

FRM BUZZ

NEWSLETTER

Reducing Flood Risk: Many Partners, One Team



From Army Corps to Peace Corps and Back:
Colleague uses Army Corps job skills on assignment to Philippines and Peace Corps-acquired skills upon return to Sacramento District duties

USACE Silver Jackets at the Be Ready Utah Webinar

Be Ready Utah recently held a public virtual conference to discuss preparedness for different disasters that have impacted the state this year.

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USGS Unveils Mobile Flood Tool for the Nation

The U.S. Geological Survey (USGS) invites all to visit and explore its National Water Dashboard (NWD), a new mobile tool available on the USGS website.

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FRM BUZZ

NEWSLETTER



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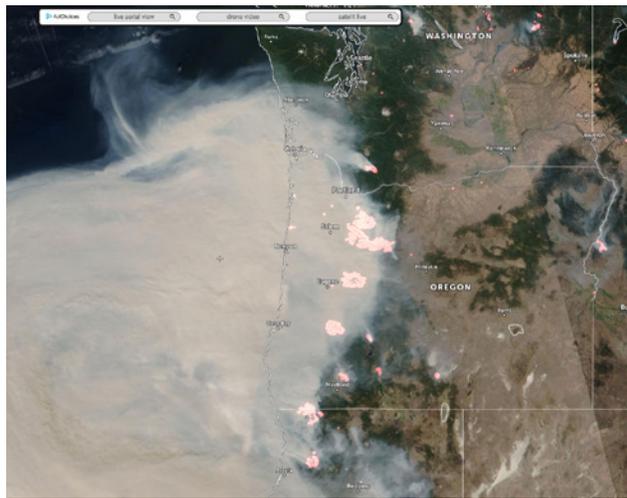
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Many Partners Form New Teams in United States Territories

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2020 Oregon Wildfires and the Role of Silver Jackets

Sparks from downed electrical lines, dry forest fuel sources, and high winds combined to create the perfect conditions for the spread of wildfires. Within a matter of days, Oregon was in the middle of the worst wildfire season ever experienced.

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On the Cover

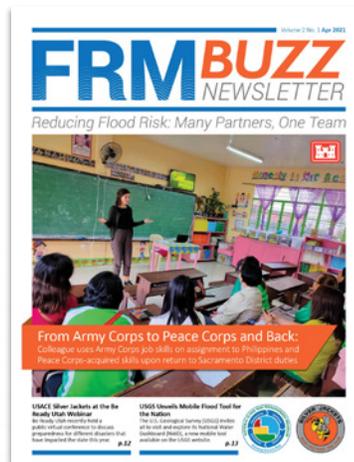
From Army Corps to Peace Corps and Back

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Learning from 2020

By Mark Roupas, Deputy Chief, Office of Homeland Security



Greetings! As we leave 2020 behind and move further into 2021, I hope you and your families remain safe and healthy. It is an understatement to say that 2020 was a difficult year for all. But I remain hopeful conditions in 2021 will continue to improve such that we'll be able to transition back to a more normal routine.

I don't expect that life will, or should, entirely return to normal as if the COVID-19 pandemic never happened. The immense loss that we, as a nation and a world, have experienced can never be forgotten or fully healed. The lives lost, the serious illnesses, the economic disruption and other significant impacts of the pandemic cannot and should not be discounted. As I reviewed the USACE Guide to Resilience Practices, just released this March, I was struck not only by its message but also its timing. I believe 2021 can be the year of demonstrating our resilience as we turn the corner and begin the road to national recovery.

That said, I don't believe life should simply return to normal; instead we must take the opportunity to learn

from our experiences in 2020 to lay the foundation "to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions." The pandemic revealed vulnerabilities cutting across many of our activities and business lines, but these can be examined and turned into lessons, especially for those in the emergency management and flood risk management businesses. For those of us more accustomed to dealing with traditional natural hazards (i.e., floods, hurricanes, storms, wildfires, etc.), the pandemic introduced us to different facets of emergency management such as emerging risks, systemic risks, and catastrophic risks.

I believe these types of risk will help to define the direction of the new Biden administration. For a more complete discussion on these and other challenges facing the nation, I recommend the 2020 National Preparedness Report compiled by the Department of Homeland Security based upon data collected as of December 31, 2019. The Department of Homeland Security released a similarly relevant report in November 2020 titled Homeland Security Advisory Council's Final Report: Economic Security Subcommittee. The report highlights threats and vulnerabilities associated with our nation's supply chains for personal protective equipment and pharmaceuticals. It details recommendations for the U.S. government to take over the next several years to improve the nation's ability to increase manufacturing resilience to future disruptors. In this context, the release of the USACE Guide to Resilience Practices is extremely timely.

2020 brought with it several destructive and costly natural disasters for our nation. The western United States experienced record-setting wildfires.

The Atlantic hurricane season produced 30 named storms. Twelve made landfall in the contiguous United States producing significant damages and loss of life. I want to commend the dedication and professionalism of all USACE personnel directly or indirectly involved in the response and recovery efforts to these devastating events.

Throughout the challenges of 2020, we were fortunate that we had time and capacity to plan and prepare in advance of each event to facilitate response and recovery. But what if events had played out differently? What if we had had concurrent significant events that required the mobilization of the full contingent of federal, state, and local resources? What if there had been multiple events that required mass sheltering of displaced populations? How would the pandemic have changed our approach to these critical tasks, had they been necessary?

As we move forward in 2021, we must prepare for compound or concurrent disaster events in the future, whether they come in the form of a natural hazard such as a flood or storm in the midst of a pandemic, a cyber-attack coinciding with a natural disaster, or something else entirely. Though we did not end up having to apply all these lessons in 2020, the context and lived experience of 2020 provides us with many opportunities to learn, think through and plan for possibilities, and make changes to improve our resilience for the future. I know that as we move forward into 2021, these questions will be on all our minds and we will do all in our power to learn from the experiences of 2020. Thank you for taking the time to review this newsletter, and I wish you a happy and healthy year to come. 🇺🇸

Many Partners Form New Teams in United States Territories

By Ellen Berggren, USACE IWR and Marci Jackson, Liz Batty and Brian Balukonis, USACE Jacksonville District



Puerto Rico Silver Jackets Team partners, including representatives from Commonwealth of Puerto Rico, FEMA, EPA and USACE, gather in 2019. (Brian G. Balukonis, May 2019)

The first chartered Silver Jackets team was formed in 2005. By 2017, state-led interagency flood (and sometimes multi-hazard) risk management teams had formed in every state in the continental United States as well as the District of Columbia and Alaska. Recently, the Silver Jackets idea has traveled overseas to several U.S. territories, with a Guam Silver Jackets team established in May 2019 (see Spring 2019 The Buzz) followed by the Commonwealth of Puerto Rico in June 2019 and, most recently, the U.S. Virgin Islands in July 2020. Although the Puerto Rico and U.S. Virgin Islands teams have unique visions and priorities, they have a common motivating influence — the

need for many partners working as one coordinated and collaborative team to successfully recover from the devastating impacts of Hurricane Maria and to be more resilient.

The Puerto Rico Silver Jackets share the vision of promoting best practices to enhance community resilience and recovery from natural disasters with a focus on sound flood risk management practices. Participating members include two commonwealth agencies and support from 10 federal partners (see inset). The team meets quarterly and has been focusing efforts on two collaborative efforts, including a floodplain manager's education and

outreach video and a high water mark project. The floodplain manager's video, planned for release later this year, will be animated due to logistical challenges associated with COVID-19. The high water mark project will be completed in three municipalities in Puerto Rico - Arecibo, Corozal and Toa Baja. The project will serve as a reminder to the community of the inundation experienced during Hurricane Maria and the potential risk of future inundation.

