



IAFSM Annual Conference

# Illinois' Nutrient Loss Reduction Strategy Urban Stormwater Working Group

A collaborative way to improve state-wide water quality

C. Eliana Brown, University of Illinois Extension/Illinois-Indiana Sea Grant

Lisa Merrifield, University of Illinois Extension

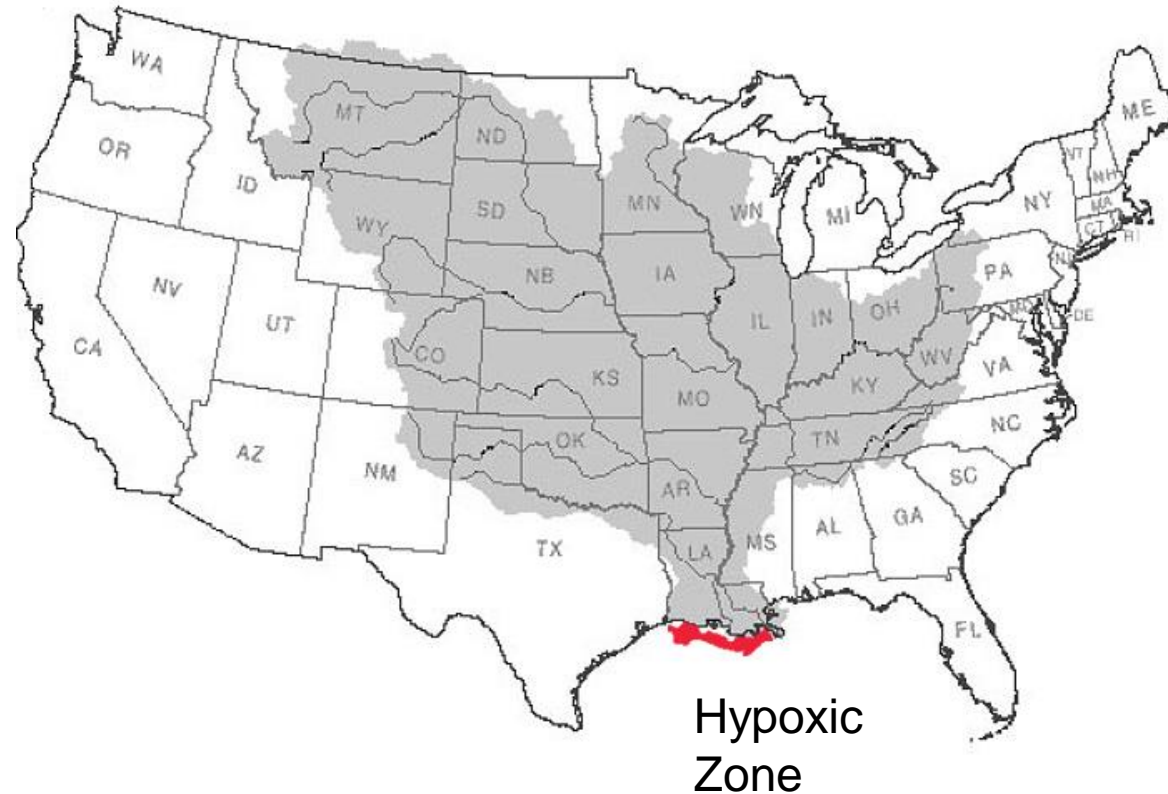
# Learning objectives

- Become familiar with basin and state-wide nutrient issues and how the Illinois NLRs addresses them.
- Understand the part that urban stormwater runoff plays and what practices help reduce the problem.
- Learn how the Illinois NLRs Urban Stormwater Working Group is educating communities and tracking Green Infrastructure.

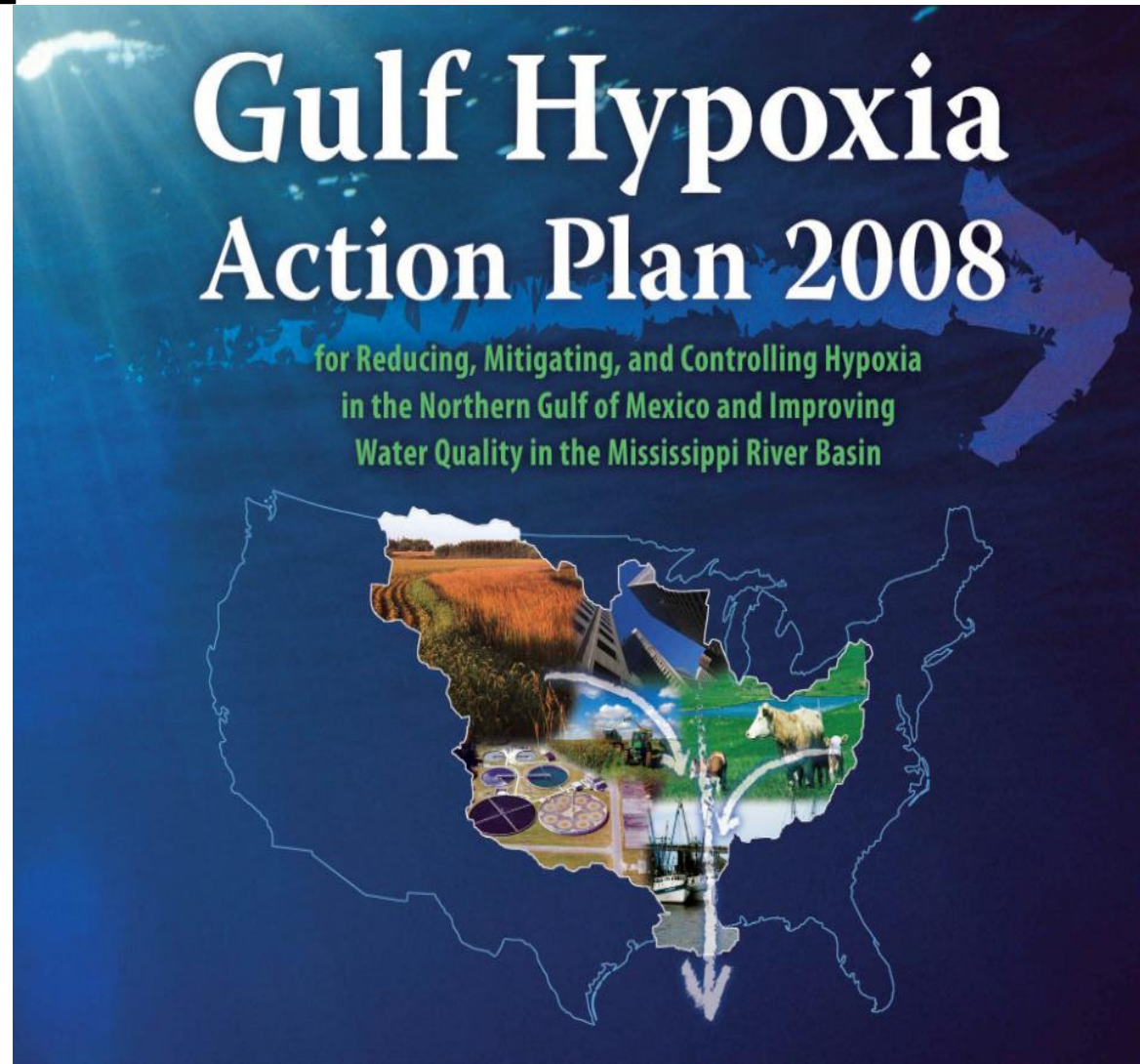
# Learning objectives

- Become familiar with basin and state-wide nutrient issues and how the Illinois NLRS addresses them.
- Understand the part that urban stormwater runoff plays and what practices help reduce the problem.
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# Mississippi River Basin



