



Reducing outdoor water use: A review of lawn watering restrictions in the NWPA region

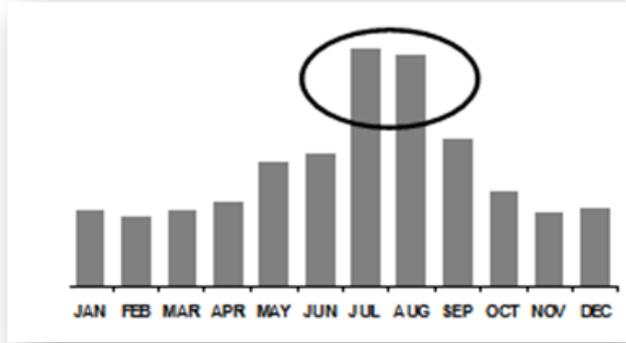
NWPA Technical Advisory
Committee Meeting
May 26, 2020

Agenda

- Benefits of reduced water use
- History behind NWPA's ordinance
- Components of the model ordinance
- Implementation in the region
- Discussion

Benefits of outdoor water conservation

Outdoor water use



Outdoor water use...

- Comprises a large percentage of average residential water use
- Contributes to costly summer peak use
- Is discretionary (nonessential)
- Has a significant impact on water resources (runoff)
- Financial risk driver
- Logic of applying water treated to drinking water standards to landscape



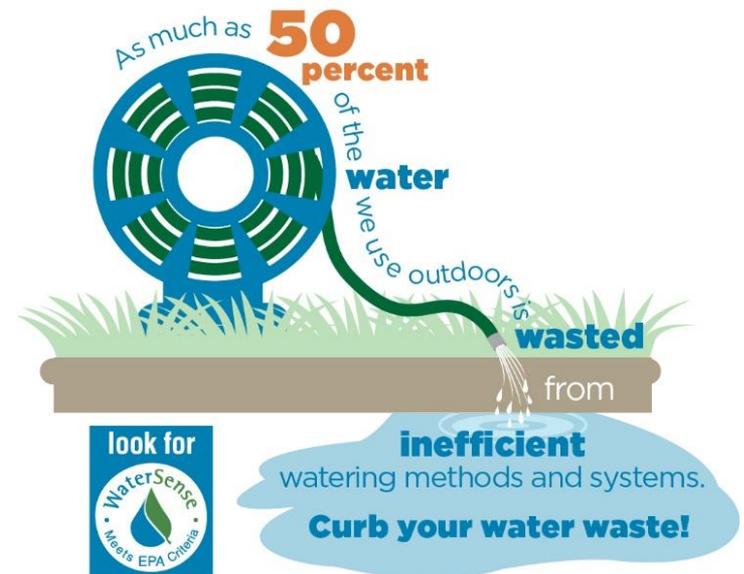
Outdoor water waste

Outdoor water use...

- Estimated that 50 percent of outdoor water is wasted due to unwise and wasteful watering behavior.

