

Summer 2017 Newsletter

April Showers Bring May Flooding?

In early May, Illinois once again saw major flooding. This was the third major flood event to occur in Illinois in a year. However, despite near-record flood levels in some parts of the state, flood damages were minimal. Major floods, once again, hardly made the news in Illinois.

In virtually every flooded community in the state, thousands of empty lots and city parks were under water. On these open space parcels once stood flood prone structures. Starting mostly after the 1993 flood, the Illinois Emergency Management Agency and the Illinois Department of Natural Resources have coordinated efforts to buyout nearly 5,000 flood prone structures. Illinois leads the nation in the overall percentage reduction of repetitively flooded structures.

In addition, strong floodplain regulations and well-trained local officials have ensured that every new floodplain structure in the state is properly elevated or protected. Illinois is ranked #1 in the nation for the fewest number of flood insurance claims on new structures. As of mid-May, there were only 80 flood insurance claims in Illinois while elsewhere in the Midwest, thousands of claims have occurred and lives are disrupted.

Once again, the taxpayers in Illinois have avoided spending millions upon millions of dollars in NFIP claims, sandbagging operations, emergency housing, disaster assistance, and clean up. These saving can be directly tied to Illinois' proactive floodplain management and flood mitigation programs.

At the 2018 Annual Conference, IAFSM will commemorate the Great Flood of 1993 and highlight our mitigation successes since then. Scientists and flood experts predict flooding will increase due to climate uncertainty. Illinois is well prepared.

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A new normal? Springtime flooding becoming more common for Midwest as planet warms

~K. Janis Esch, The Southern, May 11 2017, reprinted from thesouthern.com

CARBONDALE — A flood warning by the National Weather Service in Paducah was still in effect for Jackson, Union and Alexander counties as of Thursday, but the worst of the flooding — which threatened levees, forced scores of roadway closures and led several counties to declare states of disaster — appeared to be over.

Emergency management officials expressed relief as river levels fell deeper into moderate flood stage. On Wednesday, the Chester Bridge was reopened to traffic.

Jackson County Emergency Management Agency Coordinator Derek Misener said there had been only one report of home damage in all of Jackson County.

"We're very happy with the way this incident turned out," Misener said.

Alexander County Engineer Jeff Denny said some roads remain closed, but that the water is receding. "It's getting better every day," Denny said.

But officials said it was hard to ignore the fact that severe flooding is becoming more and more frequent.

"I think it's safe to say these incidents appear to be trending toward more frequency and severity as time goes on," Misener said.

Murphysboro Emergency Management Agency Director Brian Manwaring said the Big Muddy River crested just under the all-time record crest of 40.5 feet set in 2011.

Rainfall in a warmer world

Warmer global temperatures have increased evaporation from Earth's oceans. That leads to higher levels of humidity, which in turn produces heavier rainfall and severe flooding, said Justin Schoof, a climatologist and the chair of Geography and Environmental Resources at Southern Illinois University Carbondale.

"This is one example of something that we theorize should happen in a warmer world: we should be getting more heavy rain events. But it's also an example of something that we've already observed happening," Schoof said.

Precipitation has increased in the past century by as much as 20 percent in some Midwest locations, according to the 2014 National Climate Assessment

This month's flooding event was twofold: it was both localized (flash flooding swamped roads after heavy rains) and large-scale (rivers swelled beyond their banks).

Attributing a single weather event to climate change is tricky, because there are always going to be natural variances in weather.

But there are statistical techniques employed by scientists to estimate the probability of a weather event's occurrence. These are called "recurrence intervals."

One example is the so-called 100-year flood. The term doesn't actually denote a flood that occurs once every 100 years; instead, it refers to a flood that has a 1 percent chance of occurring in a given year. It's safe to say that this month's heavy rainfall had a low probability of occurring.

"We got somewhere between 10 and 12 inches in four days, and a little bit more than that in some places. That's the kind of event that you would only expect about a 1 in 200 chance in any given year, so it is quite a rare event," Schoof said.

The Mississippi River at Cape Girardeau crested at 45.99 feet on May 6, according to NWS. That's the sixth-highest observation on record. The all-time highest occurred just last year: Jan. 2, 2016.

"So you have these events that you would only expect a one in 100 chance of happening in a given year actually happening far more frequently than that," Schoof said.

Climate change is compounding another problem stemming from the fact that rivers are now highly engineered.