# Mississippi River Basin



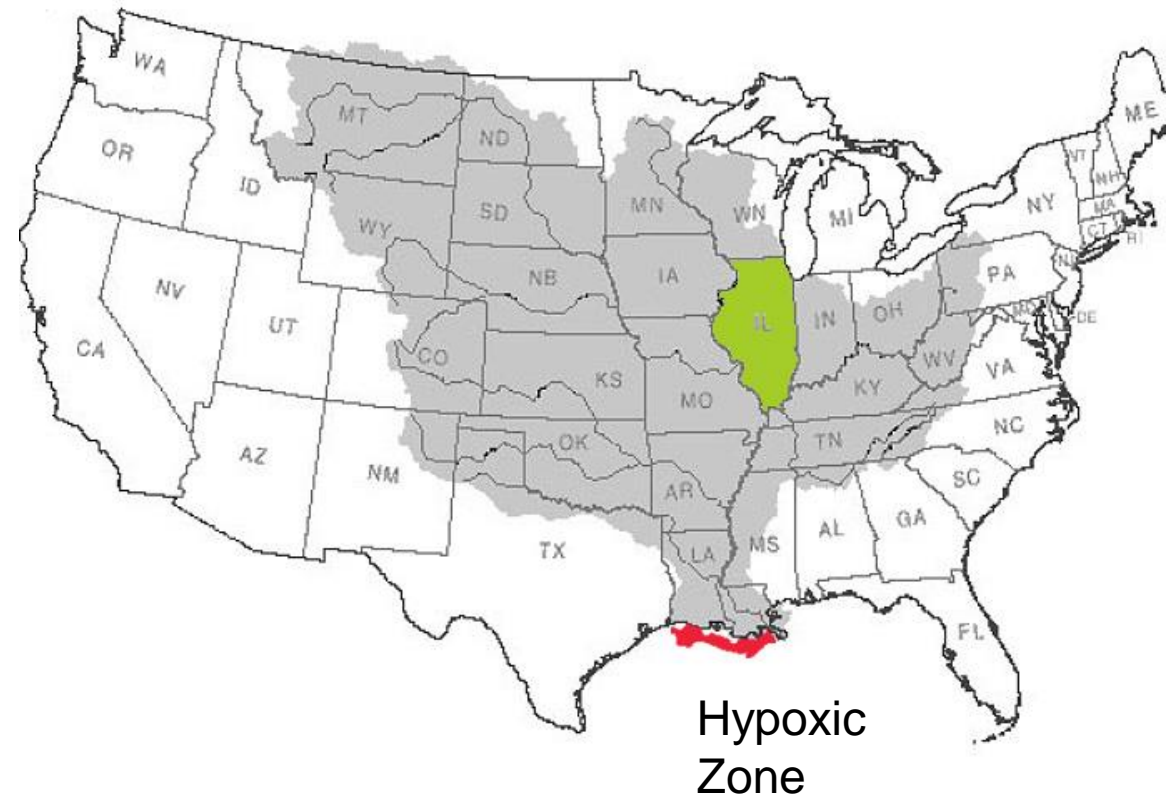
## GOALS:

Reduce Hypoxic Zone to 5,000 Km<sup>2</sup> (1,930 sq miles)

Reduce Nutrient Loading to Gulf of Mexico

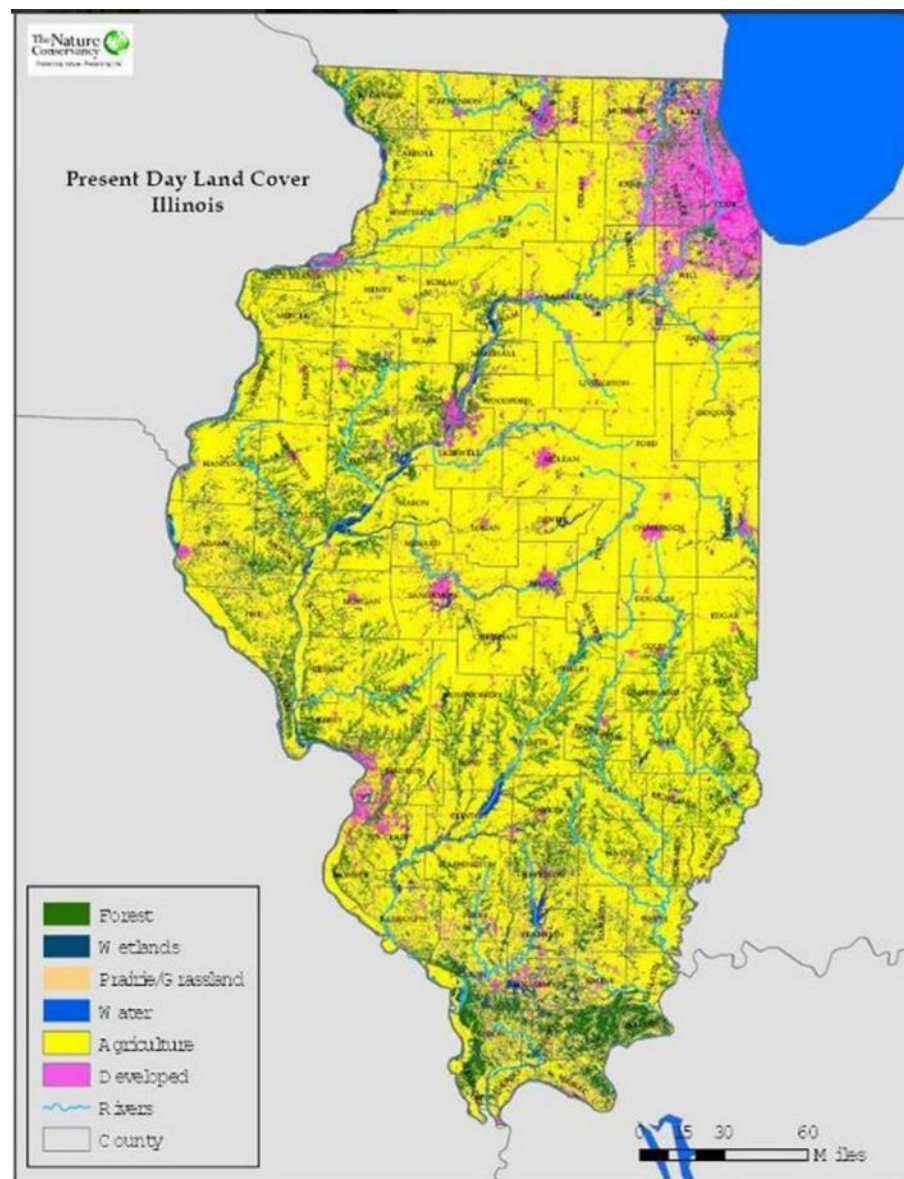
**Total Phosphorus and Total Nitrogen 45%**