Main sources

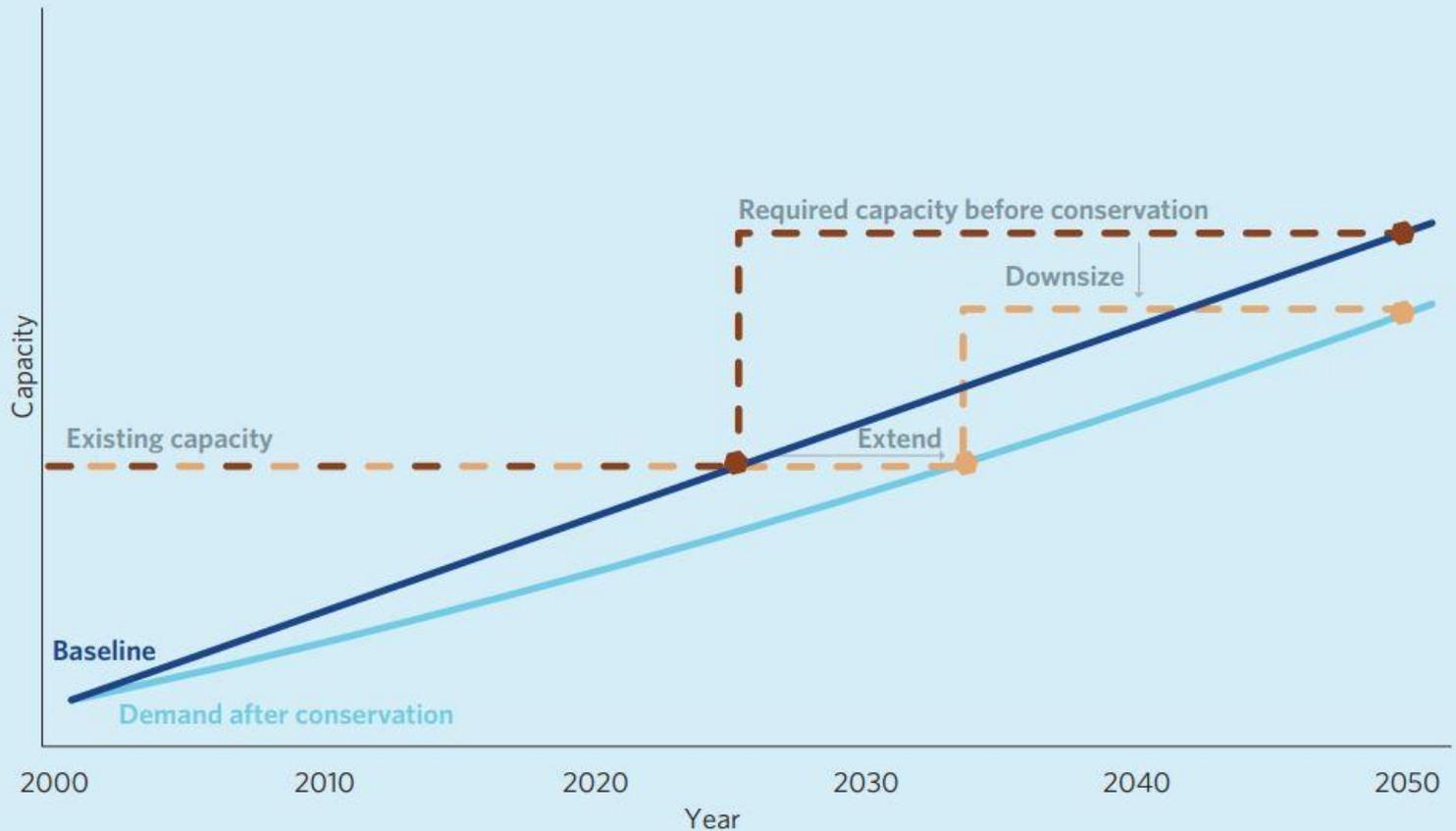
- Poor irrigation scheduling
- Inefficient irrigation systems and practices
- Fixed notions about what constitutes an attractive/functional yard.