"If you constrain a river, so you put up levees and wing dikes and all these different things that help with transportation and river management, then basically what you do is you cut the river off from its floodplain, so that when you get a large flood pulse like we've had in the last couple of weeks, then the water has nowhere to go but up," Schoof said.

Jonathan Remo, assistant professor and undergraduate program director in the Department of Geography and Environmental Resources at SIUC, is an expert in river management and flood mitigation.

"The short version of this story is, our flood control infrastructure is severely underfunded," Remo said.

Of all the levee systems in Southern Illinois, roughly half have received a "U," or "Unacceptable" rating from the U.S. Army Corps of Engineers.

"What that means, in English as opposed to engineering-speak, is that these levees have the potential to not operate or to potentially fail before they reach their designed capacity," Remo said.

Southern Illinois' levees were constructed by the federal government in the 1950s and 1960s and were then turned over to local public sponsor operations and maintenance. Most have never seen any major maintenance since construction.

"That's a huge issue in Southern Illinois," Remo said.

As flooding increases in frequency, it could lead to some tough decisions — like in 2011, when the Army Corps of Engineers detonated a levee to flood Missouri farmland in order to save the historic town of Cairo.

"If we can't afford these levee systems, what are we gonna do?" Remo said. "I think at some point in the future we're going to have to have an uncomfortable conversation, of how do we support these systems, or do we kind of pull back in our effort to mitigate floods in certain areas. We haven't gotten to that point yet because it's politically fraught with controversy, because there are going to be winners and losers if we change the existing system."





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Do you have an Emergency Action Plan for your Dam?

~Linda Hutchins, P.G, CFM, Huff & Huff, Inc

It's been raining for days. Every news outlet is talking about flooding. Should I be worried about my dam? What if mine is the next Oroville Dam?

If you have an Emergency Action Plan (EAP), you're being pro-active and you know what to do.

If you don't have a plan, you probably need one!

Dams are classified based on the potential for loss of life or property damage in case of a dam failure. In Illinois, Class I dams have a high probability for loss of life or substantial property damage in the event of failure, and Class II dams have a moderate probability. Class III dams have a low potential for causing loss of life, or minimal economic loss in the event of failure. Illinois dam owners are responsible for dam operation and maintenance, including inspections by a Professional Engineer. Dam owners are also required to establish and implement Emergency Action Plans (EAPs) for Class I and II dams. The US Army Corps of Engineers estimates that there are 550 High and Significant hazard dams in Illinois, and only 318 of those (58 percent) have an EAP. While the IDNR Dam Safety Program strives for permit compliance and maintenance of EAPs, enforcement is hindered by staffing shortfalls.

Summary of Dam Safety Requirements in Illinois

IDNR Classification	US Army Corps of Engineers Hazard Classification	Emergency Action Plan Required?	Inspection Frequency
Class I	High	Yes	Every 1 year
Class II	Significant	Yes	Every 3 years
Class III	Low	No	Every 5 years

Liability for damages associated with dams should be a strong incentive for owners to comply with dam safety requirements. Most smaller privately-owned dams are uninsured; the owner would be entirely liable for downstream damages in the event of a dam breach. For dams that are insured, coverage may be denied if regulatory requirements are not met. When assessing legal liability, compliance with regulatory requirements is generally considered a minimum "standard of care." If the state intervenes during an emergency, the dam owner may be responsible to reimburse their costs.

Dam failures have occurred in Illinois. Most of the dams in the state (83%) were built prior to 1980 and used design criteria of 8 to 10 inches of precipitation in a 24-hour period; the current design standard is 25 to 36 inches. The combination of a changing climate and aging dams increase the risk of failures in the future. Increasing populations downstream of dams also increase the potential severity of damage.

ABC's of EAP's

An Emergency Action Plan details how to monitor your dam for structural stability, how to respond if conditions deteriorate, and gives dam owners and emergency response agencies the tools to prevent or minimize a disaster.

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The EAP outlines an organized response to emergency situations for both a slow or sudden, uncontrolled releases of water from a dam. The plan should include early warning procedures, maintenance monitoring, emergency response, and evacuation procedures.

At the heart of the Emergency Action Plan is the dam breach analysis. Computer models simulate hypothetical complete full-pool dam failure, the timing of the breach flood wave, and delineate the downstream inundation areas.

Paper-based Emergency Action Plans are starting to be replaced with geospatial web-based applications. Easily accessible via desktop and mobile devices, the applications can include inundation maps, dam locations, hydrographs and other EAP documents, readily available for project design, management and emergency response. This information management approach aids in preparedness training and functional exercises for emergency responders. Mobile alerts can be established for dam owners and emergency responders for notification of weather, flood, or dam conditions that warrant response.