# Who contributes most?





# Illinois



# Illinois local water quality

**Too many nutrients can feed algae, causing:**  
**Fish kills**  
**Harmful Algal Blooms**



## NEWS RELEASE



FOR IMMEDIATE RELEASE  
June 25, 2018



CONTACT:  
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Melaney Arnold (IDPH) – 217-558-0500

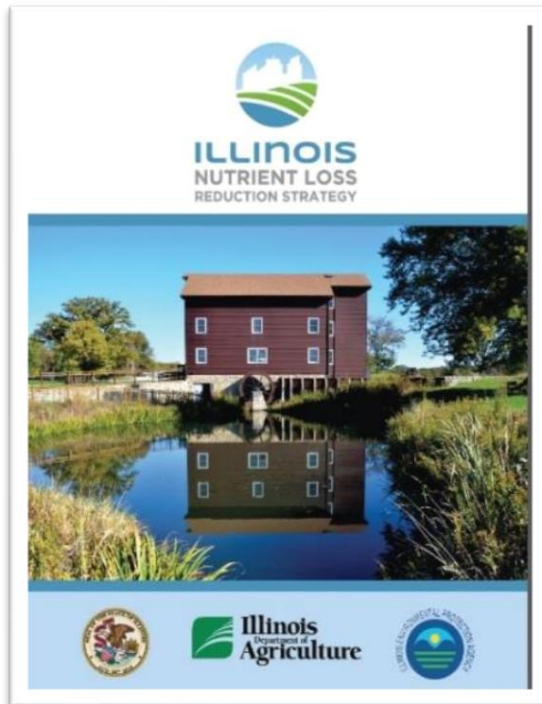
### Illinois Officials Confirm Algal Bloom on Portions of the Illinois River

*Residents should continue to use caution when recreating and be aware of blue-green algae*

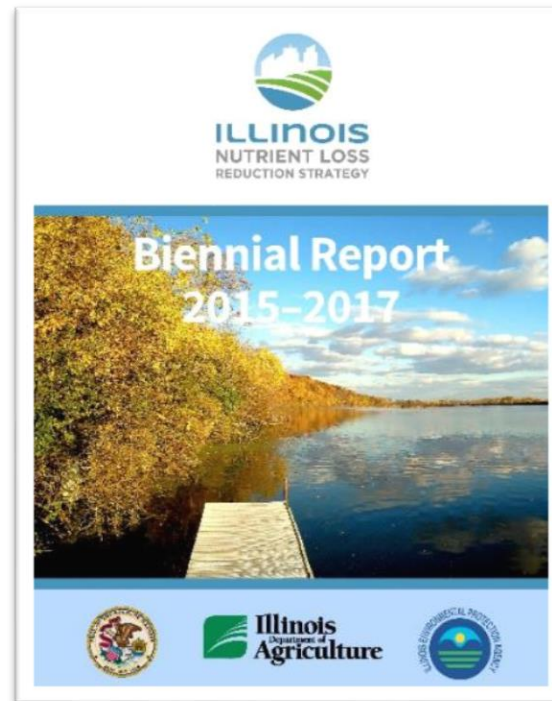
SPRINGFIELD – Following sampling on the Illinois River, Illinois officials have confirmed the presence of the algal toxin, microcystin, above the 4 parts per billion (ppb) health advisory established by U.S. EPA. An initial screening test conducted on a water sample taken last week near Hennepin indicated an elevated level of microcystin. The Illinois EPA's lab confirmed the microcystin level in the sample at 182 ppb; well above the health advisory limit. The confirmatory sample taken near Marseilles detected microcystin at 4.75 ppb, just slightly above the health advisory limit. Illinois EPA will conduct additional sampling this week to determine if conditions have improved along the Illinois River.



# Strategy Documents



July 2015



Aug 2017

Establishes goals:

1. **45% Reduction** of Nitrogen and Phosphorus
2. Improve local water quality

Interim Milestone 2025

- 25% Reduction in Phosphorus Loads
- 15% Reduction in Nitrogen Loads

Addresses nutrient loads from:

**Point Sources, Urban Stormwater and Agriculture Nonpoint sources**

Documents NLRS activities and progress towards goals.