Upon its formation, the U.S. Virgin Islands (USVI) team became the 53rd Silver Jackets team. Its vision is to improve the quality of life,

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U.S. Virgin Islands (USVI) Silver Jackets partners meet to discuss formation of a USVI Silver Jackets team and flood risk management priorities. Pictured are representatives from the USVI Office of Disaster Recovery, Emergency Management Agency, Department of Planning and Natural Resources and Department of Public Works, FEMA, and USACE. (Graciela Rivera, September 2019)

infrastructure, and the environment by making the USVI more resilient to natural disasters. The USVI Office of Disaster Recovery administers the multi-agency and multi-disciplined team with support by four other territorial government agencies and five federal partners (see inset). Currently, the team is developing a quarterly educational and outreach series on floodplain management for local governmental agencies that will also be available to the public. Anticipated topics will include defining what a floodplain is, floodplain drainage, an overview of flood risk management agencies' programs, and floodplain flood risk mitigation strategies.

Welcome to our Puerto Rico and U.S. Virgin Islands Silver Jackets partners. We look forward to hearing about your teams' successes in a future edition of the FRM-Buzz newsletter. 🍷

Puerto Rico Silver Jackets

- Puerto Rico State Hazard Mitigation Office
- Puerto Rico Planning Board
- Environmental Protection Agency
- U.S. Department of Interior
- Federal Emergency Management Agency
- NOAA Office for Coastal Management
- NOAA National Weather Service
- USDA Natural Conservation Resources Service
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- U.S. Department of Transportation
- U.S. Geologic Survey

U.S. Virgin Islands Silver Jackets

- USVI Department of Planning and Natural Resources
- USVI Department of Public Works
- USVI Office of Disaster Recovery
- Virgin Islands Emergency Management Agency
- University of Virgin Islands
- U.S. Department of Interior
- Federal Emergency Management Agency
- NOAA Office for Coastal Management
- USDA Natural Resources Conservation Service
- U.S. Army Corps of Engineers

From Army Corps to Peace Corps and Back

By J. Paul Bruton, USACE Sacramento District

The U.S. Army Corps of Engineers (USACE) doesn't hire people so they can run off to the far corners of the world seeking travel or cultural experiences or new challenges. It hires people because it has open positions with work that needs to be accomplished to move the USACE mission forward. However, many people that work for USACE often find that it does present a surprising array of opportunities for travel, cultural experiences, and new challenges.

If anyone asked her, 27-year-old Patricia Fontanet would readily and honestly tell you that she enjoys her job as a water resources planner, that she finds the work fulfilling, and is thankful to be working for the USACE Sacramento District. But she would also admit that, four years into her position, she was growing restless and was keeping her eye out for an opportunity for growth. A big part of her restlessness had to do with starting a career – and her first real job – immediately following college. The then 23-year-old had graduated from Boston's Northeastern University in May 2016 and reported to work at the Sacramento District just two months later.

"I held a few internships and summer jobs, but my current position in Sacramento District is my first career-level job," said Fontanet. "I think coming directly from college graduation to the Corps in 2016 definitely played a part in my growing desire to seek opportunities for further development."

Fontanet began monitoring USACE job postings that featured overseas assignments. Several colleagues told Fontanet about their experiences working with the Peace Corps, and she realized it might be just what she was looking for.

"I was truly inspired by their stories



Patricia Fontanet visits with kids in La Trinidad, Philippines. (Ryunosuke Ichikawa, 2019)

and how they described Peace Corps as this unique opportunity to have real, significant impact in a community while completely immersing yourself in a different culture," said Fontanet. "I wanted to learn how other countries deal with their water resource issues, and I have always wanted to live and work in a different country for an extended period of time."

Rhiannon Kucharski, Fontanet's then-supervisor, fully supported her. "I'm a firm believer that we should always find a way to help people explore and find their passions," she said.

Fontanet applied to the Peace Corps specifically seeking assignments that were aligned with her background and work in the District. She soon received an offer to serve for seven months as a Disaster Risk Reduction Program Officer in La Trinidad, Philippines.

Fontanet's first two weeks were spent at the Peace Corps offices in Manila, learning about Filipino culture and history, taking language lessons, and completing several health and safety trainings. She was then picked up by her new work colleagues and shuttled five hours north to the mountainous, agricultural region of La Trinidad. Arriving well after midnight, Fontanet said the Municipal Disaster Risk Reduction Management team wasted no time in putting her to work.

"I arrived in La Trinidad around 1 a.m. on October 5. At 7 a.m., my supervisor – who was my neighbor and host dad – called me for breakfast with his family. By 8 a.m. I was in the office for my first day of work!"

The Philippines is highly susceptible to earthquakes and typhoons, and La

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Patricia Fontanet discusses flood safety with elementary school children in La Trinidad. (Buyagan Elementary School, 2020)

Trinidad often faces life-threatening landslides and floods. Fontanet spent the next several months working on projects that allowed her to use her USACE-acquired skills to benefit the municipality of La Trinidad. Her primary project, developing a flood study, closely mirrored work she provides for Sacramento District. She also focused on disaster preparedness for the local schools.

“The Municipal Disaster Risk Reduction Management office has only six full-time staff and focuses most of its resources into landslide recovery and earthquake preparedness. So, there is a need to study flood risk and further educate the public,” said Fontanet. “As a planner

in Sacramento District, a regular part of my job is to participate in flood preparedness outreach activities.”

Six months into her assignment, Fontanet still had her sleeves rolled up and was fully immersed in the work of visiting schools, participating in public meetings, making progress on her flood report and more.

But she was about to receive some news that would cut her trip short.

“I’ll never forget it,” she said.

On Friday, March 13, Fontanet and all other Philippines-based Peace Corps volunteers received an email instructing

them to pack their bags and return to Manila. They were being sent home. COVID-19 had become a global pandemic.

Fontanet had just 24 hours to pack and say her goodbyes.

Manila was preparing to shutter-up and lock down for at least 30 days starting March 15. With the Peace Corps offices and international airport located there, volunteers were rushed back to Manila to be evacuated to the U.S.

“My assignment was supposed to end on April 22, so I was pulled just over a

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month early,” Fontanet explained. Fontanet said it was unfortunate her time in the Philippines was cut short, but still believes it was an incredibly valuable six-month experience.

Kucharski had thrown her full support into Fontanet’s assignment with the Peace Corps because the work would be so closely related to the work she does for Sacramento. But Kucharski also believed that letting her participate in the assignment would mean Fontanet would return to the District an even more valuable, dynamic employee. It appears that’s exactly what happened. Fontanet said she’s already been putting her newly acquired knowledge to use, developing a post-disaster watershed assessment for the Commonwealth of the Mariana Islands as part of a study for the Honolulu District.

Her Peace Corps work in the Philippines afforded Fontanet six months of hands-on experience assisting the municipal government of a community that is regularly impacted by natural disasters.

“My assignment offered me a unique lens into how local officials communicate, prepare, mitigate, respond and recover from natural disasters,” said Fontanet. “This perspective has been especially useful in Silver Jackets projects that focus on building partnerships with local and city governments.”

Fontanet said she is also developing an Emergency Action Guide for the city of Bluffdale, Utah, where her newly acquired knowledge is helping ensure her product will be effectively aligned with the city’s flood risk management needs, priorities, and available resources.

