

# Floodplain and Shoreland Management *Notes*

## Twenty Years After: The Floods of 1993 in Wisconsin

By Gary Heinrichs, WI State NFIP Coordinator

Everyone has milestones in their life, personal or professional, significant events that mark turning points in how we live, what we do, or how we see the world.

For me, the floods of 1993 were such an event. I had begun my career as a floodplain planner for the Wisconsin DNR a few short months before the flooding began. Like many of us, I was aware of flooding, had seen pictures and news reports of flooding, but had no firsthand experience of the devastation and loss which flooding brings. That would change soon enough.

I was old enough to recall the floods of 1965 and 1978, but those events had mostly occurred far from where I grew up. The 1965 flood caused unprecedented damage in Mississippi River communities such as Lacrosse and Prairie du Chien, while the 1978 flood spread the same familiar havoc in the Kickapoo River towns of Soldiers Grove, Gays Mills and others. In my hometown of Wauwatosa, WI, the Menomonee River rose and raged for days, but since the city's forefathers had been farsighted enough to dedicate most of the floodplain to parkland, the damage was minimal. In future years, as upstream development continued without such safeguards put in place, the effect on downriver communities like Wauwatosa and Milwaukee would not be so benign.

It's hard to believe that it's been 20 years since major flooding struck the upper Midwest during the spring and summer of 1993. While Wisconsin's share of the

damage paled in comparison to the destruction in Iowa, Illinois and Missouri, record flooding on numerous rivers throughout the state still added up to almost \$1 billion dollars in total losses.

In Wisconsin, the 1993 floods, much like the 2007/2008 disasters, began the previous year with the state experiencing a wet fall and winter snow cover resulting in saturated soil conditions. Some areas received as much as 8 inches of rain during a single 24 hour period. A presidential disaster declaration was issued for 10 counties in southern and western Wisconsin.

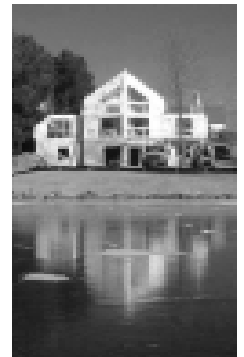
Spring floods exceeded expected levels on many rivers due to the above normal snow cover combined with heavy rains. A majority of the flooding was confined to low lying fields and roads. While much of the damage was crop losses and bridge/culvert washouts, numerous homes, businesses and other structures were severely damaged or, in some cases, totally destroyed.

While subsequent floods may have recorded greater rainfall amounts, higher flows, or more people displaced in specific locations, the '93 floods were memorable for the area covered and the number of days the flood lasted. Simply put, Wisconsin had never seen anything like it - a widespread flood which affected numerous communities, and in some areas lasted for three months or longer.

The experiences of myself and others in the floodplain management field demon-



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strated how development in one area can affect flooding in another; how flood control projects merely move the problems elsewhere; the importance of wetlands for flood storage; how dangerous and costly it can be to develop in floodplains; how unpredictable the weather is and how limited we are in predicting it; and lastly, the failed legacy of our attempts to control and direct the course of nature. We can learn many lessons from the floods of 1993, the most important of which may be the need to work with nature instead of against it.

Since 1993, great strides have been made in identifying flood-prone areas through better mapping and elevation data, protecting vulnerable populations using more aggressive and efficient mitigation techniques, increasing awareness of the flood risks by developing and delivering more targeted outreach campaigns and ensuring through lender compliance strategies that property owners who need adequate flood insurance coverage have it.

However, much remains to be done. While the U.S. Congress appropriated \$1 billion dollars in 2003 to modernize the nation's flood maps, this only represented about one-third of the actual dollars needed to re-study and acquire better elevation data to meet current mapping standards for 95 percent of the U.S. population. Many communities are still burdened with inaccurate maps and obsolete flood studies that in many cases place unfair burdens on poor rural and urban communities that can least afford the costs of paying for survey and engineering work to fix the problems that an underfunded program have caused.



*- Fountain City, WI June 1993*

Similarly, recent efforts to eliminate subsidies for older "pre-FIRM" structures, while needed to get the flood insurance program out of the red, have caused considerable backlash among both property owners and their elected representatives. The credibility of the program depends to a great extent on sharing the costs of better mapping and more accurate insurance ratings equitably among all parties who benefit from the protection and peace of mind that flood insurance offers to some of our most vulnerable citizens.