# Policy Working Group Participation

## Agriculture



## Point Source



## Stormwater



## Tech Assistance



## Government



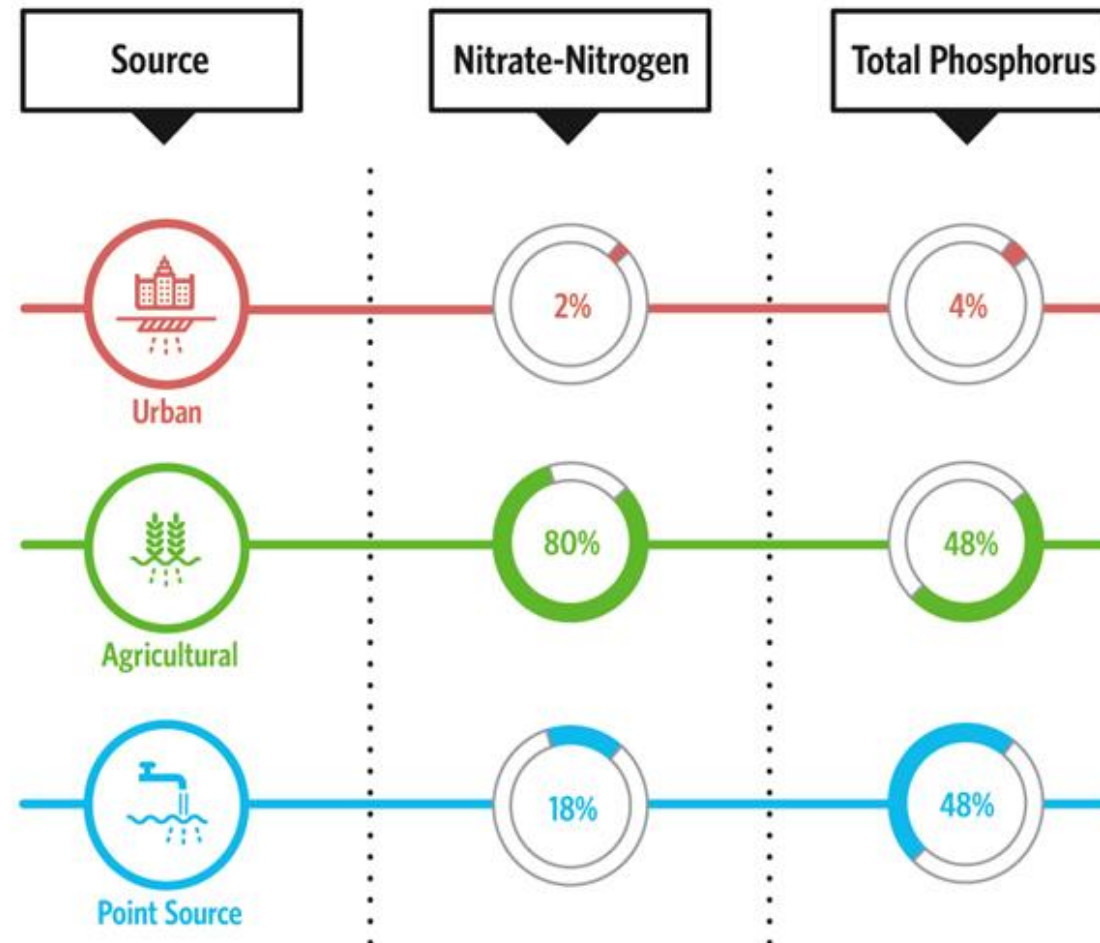
## Environmental



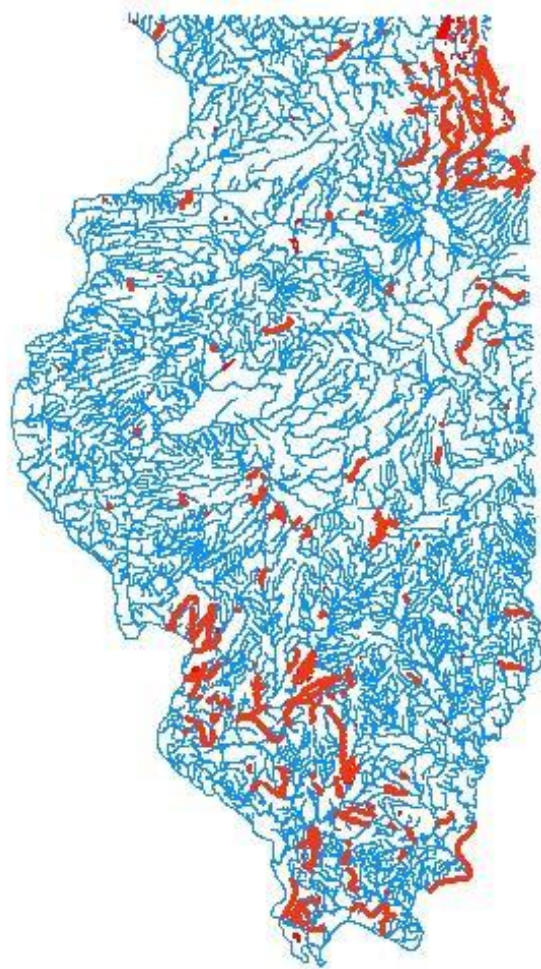
## Public Water



# Nutrient Contribution by Source



# Impaired waterbodies due to stormwater runoff



**1,262 miles of streams  
and 40,037 acres of lakes**

**(2014 Illinois Integrated Water Quality Report, Illinois EPA)**

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# USGS Leaf Study



Photo Credit: USGS

# BMPs: Changing fall leaf practices

☐

**YES!**

I'd like to help make Lake Wingra cleaner by practicing good leaf management practices.

☐

**YES!**

Please sign me up for email notification of when leaf pickups are going to occur.

(Note- your email will not be shared with other organizations or used for other purposes)

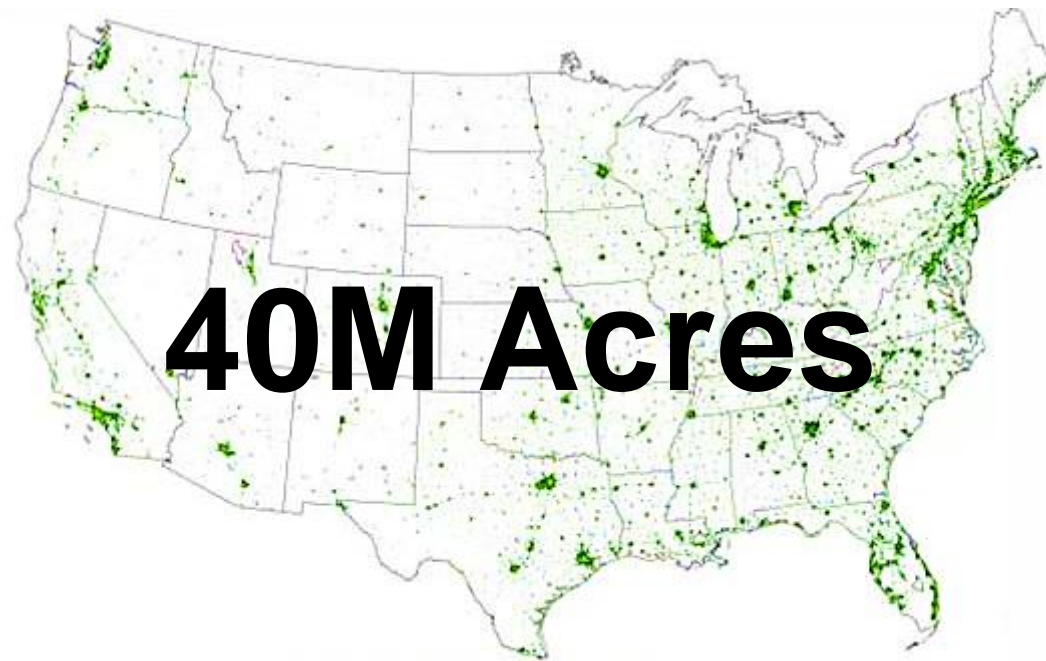
Email

**The more leaves removed from the street, the better.**

**Street sweeping can target older areas of town with greater leaf canopy.**

**May need to engage residents with outreach campaigns.**  
(<https://pubs.er.usgs.gov/publication/70175058>)

# Lawn runoff



(<http://www.isprs.org/proceedings/XXXVI/8-W27/milesi.pdf>)



# BMPs: Sustainable Lawn care





# BMPs: Sustainable Lawn care

**3"** mowing height

**L**eave grass clippings

**A**erate soil

**W**ater wisely when needed

**N**atural nutrients when needed

**S**oil care is the foundation



# BMPs: Green infrastructure



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# NLRS Working Groups

Policy Working Group

Agriculture Water Quality Partnership Forum

Urban Stormwater Working Group

Benchmark Working Group

Nutrient Monitoring Council

Nutrient Science Advisory Committee

# USWG Charge

Explore funding, identify legislative initiatives, and develop plans.

Coordinate outreach.

Orchestrate statewide efforts related to green infrastructure expansion, MS4 program training, and urban stream, lake, and stormwater monitoring.