“I’m so grateful the Sacramento District allowed me to go on a Peace Corps assignment,” said Fontanet. “Now I want to make sure I can pay it forward.”



Children show off the “I Am Ready” Flood Preparedness Activity Book they received at school. La Trinidad’s Municipal Disaster Risk Reduction and Management Office was awarded a grant to print 6,000 copies of Sacramento District’s activity book and distribute them to students in kindergarten through third grade. (Patricia Fontanet Rodriguez, 2020)



Patricia Fontanet leads a response group as representatives from different departments across the La Trinidad municipality discuss updates to the 2020-2025 Municipal Disaster Risk Reduction Plan. The group focused on goals, objectives, and recommendations for the next six years in disaster management. (La Trinidad Municipal Disaster Risk Reduction and Management Office, 2019)

2020 Oregon Wildfires and the Role of Silver Jackets

By Paul Sclafani, USACE Portland District



Satellite Imagery of the wildfires and smoke on September 10, 2020 (<https://zoom.earth/#view=44.25,-115.58,6z/date=2020-09-10,pm/layers=fires>)

In Oregon, the wildfire season generally extends from July to September. It's during this summer period when low rainfall and high temperatures dry out available fuel sources for potential wildfires. In recent years, extended drought conditions have exacerbated these conditions in much of the West Coast.

In early September 2020, a fast moving upper-level trough shot down the Rockies, producing a historic cold air mass and snowfalls as far south as Denver and pushing into Oregon from the east. Extreme temperature gradients produced high winds over dry forests throughout Oregon. In Salem, wind speeds on September 8th were greater than ever recorded for that time of year in the over-60-year record, according to atmospheric scientist and University of Washington professor Cliff Mass. Mark Nelson, Chief Meteorologist at KPTV in Beaverton, Oregon, reported widespread power outages left up to 80,000 people without power at one point. Sparks from downed electrical lines, dry forest fuel sources, and high winds combined to create the perfect

conditions for the spread of wildfires. Within a matter of days, Oregon was in the middle of the worst wildfire season ever experienced.

By November, the Oregon Department of Forestry (ODF) estimated a total of 2,027 devastating wildfires extending over 1.2 million acres of federal, state, local and private lands (Oregon Department of Forestry, 2020 fire season report). The areas burned were estimated to be 13 times the 10-year average annual burned acreage. According to Nelson, five of the 11 largest wildfires of the past 100 years occurred in 2020. In addition, these megafires occurred directly upstream of population centers and extended from Portland down to the California border. To make matters worse, many organizations were already stressed by impacts of COVID and protests over the summer.

The Oregon Silver Jackets team played a role in response and recovery efforts under these highly challenging conditions. Looking back at the team's experiences provides a chance to

Successful Practices in a Post-Wildfire Environment

Work through a plan and know the role Silver Jackets plays in a post-disaster recovery process. Make sure recovery plans are communicated and consistently understood before disaster happens.

Understand that communities need multiple communication points to receive, understand, and synthesize complex ideas. Outreach needs to be phased.

For a given disaster (wildfire in this case), work through who needs a seat at the table to adequately articulate risk.

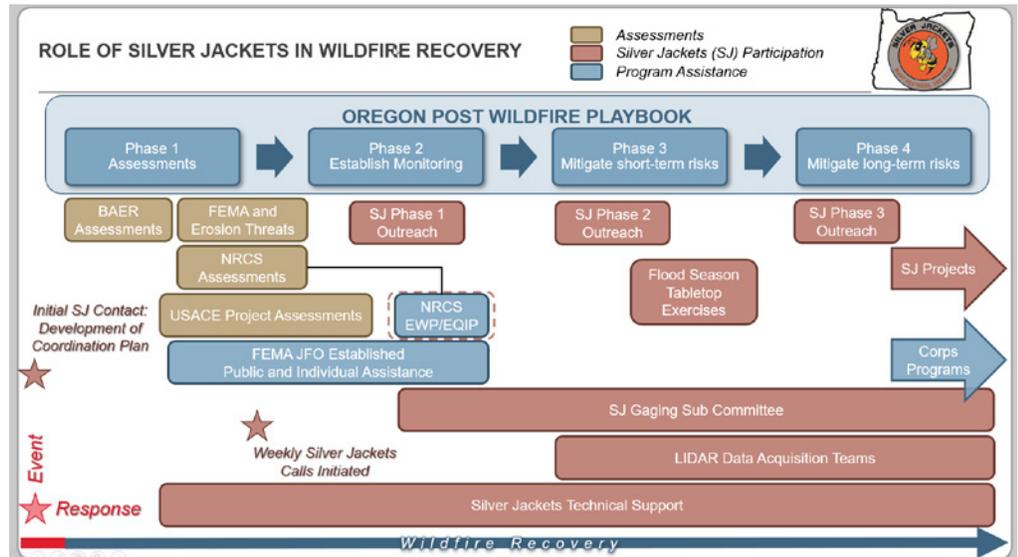
Reach out ahead of time to those agencies that control access to gaging sites (U.S. Forest Service in this case) to explain the importance of immediate access after a disaster. Doing so builds trust and creates an opportunity to do advance planning and training in order to make site access possible immediately following a disaster.

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examine how well the Silver Jackets' concept works under such extreme circumstances. Not surprisingly, there were some clear successes and some areas that need improvement.

In Oregon, the Silver Jackets team serves as the flood hazard sub-committee of the state's Interagency Hazard Mitigation Team. Much of the immediate need in the aftermath of the wildfires was for housing, debris removal, and inspection of structures and infrastructure. In many ways, these "non-flood" recovery efforts were more pressing than was the task of addressing the possibility of flooding. Indeed, the Silver Jackets team found that flood risk messaging sent out early, while officials were dealing with other concerns, was either not understood, lost, or took time away from more pressing issues. Standing by wasn't an option either. Because of the size of the disaster, the full machination of emergency response and recovery was mobilized through Joint Field Offices and Recovery offices. Many times, these emergency efforts spilled into areas of flood risk that the Silver Jackets team had already established a model workflow for, or needed to be involved in, to establish effective response. Planning when and where to engage, and communicating that plan became the primary art of the Silver Jackets' coordinated efforts in the post-wildfire recovery landscape.

Fortunately, the Oregon Silver Jackets team had already established a post-wildfire playbook which identified specific phases of post-wildfire activities. Early in September, just after the wildfires were ignited, the Silver Jackets team assembled through a series of conference calls to discuss what role they needed to have in the recovery process, as it related to flood risk. The team identified three sub-groups: outreach, gaging and monitoring, and technical assistance. Leaders of each group were identified, and the team stood up weekly calls to report progress of each sub-group's activities as well as to conduct other business.



Schematic showing the relationship of the various post-disaster activities relative to the Oregon Post Wildfire Playbook. (Paul Sclafani, 2020)

The outreach group assembled flood-after-wildfire communication tools, pamphlets and developed a website during the initial phase of outreach. Subsequent phases of outreach included a series of conference calls with individual counties, communities, and watershed groups to make sure post-wildfire flood risk was clearly understood, to make sure the available programs were clearly understood, and to identify areas of specific concerns.

The gaging and monitoring sub-group developed a monitoring plan for impacted basins. They conducted inventories of available equipment and identified areas in need of additional instrumentation. The sub-group divided the efforts into stream gaging needs and weather station needs. Because of concerns with landslides and hazard trees, field work required special permissions to access sites. They learned that the time and energy needed to apply for access to gaging sites after a disaster should not be underestimated.