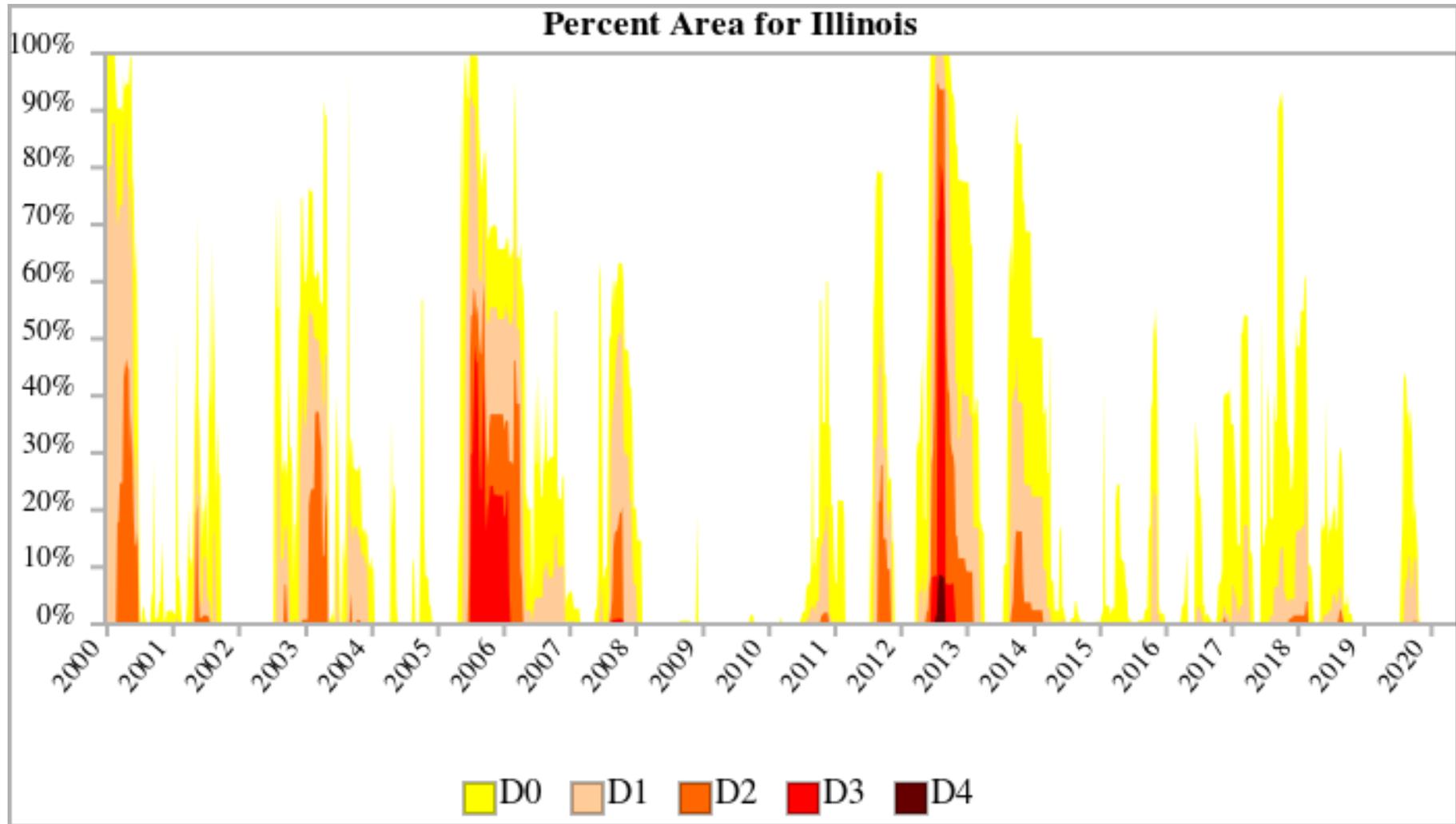
Conservation can delay and minimize expensive infrastructure investments

Example of extending or downsizing a capital facility, peak demand/capacity in million gallons per day

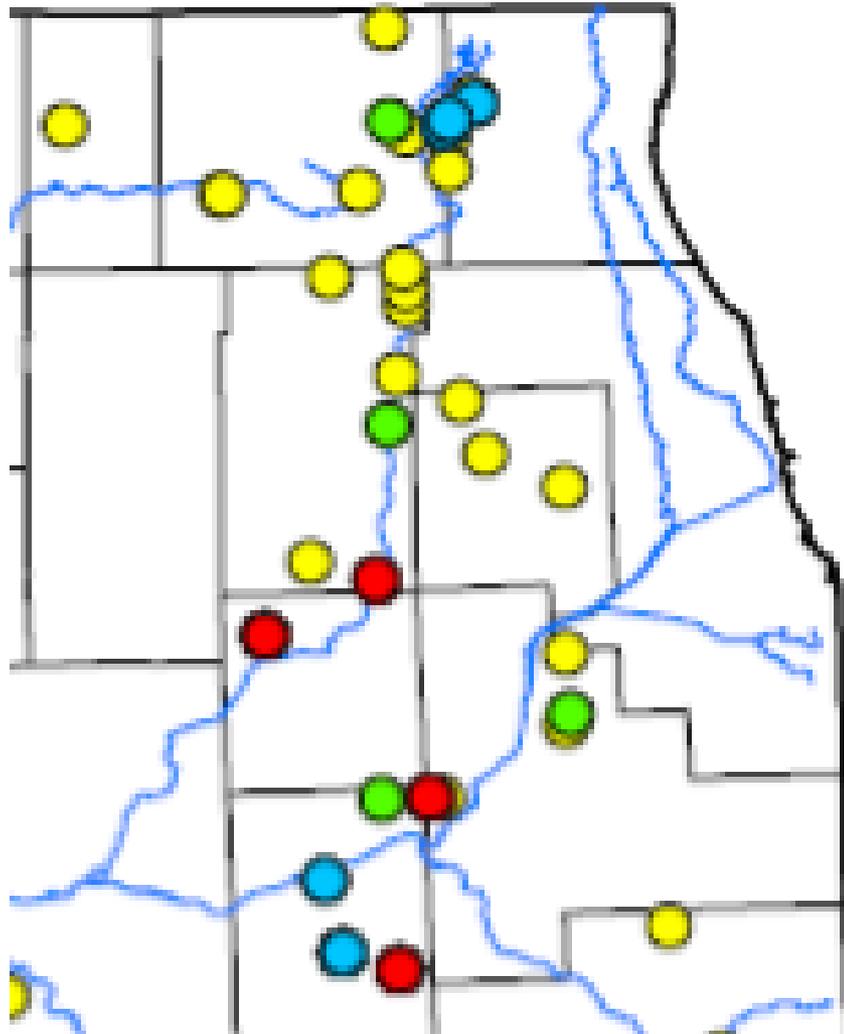
Source: American Water Works Association, 2006. Water Conservation Programs - A Planning Manual. AWWA Manual M52, First Edition, page 75.