# USWG Member Organizations

Center for Neighborhood Technology

Chicago Metropolitan Agency for  
Planning

City of Champaign

DuPage County

Greater Egypt Regional Planning and  
Development

Illinois Dept. of Natural Resources  
Coastal Programs

Illinois EPA

Illinois Environmental Regulatory Group

Illinois-Indiana Sea Grant

Illinois Sierra Club

Illinois State Water Survey

Madison County

MWRDGC

Parkland College

Prairie Rivers Network

The Conservation Foundation

University of Illinois

U.S. EPA



# USWG: Current focus

## Education and Training (resources to assist local governments)

- Lawn to Lake Program
- National Green Infrastructure Certification Program
- Rainscaping Course
- Resource Repository
- MS4 Compliance Tools

## Tracking efforts (for reporting to Hypoxia Task Force)

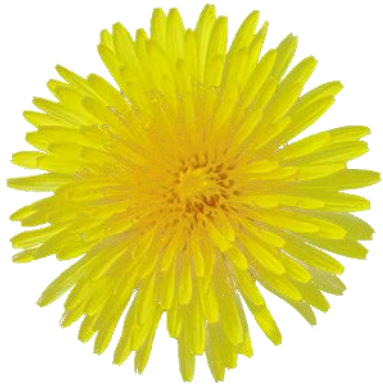
- BMP inventories
- Nutrient removal efficiencies for BMPs
- MS4 reports as a way to obtain data

# Lawn to Lake Program

**Goals:** Inform homeowners and communities how actions we take on land effects our watersheds.

Offers resources to encourage sustainable lawn and landscaping practices.

## CONTACT INFORMATION



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### CENTRAL ILLINOIS

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# Lawn to Lake Program

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*Extension Watershed Outreach Associate*

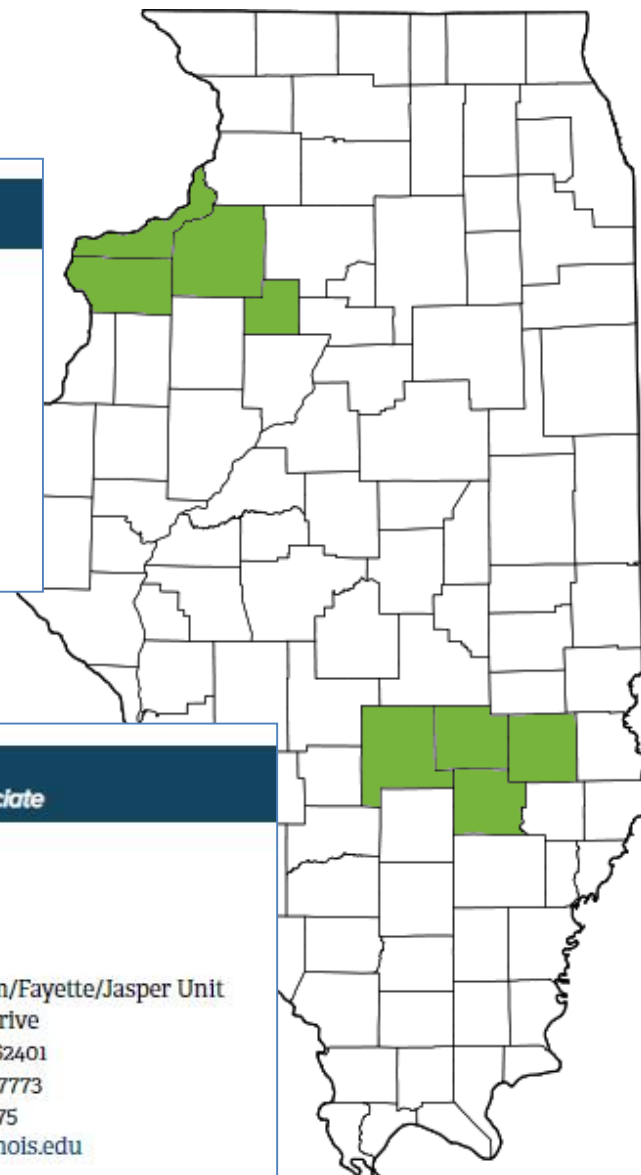


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# National Green Infrastructure Certification Program (NGICP)



Nationally recognized certification from the Water Environment Federation

**Next class: May 13-17, 2019**

See [www.ngicp.org](http://www.ngicp.org) for more info.

**Contact: Heidi Leuszler** [hleuszler@parkland.edu](mailto:hleuszler@parkland.edu)

# Rainscaping Course

Importing from Purdue Extension.

Five, three-hour training modules in a workshop setting.

For Master Gardeners, Master Naturalists, and others with baseline knowledge.



See <https://extension.purdue.edu/rainscaping/> for more info.

**Contact: Eliana Brown** [brown12@illinois.edu](mailto:brown12@illinois.edu)




# Resource Repository

*Adapted from the Calumet Stormwater Collaborative*

Local government stormwater “starter kit” with 182 links:

- Data & Tools
- Design & Implementation
- Education & Engagement
- Funding & Financing
- Policies & Regulations
- Stormwater Planning
- Training & Maintenance

 **EDUCATION & ENGAGEMENT** Page 1 of 5

*The IL NLR Urban Stormwater Working Group education and engagement section provides accessible stormwater resources that can be useful to local government staff, homeowners, and the general public. Hyperlinked names take you to each resource.*

Factsheets and Pamphlets		
Name	Organization	Description
<a href="#">Primary Factsheets</a>	Center for Neighborhood Technology	<a href="#">Factsheets</a> that provide information on urban <a href="#">flooding</a> , <a href="#">stormwater management</a> , and other related topics.
<a href="#">Stream Maintenance Brochure</a>	Metropolitan Water Reclamation District	A pamphlet for the general public that describes the importance of regular neighborhood <a href="#">stream maintenance</a> to ensure natural function and prevent <a href="#">flooding</a> .
<a href="#">Understanding Your Sewer</a>	Metropolitan Water Reclamation District	This document explains how a <a href="#">combined sewer</a> system works, and what causes sewer overflows and backups.
<a href="#">World Meteorological Organization Information Pamphlets for Developers and Homeowners</a>	Metropolitan Water Reclamation District	These documents provide general information for developers and <a href="#">homeowners</a> regarding the need for a World Meteorological Organization <a href="#">permit</a> .
<a href="#">World Meteorological Organization Short Summary</a>	Metropolitan Water Reclamation District	This brochure provides general information on <a href="#">flood prevention</a> and <a href="#">stream maintenance</a> .
<a href="#">Adopt-A-Stream</a>	DuPage County	This brochure shows how citizens can get involved in river and stream <a href="#">clean-up</a> in <a href="#">DuPage County</a> .
<a href="#">Best Management Practices</a>	DuPage County	This brochure lists and explains stormwater best management practices ( <a href="#">BMPs</a> ) to improve runoff quality, including quick fixes for <a href="#">homeowners</a> , construction solutions, and the <a href="#">DuPage County Adopt-A-Stream</a> program.
<a href="#">Emergency Flood Operations</a>	DuPage County	This brochure explains the <a href="#">DuPage County flood</a> control operations, including flood control facilities, flood forecasting, and emergency contact information.
<a href="#">Falling Into Winter</a>	DuPage County	This pamphlet lists stormwater best management practices ( <a href="#">BMPs</a> ) for Fall and Winter.
<a href="#">Surviving Into Summer</a>	DuPage County	This pamphlet lists stormwater best management practices ( <a href="#">BMPs</a> ) for Spring and Summer.
<a href="#">Greening Urban Areas</a>	DuPage County	This brochure explains the benefits and provides examples of <a href="#">green infrastructure</a> .
<a href="#">Homeowners Guide to Naturalized Areas</a>	DuPage County	This <a href="#">guide</a> provides information on naturalized areas and how to manage them, as well as common weeds and their management practices.
<a href="#">Citizen Monitoring (IODE)</a>	DuPage County	This brochure provides information for citizens interested in monitoring illicit discharge in <a href="#">DuPage County</a> .
<a href="#">PCBMP Brochure for Homeowners</a>	DuPage County	This brochure provides post-construction stormwater best management practices ( <a href="#">BMPs</a> ) for <a href="#">homeowners</a> .
<a href="#">Rain Barrel Installation One-Sheet</a>	DuPage County	This factsheet explains how to install a <a href="#">rain barrel</a> .
<a href="#">Streambank Stabilization</a>	DuPage County	This brochure provides detailed information for maintaining <a href="#">streambanks</a> in DuPage County, including suggested shrubs and trees, how to discourage beavers, and what to do if streambanks are eroding.