DAM EMERGENCY ACTION PLANS

- Physical description of the dam, its drainage area, watercourse and design criteria:
- History of high water events, overtopping incidents, breaches, known operational/maintenance issues;
- Dam breach analysis, including inundation potential impacted downstream area map, population, and resources at risk;
- Evacuation areas associated with the dam breach analysis;
- Criteria for implementing stages of emergency response;
- Flow charts for dam monitoring, notifying emergency responders, taking protective measures to preserve dam integrity, and evacuating potential downstream inundation areas;
 • Contact information for Local and state emergency management agencies;
- Evacuation routes, road closure locations, emergency shelters;
- Preparedness plan: Dam inspection and monitoring, EAP review, update, and exercise



Example of geospatial, webbased application for EAP, GZA GeoToolTM

Bottom line: Dams are a huge liability, and dam safety is the owner's responsibility. If you can't maintain your dam, consider removing it!

References and Resources for additional information:

Association of State Dam Safety Officials, Dam Ownership, Responsibility and Liability. www.damsafety.org

IL Public Act 81-1062 and Part 702 Rules 1980, amended 1983. https://www.dnr.illinois.gov/adrules/documents/17-3702.

IL Department of Natural Resources Dam Safety Program www.dnr.illinois.gov/waterresources/pages/damsafetyprogram. aspx

U.S. Army Corps of Engineers CorpsMap National Inventory of Dams, NID by State, IL accessed at: http://nid.usace.army. mil/cm apex/f?p=838:3:0::NO::P3 STATES:IL

Community Rating System Updates

~Julie Lomax, P.E., CFM, Village of Downers Grove

In March, the Office of Management and Budget gave its final approval to the 2017 edition of the CRS Coordinator's Manual. The Coordinator's Manual is now available for download from the CRS Resources website (at www.CRSresources.org) and from www.fema.gov. The new edition incorporates many improvements, clarifications, and minor corrections, but no major changes. Nothing will require substantive changes to a community's CRS program or procedures. This edition has an expiration date of March 31, 2020.

The fillable-pdf versions of the Community Certifications (CCs) and the Community Certifications for Environmental and Historic Preservation (CC-EHPs) have not yet been posted on <u>fema.gov</u>, due to a technical error in the digital versions, but they are available as individual fillable-pdf forms on the CRS Resources website. Also, Appendixes E and F in the Coordinator's Manual include the forms as images that can be photocopied and used.

You do not need to alter the way you prepare for your next verification visit. Just get ready as you always do. Your community's coverage under the new edition will be phased in. Your ISO/CRS Specialist will work with you to anticipate any different documentation or other changes that will apply in the future.

Webinars are available at the Training and Videos tab on the CRS Resources website or at <u>atkinsglobalna.webex.</u> <u>com</u> (search CRS).





ASFPM Scholarship Opportunities and Benefits

~Kristina Murphy, EIT, CFM, DuPage County

If you have never been to an Association of State Floodplain Managers (ASFPM) conference, I encourage you to attend one sometime during your career in floodplain management. This year's annual conference in Kansas City, Missouri was not only my first time presenting, but also my first time attending. Did you know there has been regional flooding at four out of the last six conference locations? During the "Managing Flood Risk in the Heartland" concurrent sessions, I took knowledge from a wide range of topics back to the office, ranging from coastal flooding, CRS, insurance, levees, mapping, mitigation, modeling to policy.

With 1,000+ professionals in attendance, there was plenty of opportunity for networking and socializing, including training workshops, field trips and tours, discussion groups, a walk/run, an awards luncheon, receptions, social hours, vendor exhibits, and the Foundation's silent auction. We even enjoyed a local jazz band during our morning coffee break before hearing from the mayor of Kansas City.

I would like to thank IAFSM for providing me with a generous scholarship – open only to government employees – to assist with attending the conference. For those unable to attend, ASFPM has posted the program narratives and presentations on their website.

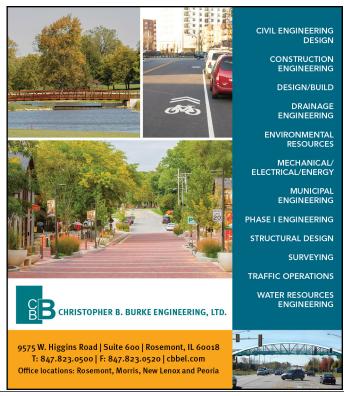
Next year's conference will be held in Phoenix, Arizona on June 17-22, 2018, and they have been warned about the deluge that ASFPM brings with them!