The technical team engaged local communities and involved themselves in all aspects of response and recovery. Members of this team included the USDA National Resources Conservation Service, the U.S. Army Corps of Engineers, State of Oregon geologists,

and remote sensing specialists. In addition to providing sound technical advice, this team listened to communities to ensure that the level of risk was fully understood.

The Oregon Silver Jackets team learned that, in those areas where the team had worked through a plan in a post-wildfire environment, they achieved a more effective and more consistent response. They found that in areas where the individual team members had a clear idea of the Silver Jackets' role in recovery, the team was better able to untangle the web of federal and state Emergency and Recovery field offices. By relying on this common understanding within the Silver Jackets team, it relieved some pressure from individual team members to stay involved in everything and freed them up to fully focus on their area of responsibility. The team found, however, that more regional and national discussions are needed in advance of disasters so that federal and state organizations understand how they can collaborate through Silver Jackets teams. 🍌

Oregon Wildfires: A Retrospective on Inundation Boundaries

By Paul Sclafani, USACE Portland District

The 2020 wildfires in Oregon have impacted over 1.2 million acres, with five individual wildfires over 100,000 acres, each situated upstream of major population centers. Many of the impacted basins are either burned with a mosaiced severity or completely burned with high severity. These basins drain into mainstem river networks that flow through steep canyons before opening up into flatland confluence areas where more dense population centers exist.

In general, flood risk after wildfires increases due to the increased volume of runoff for a given rainfall event because of vegetation loss and changes in soil properties, increased debris and mudflows clogging up channels, and changes in hydrograph for affected basins. Outreach to communities during recovery operations for these fires consistently indicated that bank and slope erosion, as well as increased water volume from these basins, were their primary concerns. Communicating what a 50-percent, 20-percent, or even a 10-percent exceedance represents with the changes in basin response became a primary challenge.

In some areas, the U.S. Army Corps of Engineers (USACE) Portland District had existing HEC Hydrologic Modeling System (HEC-HMS) models that had been developed and calibrated for pre-wildfire conditions. These models were modified to estimate the post-wildfire response, albeit with a great deal of uncertainty. The challenge was then to communicate what this meant in terms of impacts to the community. This included questions like: How many additional structures would be at risk, and what are the new estimated flood frequencies throughout the community compared to the old?

Sadly, in many instances, communities

didn't have adequate hydraulic models to inform pre-fire flood frequencies, let alone increased risk associated with wildfire impacts. Generally, neither the communities nor the state of Oregon have the specific expertise to develop these models. By engaging the Oregon Silver Jackets Team it was apparent that only the U.S. Army Corps of Engineers (USACE), Federal Emergency Management Agency (FEMA), and to some degree the U.S. Geological Survey (USGS) offered the necessary expertise and programs to undertake large-scale, basin-wide hydraulic modeling. In the case of the wildfire impacted communities, either FEMA had not yet updated Zone A areas (i.e., areas identified as being subject to the 1-percent-annual-chance-event using approximate methods) to detailed studies or USACE had not invested in developing hydraulic models for purposes of adequately identifying risk associated with these more frequent exceedance probabilities.

From USACE's perspective, we have spent a great deal of effort identifying very large, infrequent events (i.e., 100-year up to Probable Maximum Flood (PMF) or greater). And rightfully so as these are the frequencies that will either cause damage to USACE infrastructure or increase the potentiality of failure of USACE projects. But communities trying to manage flood risk rarely benefit from investing money to mitigate these rare events.

As the program manager for Portland District's Floodplain Management Services Program (FPMS), I had not anticipated this need for widescale modeling and mapping of higher frequency, smaller magnitude events. Indeed, while I felt comfortable in our ability to support evaluation of risk to the projects in our area of responsibility, I hadn't asked whether the communities

Developing a Model Maintenance Plan

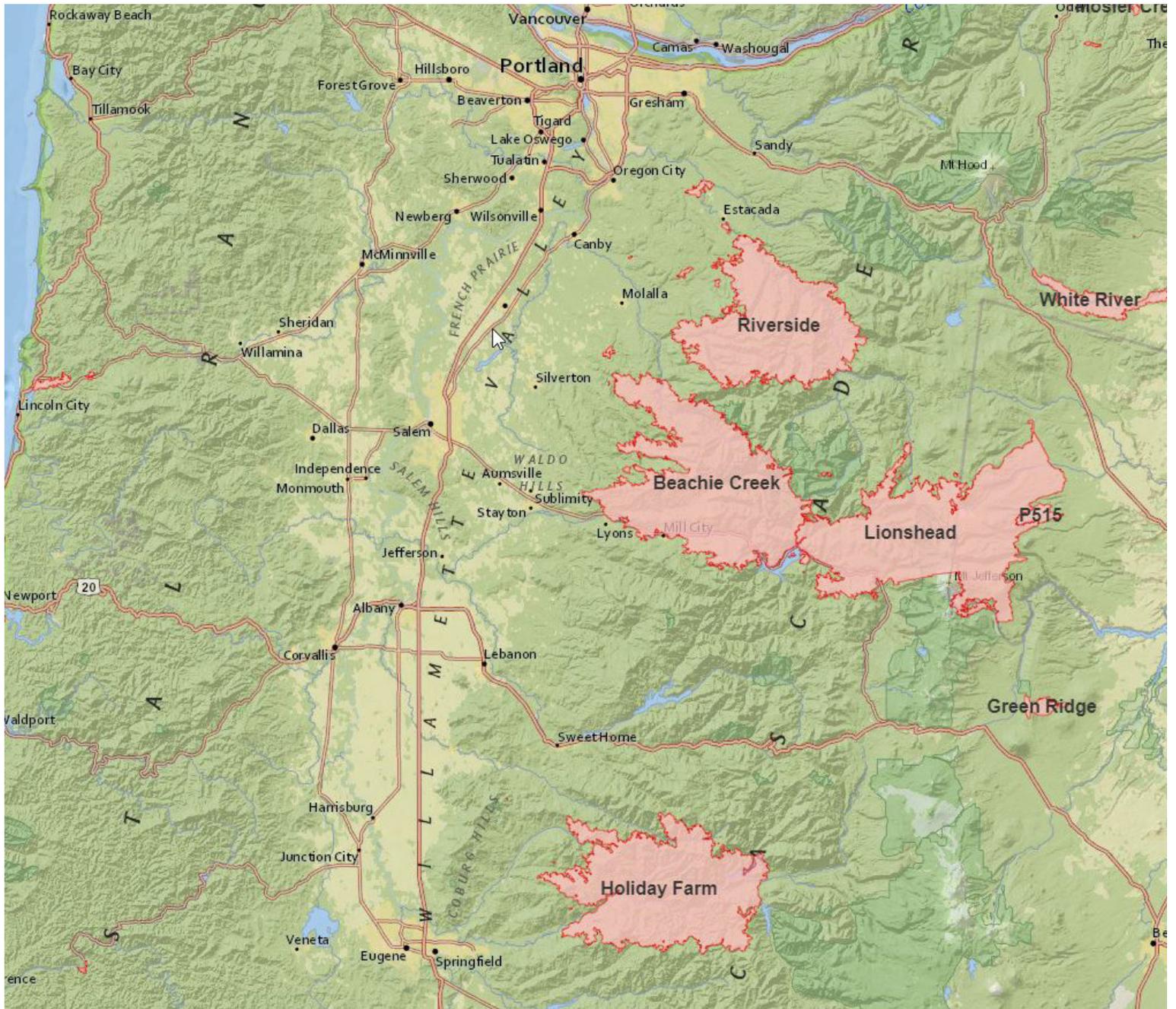
One of the primary services USACE provides is hydraulic modeling; we do it well and we should continue to do so.