Housed at the IAFSM website: [www.illinoisfloods.org](http://www.illinoisfloods.org)

# Stormwater Compliance Tools

PowerPoint template for local governments to use when speaking to general public about stormwater.



# MS4 NPDES Permit

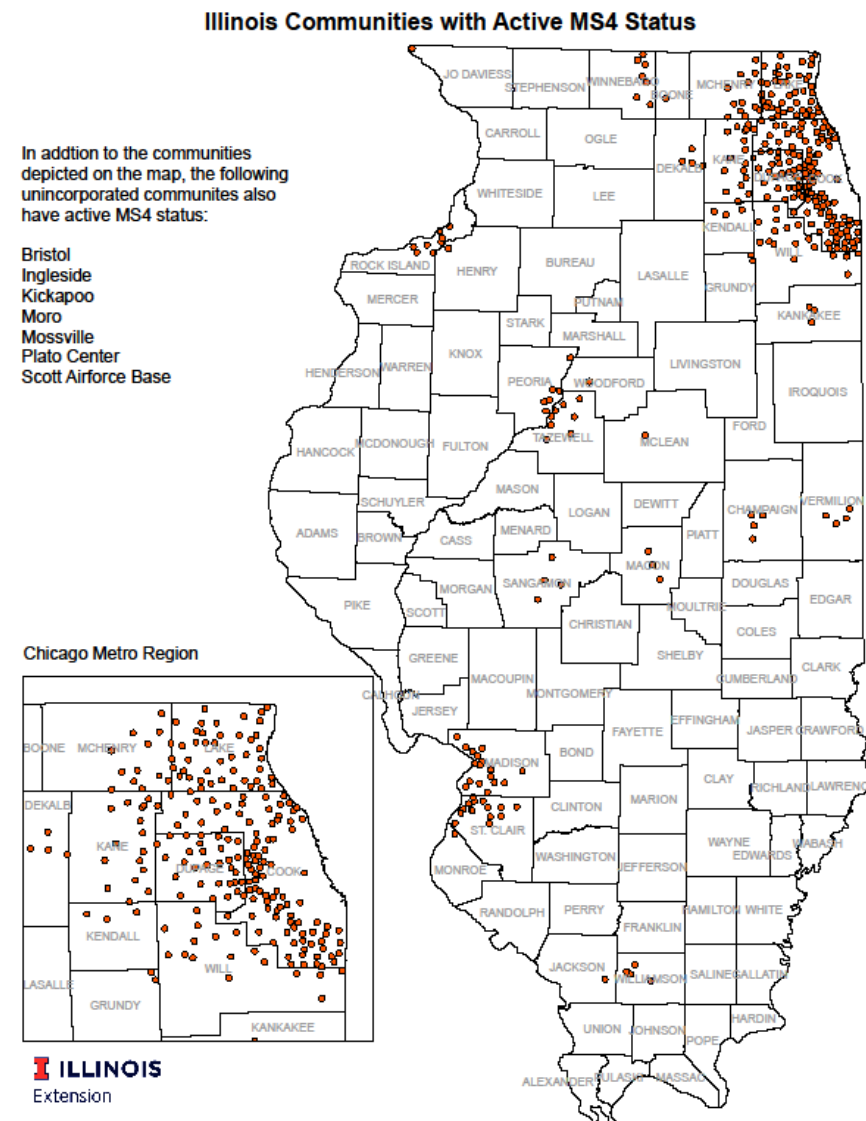
**Six minimum controls include:**

Outreach component

Green infrastructure

Annual report is narrative

379 active MS4s permits in Illinois



# BMP Implementation Tracking

## Nonpoint Source data:

Location

BMP type

Program funding

Installation date

**But, how to collect this information?**

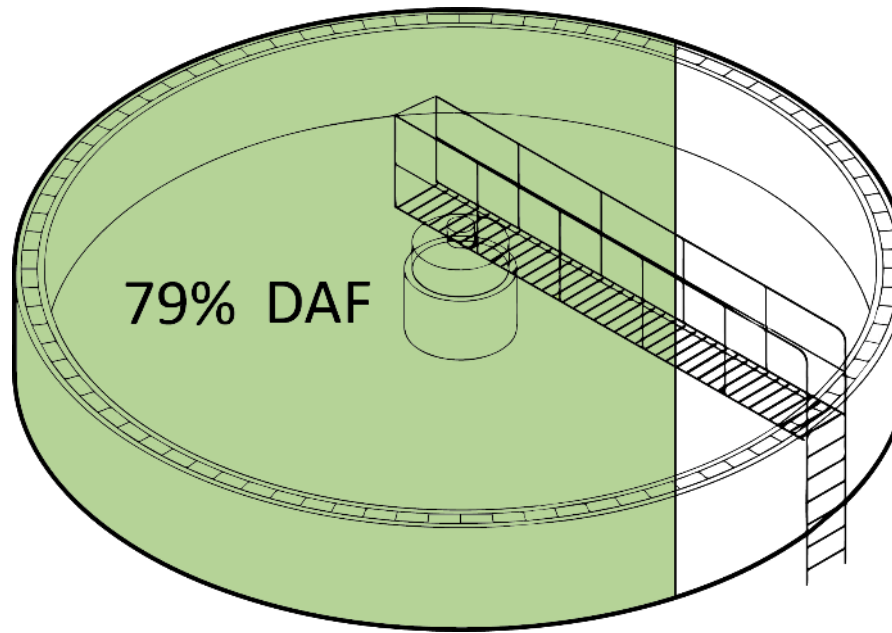


# BMP Implementation Tracking: Agriculture

Table 4.3. Agriculture Land and Facilities Measures BMP tracking template.					
BMPs	Data Source				
	FSA	Illinois DNR	USDA-NRCS	Illinois EPA	NASS
Reduced N rate from background to MRTN on 10 percent of acres					X
Nitrification inhibitor with all fall-applied fertilizer on tile-drained corn acres					X
Split application of 50 percent fall and 50 percent spring on tile-drained corn acres					X
Spring-only application on tiled-drained corn acres					X
Split application of 40 percent fall, 10 percent pre-plant, and 50 percent side dress					X
Cover crops on all corn/soybean tile-drained acres	X			X	X
Cover crops on all corn/soybean non-tiled acres	X			X	X
Bioreactors on 50 percent of the tile-drained land			X	X	
Wetlands on 25 percent of tile-drained land	X	X		X	
Buffers on all applicable crop land	X	X		X	X
Perennial/energy crops equal to pasture/hay acreage from 1987	X				X
Perennial/energy crops on 10 percent of tile-drained land	X				



