issues](#), [Learning From Dam Failures](#) and [Concrete Problems & Repairs](#).

[Natural and Nature-Based Flood Management Methods](#). This online course teaches concepts related to natural and nature-based flood risk management fundamentals, terminology and approaches. It is available on the World Wildlife Fund [Adapt](#) website, which provides learning tools that help conservation, development and humanitarian professionals better understand climate change adaptation, resilience-building and multi-hazard disaster risk reduction and their relationships to the natural environment.

[ASFPM On-Demand Learning](#) provides online courses pertinent to floodplain management and approved for continuing education credits (CECs) for Certified Floodplain Managers. New courses are regularly added.

[Community Resilience Guide for Repetitive Flood Loss](#). Developed by the Association for State Floodplain Managers and Coastal States Organization, this online resource provides resources, training, and other forms of assistance that local floodplain managers, planners, and other local officials can use to delineate, monitor, communicate, and reduce flood risk in their communities.

[Planning Information Exchange seminar series](#) focuses on all-hazard mitigation planning, while also exploring connections with recovery, planning and preparedness. Led by the American Planning Association, in partnership with the Association of State Floodplain Managers, this website contains recordings of past webinars as well as information on upcoming webinars.

[FEMA Emergency Management Institute](#) full course schedule posted. Admissions: 301-447-1000, [netcadmissions@fema.dhs.gov](mailto:netcadmissions@fema.dhs.gov).

[Digital Coast](#), developed by the NOAA Office for Coastal Management, provides online access to tools, training and data to support communities in addressing coastal issues. The site includes stories from the field illustrating different ways communities have put Digital Coast resources to use.

[Neighborhoods at Risk](#) is a web-based tool designed to support community planning addressing climate change. This site provides geospatial data that enables users to examine socioeconomic and climate variables at the neighborhood scale and see climate projections based on emissions scenarios.

[On Safer Ground](#) is a report describing how local governments across the United States are using buyouts as a strategy to cost effectively reduce flood risk, offer relief to residents and potentially improve access to open space in urban areas. The report explores best practices for community resilience involving floodplain buyouts and models for partnerships with the private sector.

[Coastal Resilience](#) is a program led by The Nature Conservancy to support practitioners with addressing coastal hazards, including sea level rise and storm surge, with nature-based adaptation and risk mitigation solutions. The program website describes a structured approach, provides access to a complementary mapping tool, and highlights projects and partners around the globe employing the approach to accomplish hazard mitigation and climate adaptation planning.



# FRM BUZZ

## NEWSLETTER

*Reducing Flood Risk: Many Partners, One Team*



### USACE Flood Risk Management Program:

<https://www.iwr.usace.army.mil/Missions/Flood-Risk-Management/Flood-Risk-Management-Program>



### Silver Jackets Program:

<http://silverjackets.nfrmp.us>

FRM BUZZ 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, <https://operations.erdc.dren.mil/ideas/index.cfm?CoP=Flood>, is the place to submit these research Statements of Need (SoNs).

You can find past issues of this newsletter at <https://operations.erdc.dren.mil/flood.cfm>. Both the [Silver Jackets website](#) and the [Flood Risk Management Gateway](#) have weblinks, news items and presentations of interest. Check them out!

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

*If you would like to submit an article or an idea for an article for the next edition of the newsletter, or if you have any comments or questions about articles in this edition, please email [Stephanie.N.Bray@usace.army.mil](mailto:Stephanie.N.Bray@usace.army.mil) or [Laura.J.Zepp@usace.army.mil](mailto:Laura.J.Zepp@usace.army.mil).*



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of Engineers**