We have come a long way from 1993, but in many respects this country still does not adequately recognize, plan for or mitigate the effects of flood disasters which plague our

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citizens year in and year out. Floods continue to be the most common and most costly of all natural disasters, but we only take notice when a mega-event like Katrina or Sandy gets the attention of our nation's media leaders and political decision-makers. Preparation, planning and sound land use policies can all make a difference, but the will and the dollars have to be there to make it a reality. 20 years later, the conversation continues.

In 1994, the Wisconsin Department of Natural Resources published a report on the 1993 floods. A copy of The Floods of 1993 can be downloaded in PDF format at <http://dnr.wi.gov/topic/floodplains/communities.html>.

## Precipitation Outlook

Wisconsin has once again ricocheted from flooding conditions back to drought. According to the US Drought Monitor (<http://www.droughtmonitor.unl.edu/>) nearly two thirds of the state is dry with conditions ranging from abnormally dry to severe drought. At the end of June, the National Weather Service (NWS) noted that precipitation rates in Milwaukee were nearly 9 inches above normal and in Madison, nearly 15 inches above normal. These same areas are now considered abnormally dry.

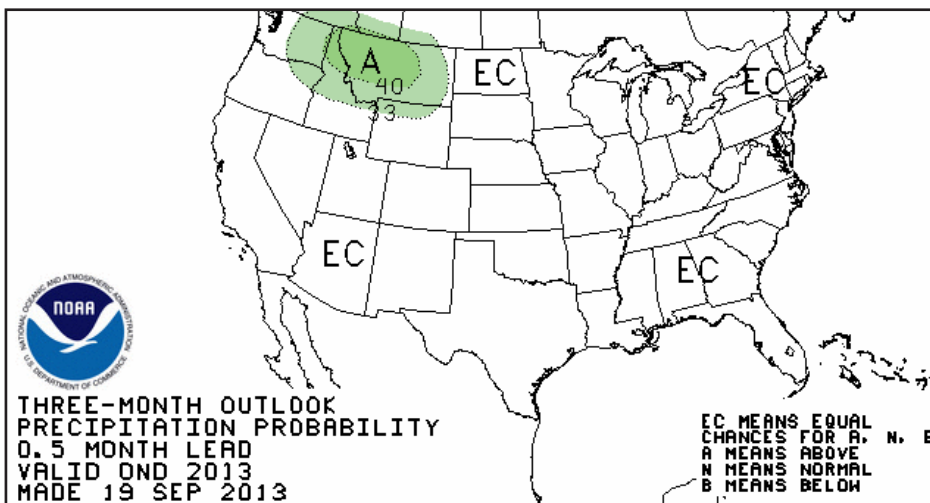
The precipitation outlook for October - December is for an equal chance of precipitation rates being above or below normal. The current precipitation outlook is similar to the fall of 2012. Let's hope the first 6 months of 2014 are not as wet as 2013.

For a graphic display of the Three Month Outlook for temperature and precipitation go to: [http://www.cpc.ncep.noaa.gov/products/predictions/long\\_range/seasonal.php?lead=2](http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=2)

For a technical discussion of the 30-day outlook go to: [http://www.cpc.ncep.noaa.gov/products/predictions/long\\_range/fxus07.html](http://www.cpc.ncep.noaa.gov/products/predictions/long_range/fxus07.html)

For the Long-Lead Forecast Release Schedule for 2013 go to: <http://www.cpc.ncep.noaa.gov/products/predictions/schedule.html>.

The next 30-day outlook will be issued on October 17, 2013 for November. The Long-Lead Forecast Release Schedule for 2014 will be released in early December.



Three Month Outlook Precipitation Probability (October - December)

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## Zoning Challenge

The photo below shows a Zone A Special Flood Hazard Area (SFHA). A Letter of Map Amendment (LOMA) has been issued for the residence using a BFE developed by FEMA. Is the residence considered out of the floodplain?



The residence would be considered out of the floodplain for flood insurance purposes. However, it would still be considered in the floodplain for regulatory/permitting purposes. For a structure to be considered out of the floodplain for regulatory purposes, it must meet the requirements of NR 116.18 Wisconsin Administrative Code which states: No area in the floodplain may be removed from the floodplain unless it can be shown that the area has been filled to the flood protection elevation and is contiguous with lands lying outside the floodplain. A LOMA with a BFE developed by FEMA does not meet these requirements.