# BMP Implementation Tracking: Point Source



Point source

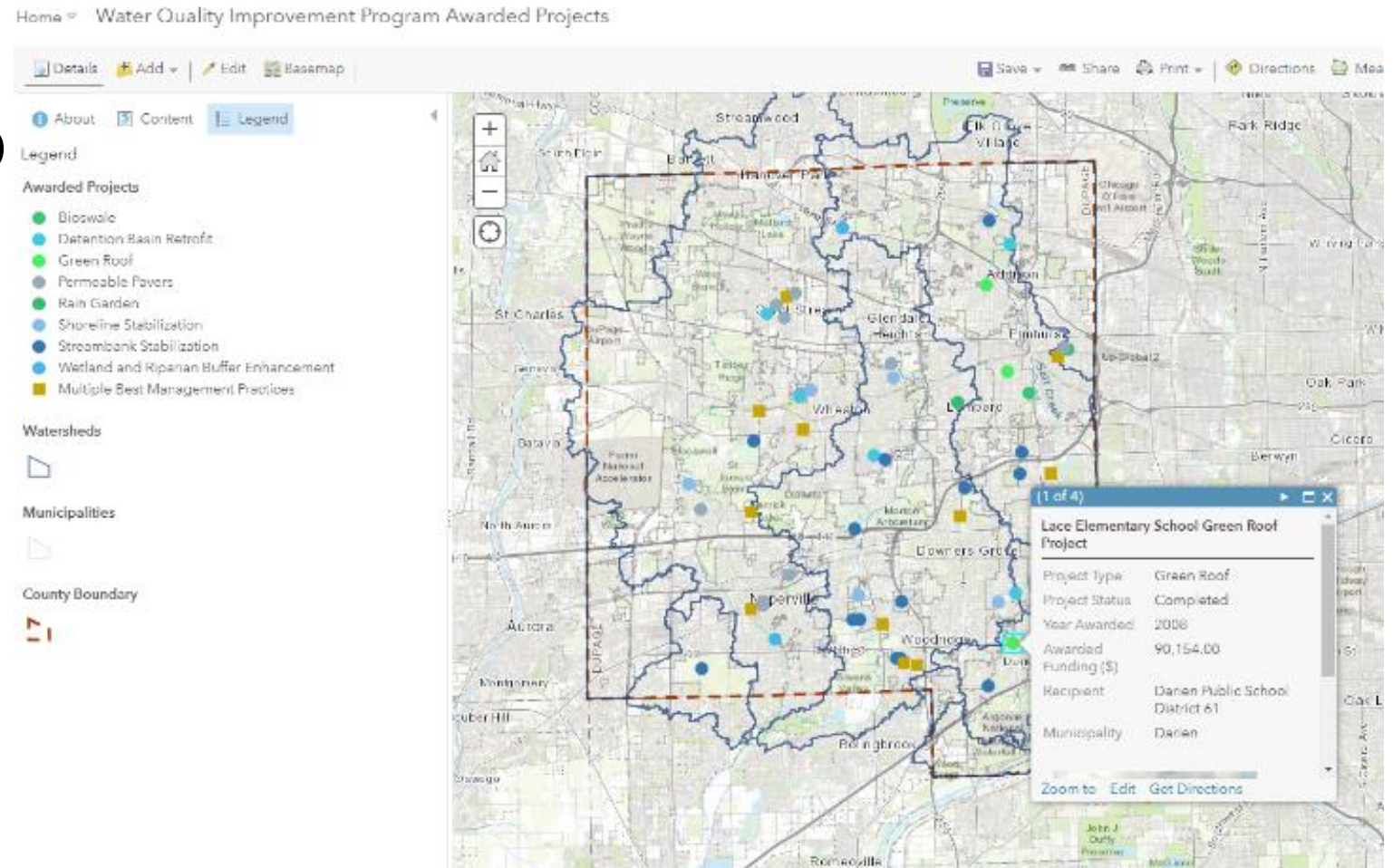
# **BMP Implementation Tracking**

## **What about Stormwater?**

EPA 319 and some existing IGIG

# BMP Implementation Tracking

From our USWG partners, we plan to include stormwater nonpoint source data from DuPage County, MWRD, and UIUC.



# BMP Implementation Tracking

We are capturing information about location, practice name, funding program, drainage info, size, and date installed.

Will estimate N/P removal with nutrient efficiencies.



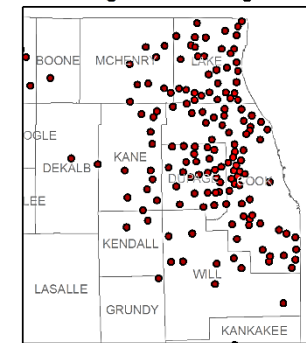


# BMP Implementation Tracking

Illinois Extension evaluating 287 MS4 narrative reports for reporting data.

(This work done by Illinois Extension CED with data provided by Illinois EPA.)

Chicago Metro Region



## Legend

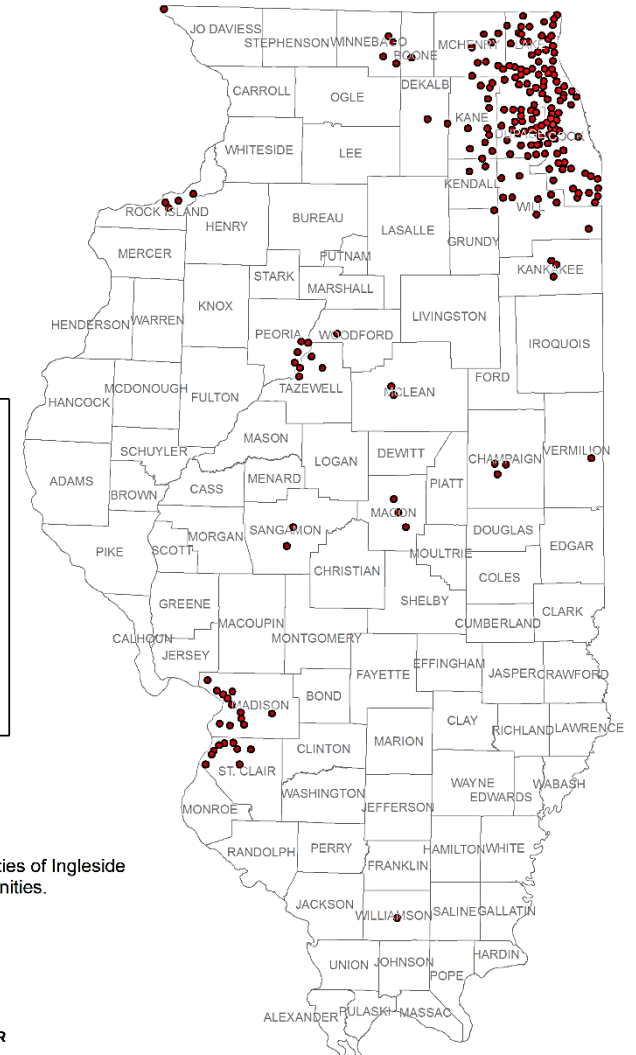
- MS4 Communities

Note: The unincorporated communities of Ingleside and Mossville are also MS4 communities.