You may recognize the plenary speaker in this YouTube video and enjoy hearing more about the accomplishments of our great state.

https://www.youtube.com/watch?v=dJka-8dQVKg&list=PLTu5qQEIulW3U7C_vxqQkpulh7xr6TYgf&index=3







From the Chair

~Glenn Heistand, PE, CFM, Illinois State Water Survey

It's an honor to serve as IAFSM's 17th Chair, and to follow in the footsteps of so many worthy predecessors. Stu Richter has done a great job, again, of leading this organization. Stu was the first person to serve twice as IAFSM chair; the first term being 2007-2009, the second term just finishing from 2015-2017. I thank him for his dedicated service and vow to harass him with questions and ask him for sage advice as he occupies the distinguished position of past-chair.

As we look forward to where our organization is heading, we must not forget where we have been. Theodore Roosevelt wisely said, "The more you know about the past, the better prepared you are for the future". Since its inception in 1986 when Lou Sidell, Jr. was the first chair, IAFSM has been a leader in stormwater and floodplain management. The founding members established that the objectives of IAFSM are to:

- •Promote the common interest in floodplain and stormwater management
- •Enhance cooperation among various local, state, and federal agencies
- •Encourage effective and innovative approaches to managing the State's floodplain and stormwater management systems

I think we have done a fine job advancing these objectives, but let's not rest on our laurels. There is work to be done. Stormwater and floodplain issues are still significant challenges in many of our communities. The rainfall data we rely on for modeling and engineering design are a moving target. The occurrence of urban flooding is increasing. The old guard is being replaced with new faces. We must assure that hard-won knowledge and wisdom are passed forward, and that the achievements made will continue to advance as we adapt to changing conditions.

The 25th anniversary of the Great Mississippi and Missouri Rivers Flood of 1993 is approaching and we are looking to commemorate the event as part of the IAFSM annual conference. According to a report by the National Weather Service, "The Great Flood of 1993 was wide spread, covering nine states and 400,000 square miles, and lasting at some locations for nearly 200 days. From May through September of 1993, major and/or record flooding occurred across North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Wisconsin, and Illinois. Fifty flood deaths occurred, and damages approached \$15 billion. Hundreds of levees failed along the Mississippi and Missouri Rivers." Since that time, Illinois has made tremendous strides in mitigation and reducing flood risk through higher standards and the proactive vision of Illinois Department of Natural Resources Office of Water Resources, including our State Floodplain Manager, Paul Osman (IAFSM's Lifetime Achievement Award 2017, Outstanding Service 2004 and 1999, IAFSM Board Award 2011), and Regulatory Division Manager, Loren Wobig (IAFSM's 15th chair). Both have been strong and active participants in IAFSM.

On the horizon, our new IAFSM website is nearing completion and will be rolled out in the coming months. This will be more than an update; it is a completely refashioned site with added functionality for our members and more helpful information to promote effective floodplain and stormwater management.

Thank you to our 622 members (535 of whom are CFM's). The IAFSM board appreciates your participation in this organization and takes pride in equipping each of you with the education, collaboration, and support you need to do your jobs well to protect the health and safety of Illinois citizens. To those serving on the board and committees, a special thank you for your dedication and service. In Stu's tradition, I leave you with the following quote to ponder from the late Gilbert White: "Floods are 'acts of God,' but flood losses are largely acts of man."

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2-day EPA SWMM Seminar

Registration is now open for a 2-day EPA SWMM seminar. This course will be taught by David Sample, Ph.D, P.E. and Bob Carr, P.E. on August 17-18, 2017 in Naperville, IL. A Detailed Course Agenda can be found at illinoisfloods.org under Conferences and Workshops or by copying this link to your web browser(http://www.illinoisfloods.org/documents/EPA-SWMM 2017 Announcement.pdf).

Registration will remain open through August 4, 2017 or until the seminar reaches full capacity. You can register for 1 day or 2 days of this seminar online at:

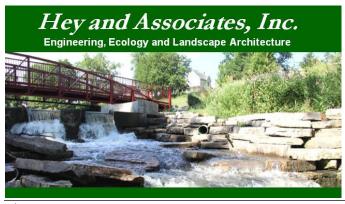
https://www.123signup.com/event?id=hgxqk. Should you have any questions to regarding this course, please contact the Stormwater Management Committee Chair, Shauna Urlacher, at (630) 729-6160 or via e-mail at surlacher@v3co.com

Registration is limited, so please register early.