## National Flood Hazard Layer

Recently, FEMA added the National Flood Hazard Layer (NFHL) to the Digital Flood Hazard Data Products and Tools available on the Map Service Center site. The NFHL is a computer database that contains the flood hazard map information from FEMA's Flood Map Modernization program. These map data are from Digital Flood Insurance Rate Map (DFIRM) databases and Letters of Map Revision (LOMRs). Products and services include MapViewer - Web, utility files to view the NFHL in Google Earth, a Web Map Service, and NFHL GIS data.

Local officials and the public will be able to view the Flood Insurance Rates Maps as overlays on a variety of base maps such as aerial photos or topographic or street map for those counties which have received DFIRMs.

The NFHL is housed on FEMA's GeoPlatform which provides geospatial data and analytics for the emergency management community. The NFHL can be found at: <http://fema.maps.arcgis.com/home/>. A tutorial on using the NFHL can be viewed at: [http://www.fema.gov/media/library/media\\_records/12860](http://www.fema.gov/media/library/media_records/12860).

## DNR Website for Mapping Status

The Department of Natural Resources has developed a website to provide communities and others with information regarding the Risk Map Program in Wisconsin. The website contains information on project status, the public open house schedule, the comment and appeal process, post preliminary map process and other mapping related issues.

Links to FEMA's website are included for information on Letters of Map Change and the Map Service Center.

For further information regarding the Risk Map Program contact:

Katie McMahan - GIS/Process Issues  
*katie.mcmahan@wisconsin.gov*

Christopher Olds - Technical Issues  
*christopher.olds@wisconsin.gov*

Lee Traeger - FEMA  
*lee.traeger@dhs.gov*

The website is located at:  
<http://dnr.wi.gov/topic/floodplains/>

## Current Letters of Final Determination

Letters of Final Determination (LFD) have been issued for several counties. Once an LFD has been issued, all communities in the county participating in the NFIP have six (6) months to amend the local floodplain ordinance to include the new FIRMs and Flood Insurance Study. Communities which do not adopt by the effective date of the maps will be immediately suspended from the NFIP. Communities which do not currently participate in the NFIP have one (1) year to join the NFIP and adopt the new maps.

All ordinance amendments must be reviewed and approved by the DNR and FEMA before the effective date. For further information on ordinance amendments and adoption go to <http://dnr.wi.gov/topic/floodplains/communities.html> and download the appropriate DNR Model Floodplain Ordinance and Checklist and the Ordinance Approval Procedures. You may also contact your DNR Regional Engineer.

LFDs have been issued for the following counties and all the incorporated communities within the county:

<b>County</b>	<b>Effective Date</b>
Sauk County (Baraboo River Watershed)	November 20, 2013
Washington County	November 20, 2013
Dodge County (Fox Lake PMR)	February 5, 2014
Waukesha County (Bark River PMR)	February 19, 2014
Rusk County	March 17, 2014
Brown County (Hobart PMR)	March 17, 2014

## Updating Your Floodplain Ordinance

Interested in updating your local floodplain ordinance? Download the latest Model Floodplain Ordinance at <http://dnr.wi.gov/topic/floodplains/communities.html> or contact Gary G. Heinrichs ([gary.heinrichs@wisconsin.gov](mailto:gary.heinrichs@wisconsin.gov)) or Miriam G. Anderson ([miriam.anderson@wisconsin.gov](mailto:miriam.anderson@wisconsin.gov)) for further information.

## Staff Changes

Over the past year there have been a number of changes in the Dam Safety Section. Two new engineers have been hired for the Eau Claire and Waukesha offices. Also, county assignments have been shifted in order ensure each county was covered. A complete list of Water Management Engineers by county can be found on the WDNR Floodplain Management website at: [http://dnr.wi.gov/topic/floodplains/staff\\_flood.html](http://dnr.wi.gov/topic/floodplains/staff_flood.html).

**Mike Rogney** was hired as a Water Management Engineer for the West Central Region - Eau Claire. He is a recent graduate from UW-Madison majoring in Biological Systems Engineering, specializing in Natural Resource Management. He previously worked with the USDA-NRCS while in school, which included investigating dam hydrology and hydraulics in Vernon County. In his new position, Mike will provide dam safety, floodplain management, and engineering assistance to the Water Regulation Program. His contact information is WDNR, 1300 West Clairemont Avenue, Eau Claire, WI 54701, (715) 879-3735, [Michael.rogney@wisconsin.gov](mailto:Michael.rogney@wisconsin.gov).