A model maintenance plan begins with the understanding that models can become antiquated because of increased software capabilities, changed field conditions, or many other reasons. Models aren't static!

Flood risk communication is only as good as the information used to support understanding. Recent upticks in available information and modeling tools should prompt all of us to ask probing questions about our understanding of flood risk within our area of responsibility.

Publicly available online tools coupled with new online GIS tools give us an opportunity to refocus our flood risk communication strategy and use our existing tools in new ways.

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Overview of the four main wildfires from the 2020 Labor Day windstorm. (map created by Paul Sclafani, 2020, using shapefiles from <https://oregon-oem-geo.hub.arcgis.com/datasets/d957997ccee7408287a963600a77f61f>)

in these consequence areas are served by extreme flood models. Also, where we have developed hydraulic models for communities; the effort was based on immediate need without considering a coordinated overall plan. The experience with the fallout from this year’s wildfires helped crystallize the idea that, if we are more deliberate with where we focus our FPMS resources, we can build a better understanding of Oregon’s overall flood risk.

Further, with the advent of publicly available inundation mapping tools that are expected to come online in the next year and with newly developed online GIS skills/tools for conveying impacts and communicating risk, the time is right to develop a “hydraulic modeling management plan” for the Portland District’s area of responsibility. As a priority, the plan’s goal will be to reasonably describe the consequences of moderate and more frequent flood flows that, over time, are more

impactful than an extremely rare event. The plan will then identify the relative adequacy of our models, in terms of bathymetry, terrain, calibration, 1D vs 2D modeling, etc. Combining this analysis with the information gleaned from the Silver Jackets’ outreach during wildfire recovery, the District’s Flood Risk Management team and the Silver Jackets team will be able to set priorities that will help focus future efforts and funding requests. ¹⁰

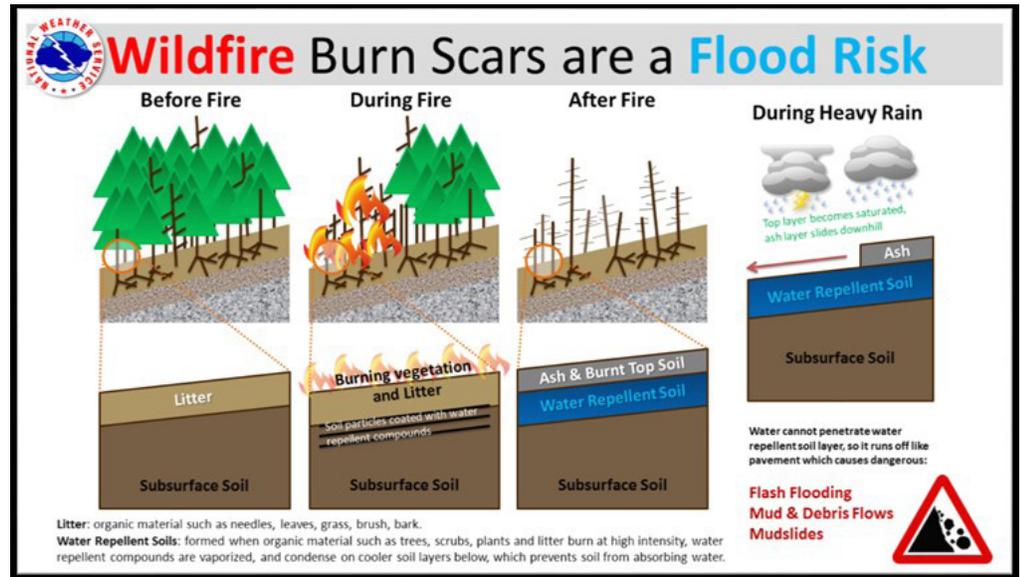
USACE Silver Jackets at the Be Ready Utah Webinar

By Sarah Moore, USACE Albuquerque District

Utah's official emergency preparedness campaign, [Be Ready Utah](#), recently held a public virtual conference to discuss preparedness for different disasters that have impacted the state this year. The two-day conference (Nov. 13 – 14) held four different sessions each day. Sessions covered: pandemic preparedness, earthquakes, flood after fire, surviving without power, water storage, disaster mental health, conversations on preparedness, and disaster myths. The initial in-person presentation was scheduled for March 13 – 14 but was cancelled due to COVID-19. The rescheduled virtual event in November was full, with over 140 participants and included interested homeowners to emergency management experts from all levels of government.

The U.S. Army Corps of Engineers (USACE), Sacramento District's Flood Risk Management (FRM) team members, Mr. Hunter Merritt, Ms. Elise Jarrett, and Ms. Danae Olsen, collaborated with the Utah Division of Emergency Management's Ms. Kathy Holder to discuss current flood after fire efforts and preparedness. The presentation gave a brief overview of USACE's role in preparing for post-wildfire flooding hazards, emergency preparedness, and flood risk preparedness.

The Silver Jackets' motto, "[Many Partners, One Team](#)," was highlighted when discussing current flood after fire support to the Utah communities of Mapleton and Saratoga Springs. Both communities have experienced wildfires this year and the FRM team discussed how bringing together emergency management officials at the city, county, state and federal levels will better inform both Mapleton and Saratoga Springs of their flood after fire risks and generate ideas to mitigate those



Wildfire Burn Scars Are a Flood Risk. (National Weather Service, 2016. <https://nws.weather.gov/blog/nwsboise/2016/09/15/wildfire-burn-scars-are-a-flood-risk/>)

risks. One of the risk-mitigating tools mentioned was the [Flood After Fire Toolkit](#). This toolkit has been developed for California and is easily transferable to communities across the Mountain West. The FRM team also shared free online training from the Watershed University, *Preparing for Floods after Fires: Tools and Teams* with webinar attendees.

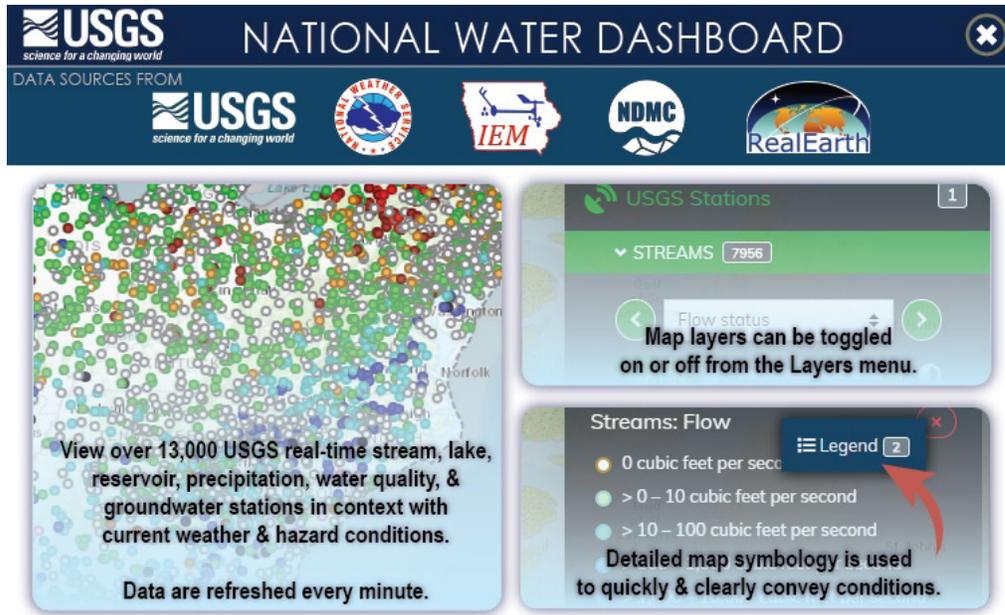
After introducing the USACE and Silver Jackets' flood after fire support in Utah, the FRM team got into the bulk of their presentation and took participants on a journey through the hazards that can persist for weeks, months or even years following a wildfire. One of the main post-wildfire hazards covered in the presentation was debris flows. Post-wildfire debris flows occur when water runs downhill through burned areas creating major erosion and picking up large amounts of ash, sand, silt, rocks, boulders, and vegetation (trees, shrubs, plants). The anatomy of a debris flow was covered in detail with graphics that stressed how fast moving and highly destructive a debris flow can be. Throughout the presentation, the