Drought in Illinois



Illinois' 2011 Drought Preparedness and Response Plan



Identifies a number of shallow groundwater-dependent communities in the Chicago region as particularly vulnerable to drought.

Active CWS Wells 100 feet or less deep

- Wells
- Wells within 1,000 feet of streams
- Wells within 1,000 feet of each other
- Close-proximity wells within 1,000 feet of streams

Policy levers

Risk and Resilience Assessments and Emergency Response Plans under AWIA

Ms4 permit requirements – Public education and outreach

RISK AND RESILIENCE ASSESSMENTS AND EMERGENCY RESPONSE PLANS:

NEW REQUIREMENTS FOR DRINKING WATER UTILITIES

Section 2013 of America's Water Infrastructure Act of 2018 (AWIA) requires community water systems¹ that serve more than 3,300 people to complete a risk and resilience assessment and develop an emergency response plan.

	RISK AND RESILIENCE ASSESSMENT	EMERGENCY RESPONSE PLAN
	Your utility must conduct a risk and resilience assessment and submit certification of its completion to the U.S. EPA by the following dates:	Your utility must develop or update an emergency response plan and certify completion to the U.S. EPA no later than six months after risk and resilience assessment certification. Each utility deadline is unique; however, the dates below are the due dates for utilities who submit a risk and resilience assessment certification by the final due date according to the population served.
Important Dates	<ul style="list-style-type: none">March 31, 2020 if serving ≥100,000 people.December 31, 2020 if serving 50,000 to 99,999 people.June 30, 2021 if serving 3,301 to 49,999 people.	<ul style="list-style-type: none">September 30, 2020 if serving ≥100,000 people.June 30, 2021 if serving 50,000 to 99,999 people.December 30, 2021 if serving 3,301 to 49,999 people.
Recertification	Every five years , your utility must review the risk and resilience assessment and submit a recertification to the U.S. EPA that the assessment has been reviewed and, if necessary, revised.	Within six months of submitting the recertification for the risk and resilience assessment, your utility must certify it has reviewed and, if necessary, revised, its emergency response plan.
	Visit the U.S. EPA website to find more information on guidance for developing a risk and resilience assessment at https://www.epa.gov/waterriskassessment/develop-drinking-water-or-wastewater-utility-risk-assessment .	Visit the U.S. EPA website for guidance on developing an Emergency Response Plan at https://www.epa.gov/waterutilityresponse/develop-or-update-drinking-water-or-wastewater-utility-emergency-response-plan .

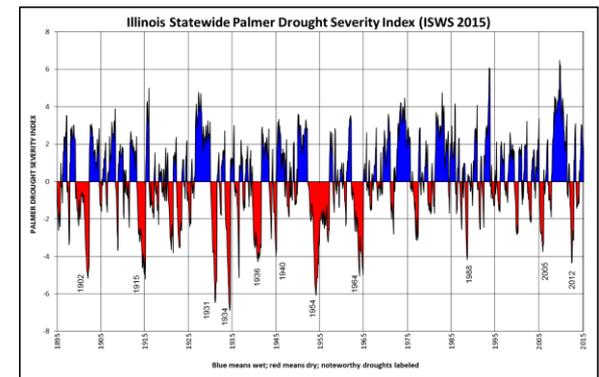
TOOLS OR METHODS

AWIA does not require the use of any standards, methods or tools for the risk and resilience assessment or emergency response plan. Your utility is responsible for ensuring that the risk and resilience assessment and emergency response plan address all the criteria in AWIA Section 2013(a) and (b), respectively. The U.S. EPA recommends the use of standards, including AWWA 100-10 Risk and Resilience Management of Water and Wastewater Systems, along with tools from the U.S. EPA and other organizations, to facilitate sound risk and resilience assessments and emergency response plans.