**Nathan Zoch** was hired as a Water Management Engineer for the Southeast Region - Waukesha. He is recent graduate from UW-Milwaukee with a bachelor's degree in Civil Engineering. He previously worked for the Indian Health Services, a division of the U. S. Department of Health and Human Services. Prior to obtaining his BS, Nathan was an active duty Army Combat Engineer/Construction Masonry Engineer and served two deployments in Iraq. In his new position, Nathan will provide dam safety, floodplain management, and engineering assistance to the Water Regulation Program. His contact information is WDNR, 141 NW Barstow St, Room 180, Waukesha WI, 53188, (262) 574-2188, [Nathan.zoch@wisconsin.gov](mailto:Nathan.zoch@wisconsin.gov).

## Workshops/Conferences

### State of Lake Michigan/Great Lakes Beach Association Conference

The 8th biennial State of Lake Michigan and the 13th annual Great Lakes Beach Association Conference will be held October 15-17, 2013 at the Blue Harbor Resort in Sheboygan, WI. The joint conference typically draws more than 350 resource managers, scientists, planners, elected officials and interested citizens together to work to improve and protect Lake Michigan and the Great Lakes beaches. The conference will include sessions on Lake Michigan and Great lakes beach issues, field trips to restoration project sites, workshops and an evening poster session. For more information regarding registration, accommodations and a conference agenda, go to <http://www.aqua.wisc.edu/solm>.