FRM team encouraged overall flood and debris flow preparedness and gave practical tips for community members such as "Do not walk through moving water or attempt to drive through flooded areas."

During the question and answer session, Ms. Jarrett responded to a question regarding how wildfires affect soil properties by explaining that, "When the ground burns at a high intensity for a long enough duration, the soil particles, which include water repellent compounds, begin to vaporize and condense. When this happens, a water-repellent soil layer is formed causing water that otherwise would absorb into the ground to now run off downhill, which can lead to flash flooding and debris flows."

Overall, Ms. Olsen said, "the presentation went really well," and she and the whole FRM team are excited about continuing to build on the Be Ready Utah webinar momentum through future Utah flood risk education outreach and workshops. 🍄

USGS Unveils Mobile Flood Tool for the Nation



A look at the new, USGS National Water Dashboard. (2021, [USGS | National Water Dashboard](#))

New, Access-Anywhere Interactive Map Helps Minimize Loss of Life and Property

Extracted from U.S. Geological Survey news release

<https://www.usgs.gov/news/usgs-unveils-mobile-flood-tool-nation>

Dated: October 30, 2020

The U.S. Geological Survey (USGS) invites all to visit and explore its National Water Dashboard (NWD), a new mobile tool available on the USGS website. Completed in October 2020, the NWD provides easy access to real-time information on water levels, weather, and flood forecasts all in one place on a computer, smartphone, or other mobile device.

By providing critical information to decision-makers, emergency managers and the public during flood events, the NWD informs decisions that can help protect lives and property.

“The National Water Dashboard is a much-needed advancement that will help keep communities across the country safe during extreme weather conditions,” said Tim Petty, Ph.D., who

served as Department of the Interior assistant secretary for water and science at the time he addressed a 2020 agricultural round table with the Water Subcabinet in Janesville, Wisconsin.

“The development of a comprehensive tool that can provide real-time, critical information on mobile devices is great news for areas in our country that are prone to flooding or drought. In addition to giving the public key information on what’s happening in their communities, it will also help improve the response of federal, state, and local agencies during storms, floods and drought conditions.” “Our vision is the National Water Dashboard will be a one-stop resource for all available USGS water data used by the public to make decisions that can preserve life and property,” said Jim Reilly, Ph.D., who served as director of the USGS at the time the NWD was released. “The USGS will continue to build out this tool incorporating future advances in water information so the public will have the latest and best information on hazards and resources.”

The NWD uses real-time data from the USGS National Water Information System and presents real-time stream,

lake and reservoir, precipitation, and groundwater data from more than 13,500 USGS observation stations across the country. This information is shown along with National Oceanic and Atmospheric Administration (NOAA) weather data such as radar, watches and warnings, past precipitation totals, precipitation forecasts and drought conditions from other open water-data sources. The NWD also links to the USGS WaterAlert system, which sends out instant, customized updates about water conditions.

Information from the NWD will help inform forecasting, response, and recovery efforts for agencies such as the National Weather Service, the Federal Emergency Management Agency, the U.S. Army Corps of Engineers (USACE), and other federal, state, and local agencies. The tool can be used by forecasters and local emergency managers as they issue flood and evacuation warnings, verify safe evacuation routes, and coordinate emergency response efforts. The NWD can assist USACE as they manage water supplies in river basins and operate flood-control reservoirs. During a drought, the tool can help state resource managers identify areas where water supplies are at risk.

“The National Water Dashboard is an exceptional tool for staying up to date on real-time USGS water information coupled with forecasts and warnings from National Oceanic and Atmospheric Administration’s National Weather Service,” said retired Navy Rear Adm. Tim Gallaudet, Ph.D., assistant secretary of commerce for Oceans and Atmosphere and deputy NOAA administrator. “Giving individuals access to water information whether it be a flood or drought, on their mobile device, will help protect lives and property.”

“The National Water Dashboard builds

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on the USGS Texas Water Dashboard that was created in 2016,” said Don Cline, Ph.D., USGS associate director for water resources. “Expanding this tool nationwide will increase the ease and ability for the public to have access to USGS real-time water data at all times to help make informed decisions regarding the safety of their families and homes.”

“The U.S. Army Corps of Engineers values the continued partnership and active engagement within our federal family,” said Chandra S Pathak, policy advisor and senior engineer for the U.S. Army Corps of Engineers Engineering and Construction Division. “The new USGS National Water Dashboard is well suited to support the ever-evolving needs for increased hazard risk awareness and mitigation actions toward preparedness and response.”

Interested in learning more about the National Water Dashboard? In an October 2020 web-based press release, USGS guides readers through a series of example applications illustrating a variety of ways the tool can support water resource-related analyses and decision making. This press release is found at: <https://www.usgs.gov/news/usgs-unveils-mobile-flood-tool-nation>.

For a more in-depth introduction to the National Water Dashboard, view a presentation by Brian McCallum, the assistant director of data for Georgia at the USGS South Atlantic Water Science Center. In his December 8, 2020, presentation to the Metro Atlanta Chapter of the American Meteorological Society and National Weather Association, McCallum introduces the NWD and leads the

audience through a demonstration of its capabilities. The recording of McCallum’s presentation is found at: <https://www.youtube.com/watch?v=QZ-QMDYIsSs&fbclid=IwAR3bhauY4jEbo-hiaiFrryFPqMm5-hcEGoi8TpeV6tlyi8K7n5j06BNayg0>.

Ready to give it a try? The USGS National Weather Dashboard can be accessed at <https://dashboard.waterdata.usgs.gov/app/nwd/>. The USGS encourages users to submit comments and ideas, providing a button linked to a comments section in the lower right-hand corner of the NWD home screen. “We want your feedback,” said McCallum during his 2020 presentation of the tool, explaining that user input will help inform USGS plans to add additional features and capabilities to the NWD. 

U.S. Army Corps of Engineers Inundation Map and Emergency Action Plan Policy Update

By Jason Sheeley, USACE Kansas City District

The U.S. Army Corps of Engineers (USACE) has changed its inundation map policy so that USACE-operated and -maintained dam and levee emergency action plan (EAP) maps are now releasable to the public. USACE is also updating the National Inventory of Dams (NID) to share USACE EAP maps for dams. This public distribution will help to advance the broad understanding of residual flood risks from USACE dams in the nation and gives the dam safety community a vital information-sharing tool that will support incidents and EAP exercises.