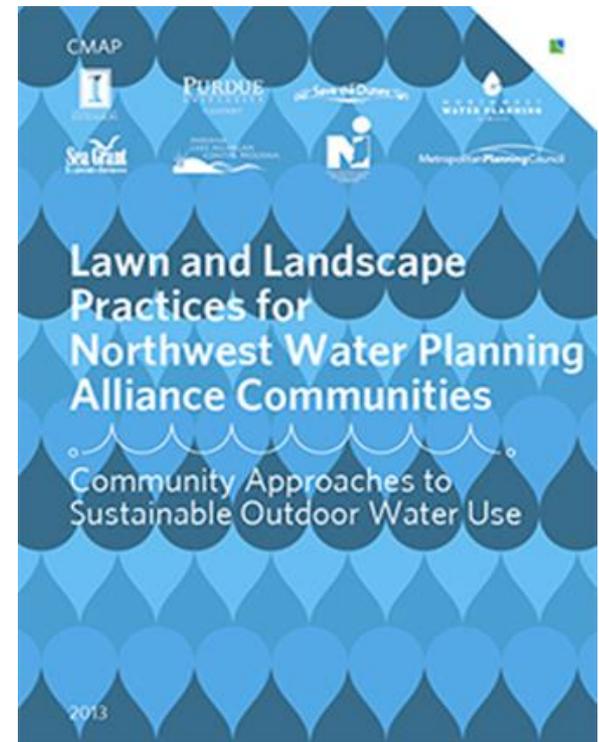
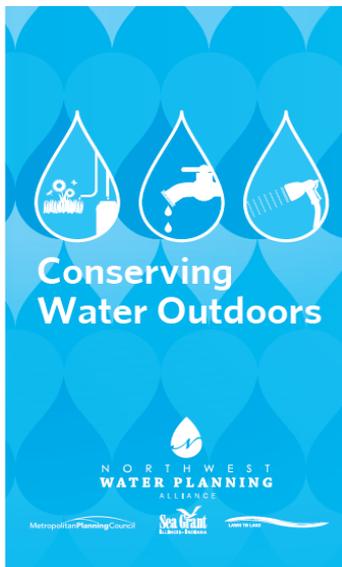
History behind NWPA's model ordinance

NWPA ordinance history

- Water2050 & CMAP Water Conservation Ordinance (2010)
- NWPA mission to achieve consistency among NWPA communities & protect shared water supply (2010)
- 2012 drought - peak demand & Infrastructure capacity (Summer 2012)
- Achieve consistency among NWPA communities (MPC, Fall 2012)



NWPA Resources



Components of NWPA's model ordinance

Quick Summary

- Applies year-round
- Uses consecutive day and time-of-day restrictions
- Discourages the use of unattended sprinklers in favor of more water efficient handheld devices, irrigation systems, and water reuse options, such as captured rainwater.
- Bans the “watering” of sidewalks, driveways, and roads
- Encourages installation of new, water intensive landscaping (seed, sod, and planting) to **avoid** July and August, the most water-stressed months of the year.

Quick Summary

- Allows municipalities to issue emergency proclamations to address extreme situations such as drought or water shortages.
- Presents options for how to communicate water conditions via a tiered system, including a color code system.

Normal Conditions (Green Tier)

Restrictions	Rationale
<p>Handheld watering devices, drip irrigation systems, or devices using non-potable water can be used any day or time.</p> <p>Sprinklers can be used at:</p> <ul style="list-style-type: none">• Even addresses on even calendar days from 6 - 9 am and 6 - 9 pm• Odd addresses on odd calendar days from 6 - 9 am and 6 - 9 pm	<p>Handheld watering devices generally use less water than sprinkler systems because the watering is directly controlled, whereas sprinkler systems are often left to run on their own.</p> <p>Restrictions by date and address effectively limit consecutive day water use and make it easier to identify non-compliance as only one side of a block should be watering on any given day.</p> <p>Time of day restrictions prevents water use during the hottest, sunniest part of the day, when water would most likely be lost to evapotranspiration (i.e., to the atmosphere) rather than being taken up by the grass.</p>

During Drought (Yellow Tier)

Restrictions	Rationale
<p>The use of sprinkler systems is prohibited.</p> <p>Outdoor use of water is allowed using handheld devices, drip-irrigation systems, or harvested rainwater.</p>	<p>Water supply conditions warrant further restrictions to ensure supplies for essential water use.</p> <p>Prohibiting sprinklers, yet still allowing handheld watering allows some landscaping to survive while lawns are allowed to go dormant.</p>