**I ILLINOIS**

Extension

COLLEGE OF AGRICULTURAL, CONSUMER  
& ENVIRONMENTAL SCIENCES





# BMP Implementation Tracking

287 MS4 permit reports obtained from IEPA

Not comprehensive, but a starting point for identifying green infrastructure practices

166 have no reported green infrastructure programs

**121 reported at least one practice that impact nutrients:**

Stormwater utility fees (18 in MS4 permit communities; 26 total in the state)

Community rain gardens

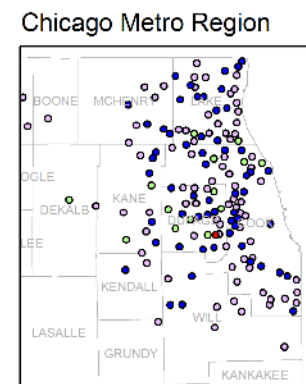
Bioswales

Homeowner programs: home raingarden incentives, rain barrel programs, green infrastructure grant programs

# BMP Implementation Tracking

## Programs:

Stormwater utility fees  
Community rain gardens  
Bioswales  
Homeowner programs

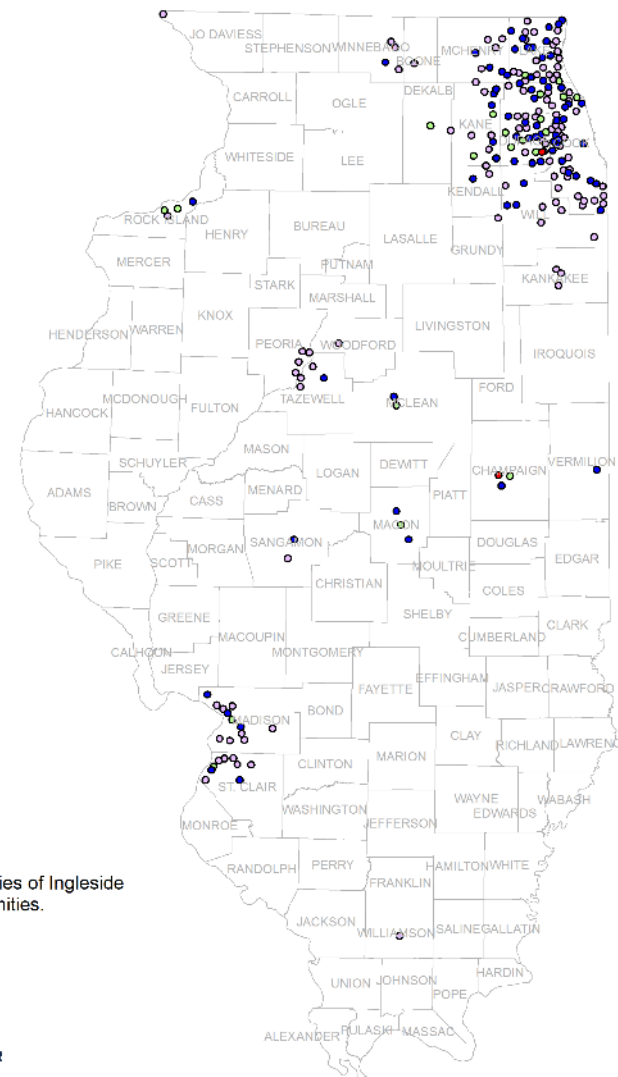


### Legend

#### Number of GI Practices

- 5 or More
- 3 - 4
- 1 - 2
- 0

Note: The unincorporated communities of Ingleside and Mossville are also MS4 communities.

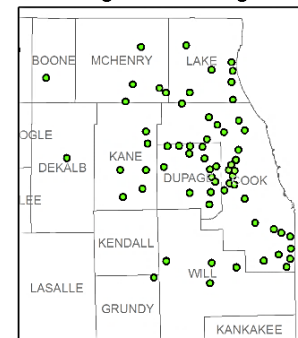


# BMP Implementation Tracking

## Street sweeping

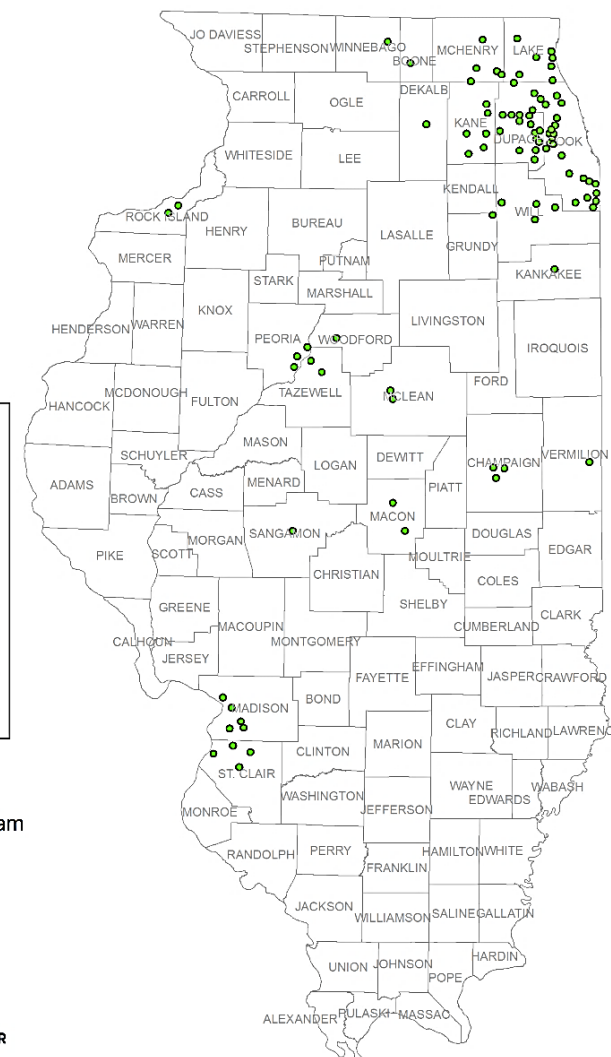
114 MS4s report street sweeping programs

Chicago Metro Region



### Legend

- Street Sweeping Program



# Thank you!

**C. Eliana Brown**

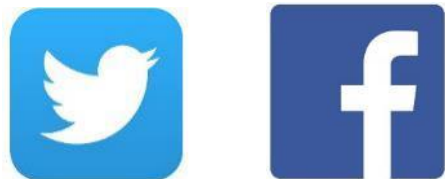
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