On October 1, 2020, USACE published updated policy guidance for USACE-produced inundation maps and updated policy guidance for EAPs and EAP exercises for USACE-operated and -maintained dams and levee systems. The updated guidance is found in the USACE Engineering Circular EC 1110-

2-6075 titled “Inundation Maps and Emergency Action Plans and Incident Management for Dams and Levee Systems” This circular is available at <https://www.publications.usace.army.mil/USACE-Publications/Engineer-Circulars/>.

The most significant policy change is that inundation maps produced by most USACE programs, including EAP maps, are now releasable to the public. This changes previous USACE policy that EAP maps were restricted and only releasable to emergency management authorities and other federal agencies. It removes the previous requirement for EAP map recipients to sign nondisclosure agreements and to further protect USACE-provided EAP maps as sensitive information.

The policy for EAPs and EAP exercises extends the agency’s previous policy

with only minor modifications. USACE policy is closely aligned with federal dam safety EAP and exercise guidelines. With this policy, USACE reaffirms its commitment to ensuring that EAPs are produced in strong coordination with emergency management authorities in affected jurisdictions. Unlike EAP maps, most USACE EAPs will still be restricted from public release because they contain sensitive information.

USACE is currently updating the NID website to display EAP maps. Maps for USACE-operated and -maintained dams are scheduled to be visible in the NID by November 2021. Individuals requiring access to USACE dam project EAP maps prior to that time should contact their local USACE district office.

Please email any comments on the updated guidance to HQ-EAP@usace.army.mil. 



Round the National Silver Jackets Table

By Ellen Berggren, USACE Silver Jackets Program Manager

The National Silver Jackets Team is composed of 13 federal agencies that meet quarterly. “Round the Table” is a standing agenda item at National Team meetings, with each agency sharing new tools, publications, initiatives, and information exchange and learning opportunities. Contact the National Team at IWR.SilverJackets@usace.army.mil.

EPA has added a [regional cost estimation methodology](#) to its [National Stormwater Calculator](#), enabling users to estimate region-specific capital and maintenance costs of commonly used green infrastructure controls.

FEMA – Resources of interest:

- [The Watermark](#) – On-line quarterly report, providing financial information about the National Flood Insurance Program.
- [Thinking Beyond Flood Maps – Using FEMA Coastal Data to Reduce Risk and Build Resilience](#) - Storymap collection highlighting resiliency actions taken by communities experiencing coastal flooding.
- [Addendum to the 2017 Community Rating System \(CRS\) Coordinator’s Manual](#) – Effective Jan. 1, 2021, accompanies and becomes part of the 2017 edition of the Coordinator’s Manual. Incorporates into the existing CRS guidance material that officially changes, adds to, or clarifies the CRS program, including new prerequisites for advancing in CRS class as well as new opportunities for communities to earn CRS credit for protecting threatened and endangered species, mitigating substantial damage, and promoting flood insurance.

NOAA NWS Weather-Ready Nation (WRN) initiative is about building community resilience in the face of increasing vulnerability to extreme weather and water events. [The Weather-Ready Nation Ambassador™ initiative](#) is the National Oceanic and Atmospheric Administration’s (NOAA) effort to formally recognize NOAA partners who are improving the nation’s readiness, responsiveness, and overall resilience against extreme weather, water, and climate events. Organizations across all levels of government, businesses large and small, non-profit and non-governmental organizations, and academia can become a WRN Ambassador. The initiative is designed to help serve the public by strengthening national resilience against extreme weather events through improved ways to prepare, respond, and recover from extreme events. More information, including an Ambassador application can be accessed on-line.

National Silver Jackets Team Participating Agencies

- Environmental Protection Agency (EPA)
- Economic Development Administration (EDA)
- Federal Emergency Management Agency (FEMA)
- Federal Highway Administration (FHWA)
- U.S. Housing and Urban Development (HUD)
- National Aeronautics & Space Administration (NASA)
- National Park Service (NPS)
- Natural Resources and Conservation Service (NRCS)
- NOAA National Weather Service (NOAA NWS)
- NOAA Office of Coastal Management (NOAA OCM)
- U.S. Army Corps of Engineers (USACE)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Geological Survey (USGS)

USACE – Updates to Engineer Circulars (ECs) that outline agency policies and procedures:

- USACE has revised a draft EC outlining USACE Levee Safety Program policies and procedures, incorporating feedback received during the public comment period from Feb. 25 to July 27, 2020. The revised draft EC 1165-2-218: US Army Corps of Engineers Levee Safety Program can be accessed [online](#). Email feedback on or questions about this revised draft to EC218@usace.army.mil.
- USACE published [EC 1110-2-6075](#) in October 2020, revising its official policy for inundation maps and for Emergency Action Plans (EAP). Previous policy in EC 1110-1-1108 and EC 1110-2-6074 restricted public access to USACE-produced inundation maps for EAPs. Effective immediately with the new EC 1110-2-6075, USACE policy now allows inundation maps to be accessible to the public at all times, subject to the exceptions described in the EC. A flood inundation mapping (FIM) standard operating procedure (SOP) document provides further implementation instructions, superseding the 2018 FIM SOP.

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USGS – Updates on new tools and data:

- **[New National Water Dashboard](#)** - USGS has released a new water dashboard that combines displays of streamflow, groundwater, and streamflow water-quality conditions data and links them to relevant weather and reservoir information. The information is presented in interactive and zoomable displays at the national and state levels with streamflow data layers that can be toggled on and off to focus on locations experiencing floods, high flows, low flows, zero flows, and rising or falling conditions. Water-quality and groundwater conditions toggling is planned.
- ***New USGS Virtual Streamgaging Stations*** - USGS began the production of discharge data, both historic and operational near-real-time, at four “virtual” stream monitoring stations in Alaska, on the Nanana, Yukon, and Susitna rivers. Satellites measure river widths, slopes and altitudes at these locations and, using hydraulic equations, convert these to discharge (flow) measurements. These virtual streamgaging stations are demonstration and test sites for use of satellites to measure rivers in remote areas that are too difficult or expensive to measure with traditional methods. With these test sites, USGS is developing accurate and reliable remote-sensing methods that can expand coverage of the national stream monitoring network. This work will improve safety by keeping technicians out of dangerous waters and will lead to less expensive stream monitoring methods that can be used to expand the coverage of monitoring.
- ***U.S. River Conditions Animations*** - USGS has released the latest (4th quarter 2020) of a series of animations of U.S. River Conditions. These animations feature national and regional maps of streamflow conditions through time at USGS streamgages and their reactions to notable hydrologic events. These animations are regularly produced on a quarterly interval or as notable events occur and are released within a couple weeks on USGS social media accounts. These and other water data visualizations can be accessed [online](#).
- ***USGS forensic flood flow measurements via Unmanned Aerial Systems (sUAS)*** - Close-range remote sensing enhances USGS’s ability to collect hydrologic data in response to floods, especially when data are collected using sUAS. These platforms and associated sensors and techniques are evolving rapidly. sUAS can be deployed quickly, efficiently, safely, and importantly, provide remote access to the hardest hit areas. A recent [USGS article in “Remote Sensing”](#) has demonstrated the sUAS’s utility to accurately measure high-water mark elevations and high-resolution land surface maps that inform inundation and hydraulic models.
- ***USGS deploys to collect additional storm surge data for 2020*** - The USGS collected storm-tide water-level and wave data for four landfalling hurricanes in 2020. These

are high-frequency (1/4 second) timeseries data collected at 72 temporary locations established in the hours and days just prior to storm landfall as supplement to data collected at existing USGS streamgages and NOAA tide gages. The data can be accessed online via the [USGS flood event viewer](#).