During Extreme Drought (Red Tier)

Restrictions	Rationale
Ban on outdoor water use.	<p>Rare water supply conditions that warrant further restrictions to ensure supplies for essential water use.</p> <p>During these times, it is easier to ban all outdoor watering with no exceptions for the sake of consistency and easy enforcement.</p>

Implementation in the region

Review process

Goals:

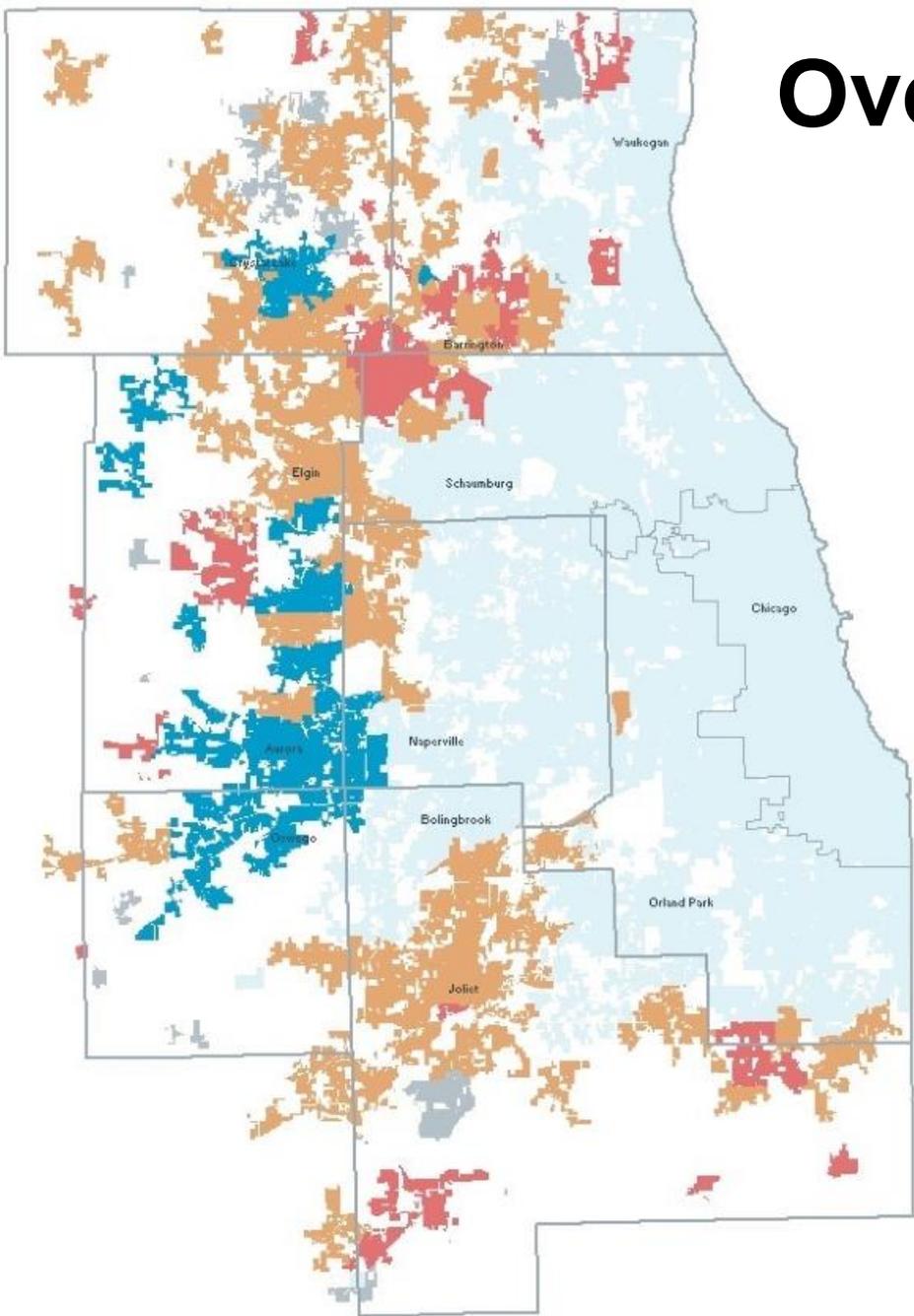
- Learn how river- and groundwater-dependent communities are applying lawn watering restrictions
- Help NWPA target next steps for outreach