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CEC Education & Training Opportunities

Looking for training opportunities? The following opportunities are coming up in the next few months. If you are looking for credits, be sure to review the material and confirm they meet the appropriate requirements.

IAFSM Sponsored Training Opportunities:

•EPA SWMM Modeling Seminar, August 17-18, 2017, Naperville, IL

Additional Training Opportunities:

EMI provides a wide range of training opportunities and upcoming training

- •EMI courses are free for local and state government employees. Learn more at the EMI website: http://training.fema.gov/EMI/ Upcoming courses include:
- •July 24-27 E0284 Advanced Floodplain Management Concepts III
- •Aug 21-24 E0273 Managing Floodplain Development through the NFIP
- •Aug 28-31 EMI-E0157 Hazard Mitigation Community Education and Outreach Specialist Course
- •Sep 11-14 E0278 NFIP/Community Rating System
- •Oct 30-Nov 2 EMI E0172 Hazuz-MH for Floodplain Managers

Webinars:

ASFPM – http://www.floods.org/n-calendar/webinars.asp

- •7/11/17 Basics of the Clean Water Act
- •7/25/17 Stream and Wetland Restoration
- •8/16/17 CRS Webinar: Flood Warning and Response

Conferences:

- •8/14-8/17 ASFPM Conference National Flood Mitigation and Floodproofing Workshop, New Jersey
- •8/27-8/31 StormCon, Bellevue, WA
- •9/6-9/8 Indiana Association for Floodplain and Stormwater Management Conference, South Bend, IN

Other training and CEC opportunities can be found on ASFPM's calendar: http://www.floods.org/n-calendar/calendar.asp?



Sally McConkey and colleagues at the Champaign March for Science





Important Stuff We Tell You in Every Newsletter...

Save the Date! 2018 IAFSM Conference

The 2018 Annual Conference will be March 14 & 15, 2018, at the Tinley Park Convention Center.

Wanted: Newsletter Ideas and Articles

IAFSM members, this is YOUR newsletter! Email Jennifer Maercklein, editor, at jmaercklein@v3co.com if there are topics that you'd like us to cover. You don't need to write the article - we just want your ideas! If you're gifted with a pen and would like to provide content, we welcome your written contributions as well.

Get Involved with IAFSM!

IAFSM Committee Chairs welcome your help and involvement. See the list of chairs on the last page of this newsletter, or visit the committee webpage to learn more about volunteer opportunities. http://www.illinoisfloods.org/committees.html

Borrow our Water Table

IAFSM has Watershed Tabletop Models available for all members to check out (free of charge) and bring to Public Works Open Houses, Scout meetings, 4-H meetings, school classrooms, etc. This offers a great opportunity to educate about the dangers and impact of unplanned development and human activity in the floodplain. IAFSM currently keeps one in Springfield and one in Bartlett. We are planning for a second table in Bartlett and one in Champaign. Contact Sarah at IAFSM@illinoisfloods.org to make arrangements.

Next Board Meetings

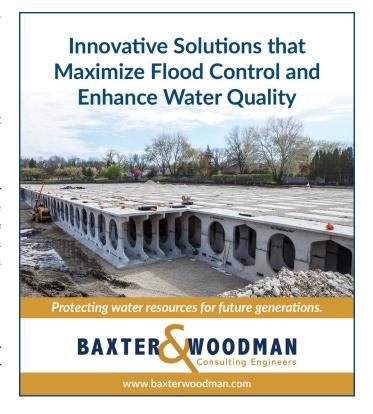
The next IAFSM Board Meeting will be held on Wednesday, July 12 at 10:00 a.m. at the Embassy Suites East Peoria Hotel & Riverfront Conference Center. All members are welcome and encouraged to attend Board meetings. See you there!

Jobmart

Visit our Jobmart at http://www.illinoisfloods.org/jobmart.html
Jobmart is a free service to members of IAFSM. If you would like to post a position, send complete information to iafsm@illinoisfloods.org

2017 CFM Exam Schedule

To view 2017 exam dates and register, visit <u>www.illinoisfloods.</u> org/certification.html.







The IAFSM Newsletter is published quarterly for members of the Illinois Association for Floodplain and Stormwater Management. Information and opinions contained herein do not necessarily reflect the views of all members. Items for publication and other editorial matters should be directed to the editor at jmaercklein@v3co.com.

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