- ***New Integrated Water Science (IWS) basin selected*** - The USGS has selected the Illinois River Basin as the third IWS basin; the first two IWS basins are the Delaware River Basin and the Upper Colorado River Basin. The Illinois River Basin consists of extensive urban and agricultural land uses that can help improve understanding of how nutrient sources, in combination with climate and land-use change, may limit water availability. The USGS Next Generation Water Observing System (NGWOS) will provide the high temporal and spatial resolution data on streamflow, evapotranspiration, snowpack, soil moisture, water quality, groundwater/surface-water connections, stream velocity distribution, sediment transport, and water use that are necessary to advance this understanding. Over the course of 2021, the USGS will begin broad internal and external stakeholder engagement to help develop a science and monitoring plan for the Illinois River Basin, a plan that will guide USGS IWS activities in the basin over the coming years.

Legislation of Interest:

- **[National Landslide Preparedness Act \(USGS\)](#)** – To establish a National Landslide Hazards Reduction Program to identify and reduce losses from landslide hazards, to establish a national 3D Elevation Program, and for other purposes, including guidance and training for communities for landslide hazard and risk preparedness, expand the debris flow early warning system for post-wildfire debris flows, and establish and support emergency management procedures for rapid deployment of personnel and resources to significant landslide impacted events.
- **[Safeguarding Tomorrow through Ongoing Risk Mitigation \(STORM\) Act \(FEMA\)](#)** - A bill to amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act to authorize FEMA to enter into agreements with any state or Indian tribal government to make capitalization grants for the establishment of hazard mitigation revolving loan funds. Funds shall provide funding assistance to local governments to carry out projects to reduce disaster risk in order to decrease the loss of life and property, the cost of insurance claims, and federal disaster payments. 🍁

BULLETIN BOARD

FEMA releases the National Risk Index (NRI). The National Risk Index is a new online resource from FEMA that shows communities most at risk to natural hazards. The NRI analyzes 18 natural hazards, in addition to social vulnerability, community resilience, and expected annual losses to better depict a community's level of risk. The data are available in an interactive map and are free and available for download.

The NRI can help communities better prepare for natural hazards by providing standardized risk data for mitigation planning. The NRI is intended to help users understand and prioritize actions to increase mitigation investments, especially for communities that have limited mapping and risk assessment capabilities. Data are available at the county and census tract levels.

Visit the National Risk Index site at <https://www.fema.gov/nri> to explore the interactive map, learn more about your natural hazard risk and access the NRI's data to create your own maps and apps.

Risk Communication Guides Available for Flood Risk Management Practitioners. The Natural Hazards Center, located at the University of Colorado in Boulder, Colorado, with support from the USACE National Flood Risk Management Program team, has prepared a risk communication guide and annotated bibliography for use by Silver Jackets teams and other federal and state flood risk management professionals. The [Principles of Risk Communication: A Guide to Communicating with Socially Vulnerable Populations Across the Disaster Lifecycle](#) identifies the following three overarching principles based on a review of literature and relevant research:

1. Communicate through familiar and trusted messengers
2. Provide clear, actionable information
3. Tailor message and information pathways for target audiences

While the principles can be broadly applied to all populations, the guide highlights tips, implications and considerations for communication with socially vulnerable populations (defined as those who face a disproportionate disaster risk due to a variety of historical, social, economic and political considerations). The companion [Risk Communication Involving Vulnerable Populations – An Annotated Bibliography](#) was prepared for practitioners interested in delving deeper into the supporting information behind these principles. Additional information is available by listening to the recorded [September 2020 Silver Jackets webinar](#) or visiting the [Natural Hazards Center website](#). The collaborative partnership between USACE and the Natural Hazards Center was established through an interagency agreement between USACE and the National Science Foundation as the granting agency for the Natural Hazards Center Clearinghouse.

UPCOMING EVENTS

Workshops and Conferences

NOTE: A number of workshops and conference schedules have been rescheduled or shifted to online due to the ongoing pandemic. Some have reduced their registration fees. Please confirm details with conference organizers regarding the latest status.

[Florida Floodplain Managers Association](#). April 13-16, 2021. St. Petersburg, FL. Hybrid (*virtual and in-person*).

[American Planning Association 2021 National Planning Conference \(NPC21\)](#). May 5 - 7, 2021. *Online*.

[Association of State Floodplain Managers \(ASFPM\) Annual Conference](#). May 9-13, 2021. *Virtual*.

[46th Annual Natural Hazards Workshop](#). July 11-14, 2021. *Virtual*.

[Natural Hazards Workshop Researchers' Meeting](#). July 14-15, 2021. *Virtual*.

[8th International Conference on Flood Management \(ICFM8\)](#). August 9-11, 2021. Iowa City, IA. *In-person*. See <https://icfm2020.org> for details.

[Tennessee Association of Floodplain Management Annual Conference](#). August 11-13, 2021.

[Dam Safety 2021](#). Association of State Dam Safety Officials conference. September 12-15, 2021.

[Indiana Association for Floodplain and Stormwater Management 2021 Annual Conference](#). September 15-17.

[Oklahoma Floodplain Managers Association](#). September 20-22, 2021. Norman, OK. *In-person*.

[The 15th Annual Fall Floodplain Institute](#). North Carolina Association of Floodplain Managers. October 20-22, 2021.

[New Jersey Association for Floodplain Management](#). October 26-28, 2021.

UPCOMING EVENTS

Courses & Webinars

Natural Hazards Center [CONVERGE Training Modules](#):

- Social Vulnerability and Disasters
- Disaster Mental Health
- Cultural Competence in Hazards and Disaster Research
- Conducting Emotionally Challenging Research
- Institutional Review Board (IRB) Procedures and Extreme Events Research

Natural Hazards Center [Making Mitigation Work Webinars](#) feature innovative speakers and highlight recent progress in mitigation policy, practice, and research. A schedule of upcoming webinars is listed on the [main series page](#). An archive of past webinars is available [here](#).

Community Rating System (CRS) Training Webinars are available at: <https://crsresources.org/training/> including an archive of past recorded webinars and a schedule of upcoming, live webinars.

NOAA Office of Coastal Management (OCM) Training Resources:

- [How to Facilitate a Virtual Meeting](#). Self-guided online training.
- [Techniques for Facilitating Virtual Meetings](#). Reference guide.
- [Virtual Meeting Engagement](#). Reference guide.
- [Coastal Zone Management Act 101](#). Self-guided training resource.
- [Green Infrastructure Effectiveness Database](#). Self-guided training resource.
- [How to Map Open Space for CRS Credit](#). Self-guided training resource.
- [Risk Communication Essentials for More Effective Conversations](#). Self-guided training resource.
- [A Community Works Together to Restore the Floodplain and Reduce Damages](#). Case study.
- <https://coast.noaa.gov/digitalcoast/training/resilience-indicators.html>. Report.

Many more resources are available at [NOAA OCM DigitalCoast/Training](#).

FEMA Emergency Management Institute (EMI):

Admissions: 301-447-1000, netcadmissions@fema.dhs.gov. Full course schedule available at training.fema.gov.

Silver Jackets Webinars: Recordings of past webinars, 2011 through 2021, are found at: [Silver Jackets Webinars](#)

American Planning Association Knowledge Center: An online repository of planning resources relating to a variety of topics, including:

- [Disaster Recovery](#)
- [Hazard 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.



**US Army Corps
of Engineers**