Methods:

- Used the NWPA ordinance as a baseline
- Tracked adoption of the different NWPA provisions not just the full ordinance.
- Assessed 116 communities

Overall findings

- 53 NPWA member communities have some restrictions
- 13 communities have adopted the full NPWA ordinance with minor edits



Required Restrictions

Light blue square: Lake Michigan Permittees

Voluntary Restrictions

Dark blue square: Full NPWA ordinance adoption

Orange square: Restrictions share some similarities with NPWA

Red square: No restrictions

Grey square: No information available

Overall findings

- Most communities only implement a few provisions
- Most common provisions:
 1. Emergency proclamations
 2. Consecutive day water use restrictions
 3. Time-of-day restrictions
- Variation exists

Required Restrictions

Light blue square: Lake Michigan Permittees

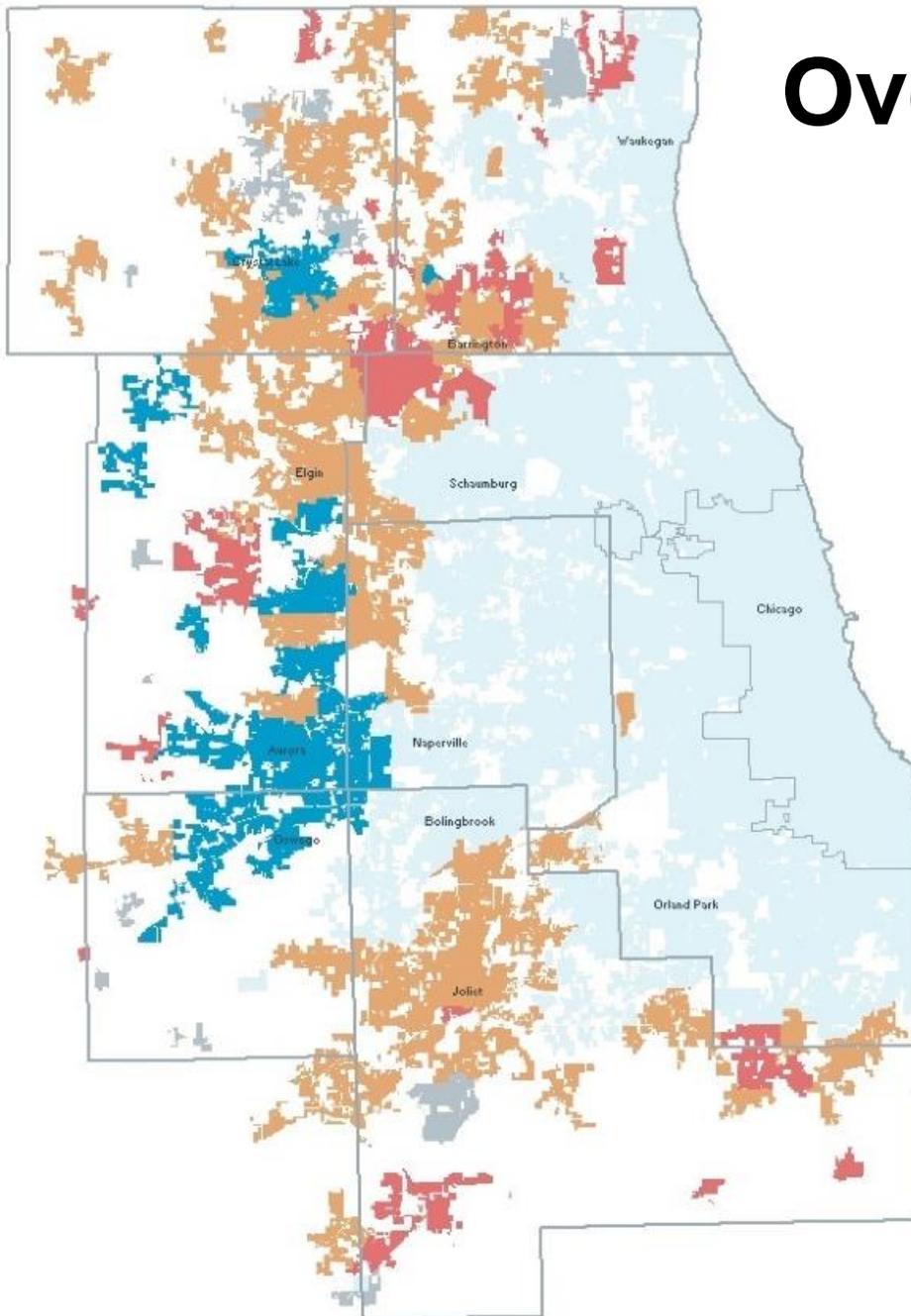
Voluntary Restrictions

Dark blue square: Full NWPA ordinance adoption

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Level of adoption by provision