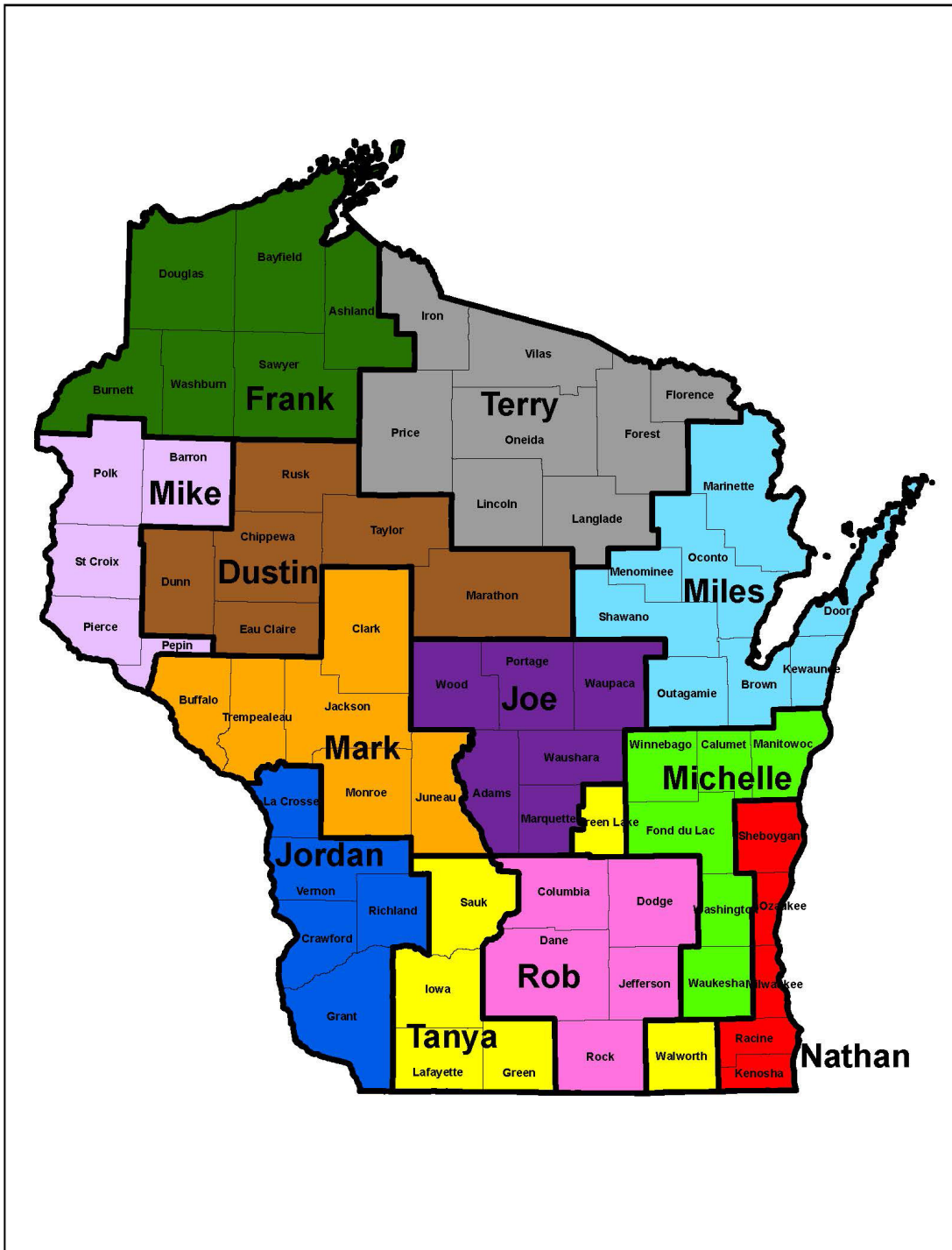


### 2013 Conference

The Wisconsin Association for Floodplain, Stormwater, and Coastal Management (WAFSCM) is holding its 11th Annual Conference on October 30 – November 1, 2013, at the Holiday Inn Neenah Riverwalk Hotel, Neenah, Wisconsin. This year's focus will be Changing Climates, Changing Attitudes. Attendees can earn up to 12 Professional Development Hours by attending all of the conference events. Information on registration and a conference agenda can be found at <http://www.wafscm.org/annual-conference/>.

# Water Management Engineers Map

The map below can be used as a quick and easy guide in determining who is your Water Management Engineer. WMEs are your local contact regarding questions floodplain management and dams. WMEs also provide technical assistance regarding engineering questions. A complete list of the Water Management Engineers by county including telephone numbers, email addresses and mailing addresses can be found on the WDNR Floodplain Management website at: [http://dnr.wi.gov/topic/floodplains/staff\\_flood.html](http://dnr.wi.gov/topic/floodplains/staff_flood.html).



## WISCONSIN ASSOCIATION FOR FLOODPLAIN, STORMWATER AND COASTAL MANAGEMENT (WAFSCM)

Membership Application/Renewal Form

Membership Fee: \$20.00

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Organization: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Phone: \_\_\_\_\_ Ext.: \_\_\_\_\_ Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

Would you like to receive occasional announcements, newsletters and/or notices via E-mail: Yes \_\_\_ No \_\_\_

Other Affiliations: \_\_\_\_\_

Primary Interest: \_\_\_ Floodplain \_\_\_ Stormwater \_\_\_ Coastal

Specific Interest: \_\_\_\_\_

Please send a check for the annual Membership Fee of \$20.00 made payable to WAFSCM in care of:

Carrie Bristol-Groll, PE, CFM  
WAFSCM  
c/o Stormwater Solutions Engineering, LLC  
100 East Sumner Street  
Hartford, WI 53027

If you have questions, contact Carrie Bristol-Groll at either (262) 673-9697 or [cbg@stormwater-solutions-engineering.com](mailto:cbg@stormwater-solutions-engineering.com).

"Floodplain and Shoreland Management Notes" is published by the WDNR, Bureau of Watershed Management. Its purpose is to inform local zoning officials and others concerned about state and federal floodplain management, flood insurance, shoreland and wetland management, and dam safety issues. Comments or contributions are welcome.

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### Floodplain Contacts:

- Gary G. Heinrichs, 608-266-3093  
[gary.heinrichs@wisconsin.gov](mailto:gary.heinrichs@wisconsin.gov)
- Miriam G. Anderson, 608-266-5228  
[miriam.anderson@wisconsin.gov](mailto:miriam.anderson@wisconsin.gov)

### Shoreland Contacts:

- Water Management Specialist  
under Contact Information  
<http://dnr.wi.gov/topic/Waterways/>

### Dam Safety Contacts:

- Bill Sturtevant, 608-266-8033  
[william.sturtevant@wisconsin.gov](mailto:william.sturtevant@wisconsin.gov)
- Meg Galloway, 608-266-7014  
[meg.galloway@wisconsin.gov](mailto:meg.galloway@wisconsin.gov)