Type of provisions	Percent of communities (% , n=76)
Enforcement period	
Year round	66
Seasonal	34
Time restrictions	
Consecutive day restrictions*	74
Time-of-day restrictions*	65
Both of the above	61
Exemptions for handheld devices, drip irrigation, rainwater harvesting, greywater reuse	22
All three of the above	22

Level of adoption by provision

Type of provisions	Percent of communities (%, n=76)
Emergency proclamation	
Emergency proclamation*	91
Use of color-coded tiers to communicate restrictions	29
Seed and sod restrictions	
Seasonal limits	21
Permit requirements	25
Both of the above	14
Other	
Waste of water prohibited	22

Discussion

Discussion

Reflection on provisions

- Which provisions do you find to be most beneficial?

Discussion

Reflection on provisions

- If you have not adopted the full ordinance and could add one more provision, which would be most helpful to your community?

Discussion

Reflection on provisions

- Were there any provisions that your municipality has stayed clear from and why?

Discussion

Reflection on enforcement and outreach

- If you have adopted lawn water restrictions...
 - Are residents aware of the existing ordinance?
 - Are you enforcing it and doing outreach?
 - If you're not enforcing it, can you explain why?

Discussion

Reflection on enforcement and outreach

- Have you tried partnering with higher outdoor water users directly, instead of trying to enforce everywhere?

Discussion

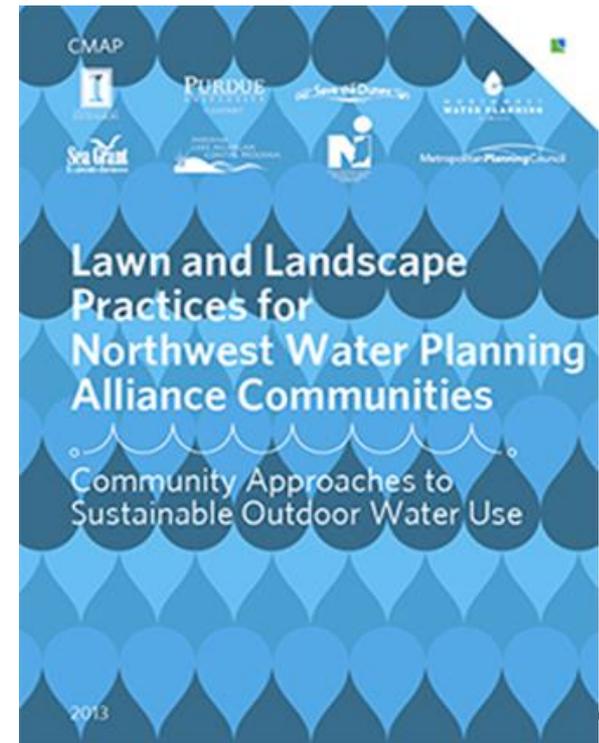
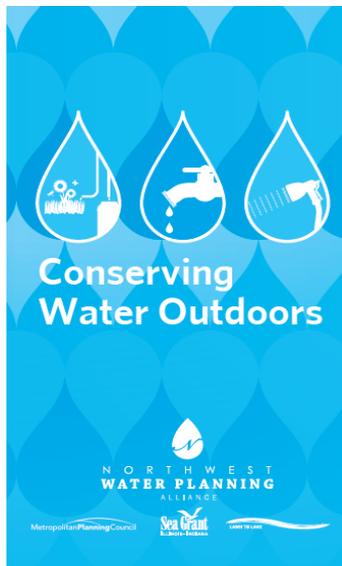
Reflection on enforcement and outreach

- How do you communicate with residents about reducing outdoor water use?

Discussion

Reflection on enforcement and outreach

- How can we help – what tools do you need?



Discussion

Reflection on enforcement and outreach

- Is it hard to communicate lawn restrictions during wet conditions?

Next steps

Check out your ordinance and see if there are items in the NWPA ordinance that could take it to the next level.

Let us know how we can help with outreach.



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