

# Meissner Prairie –Corron Preserve



## Woodchip Bioreactor Field Day

Presented to  
Fox River Ecosystem Partnership  
June 12, 2019



# ILLINOIS NUTRIENT LOSS REDUCTION STRATEGY



Table 2.1. Watershed milestones and targets.

Nutrient	Phase 1 Milestones	Target
Nitrate-nitrogen	15 percent by 2025	45 percent
Total phosphorus	25 percent by 2025	45 percent

The loss reductions goals for point sources, agricultural non-point sources, and urban non-point sources are in proportion to their contribution, as shown in Figures 2.1, 2.2, and 2.3. For example, once the hypoxia-related target reduction for total phosphorus from point sources is achieved, point source discharges will not be obligated to reduce further to address loading to the Mississippi River.

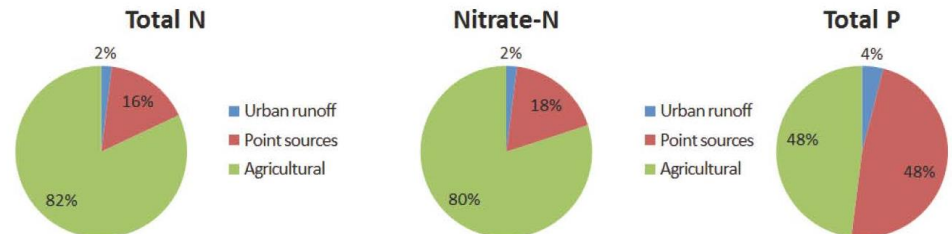
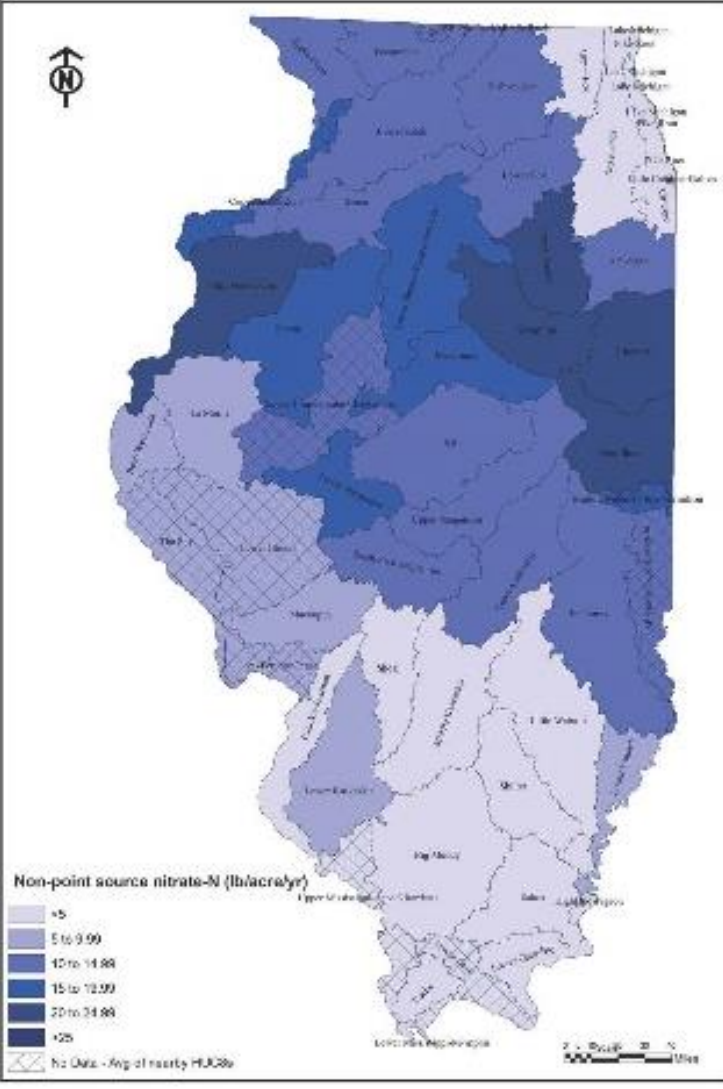


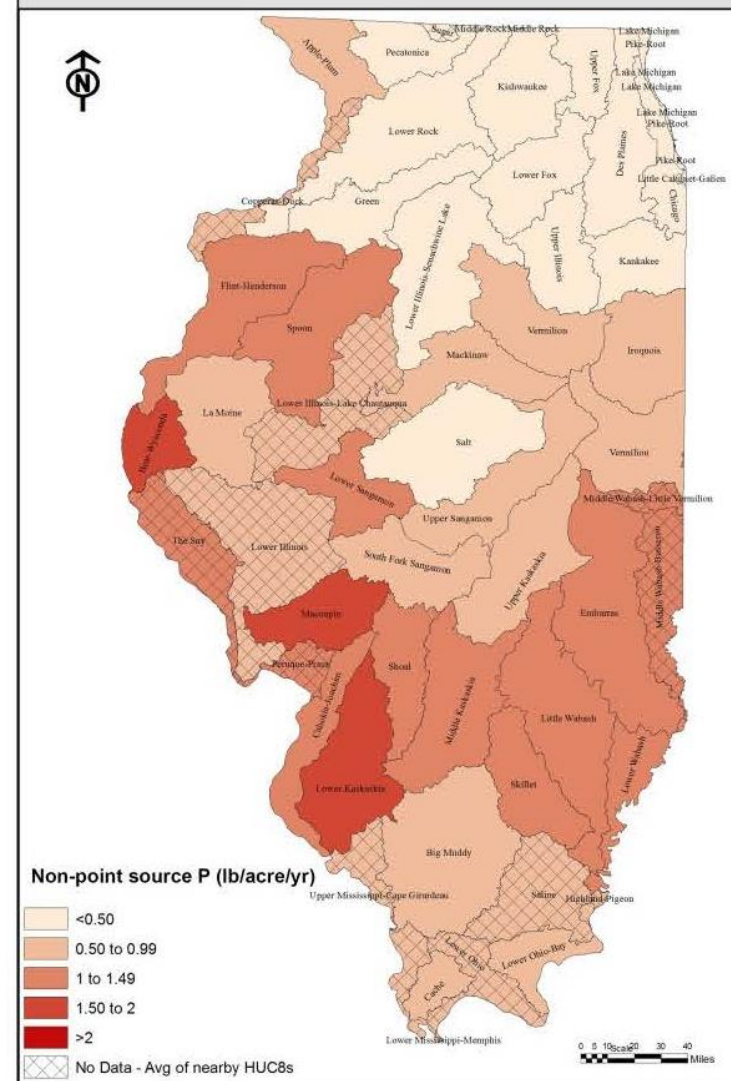
Figure 2.1. The proportion of nitrate and total phosphorus lost to the Mississippi River by source.



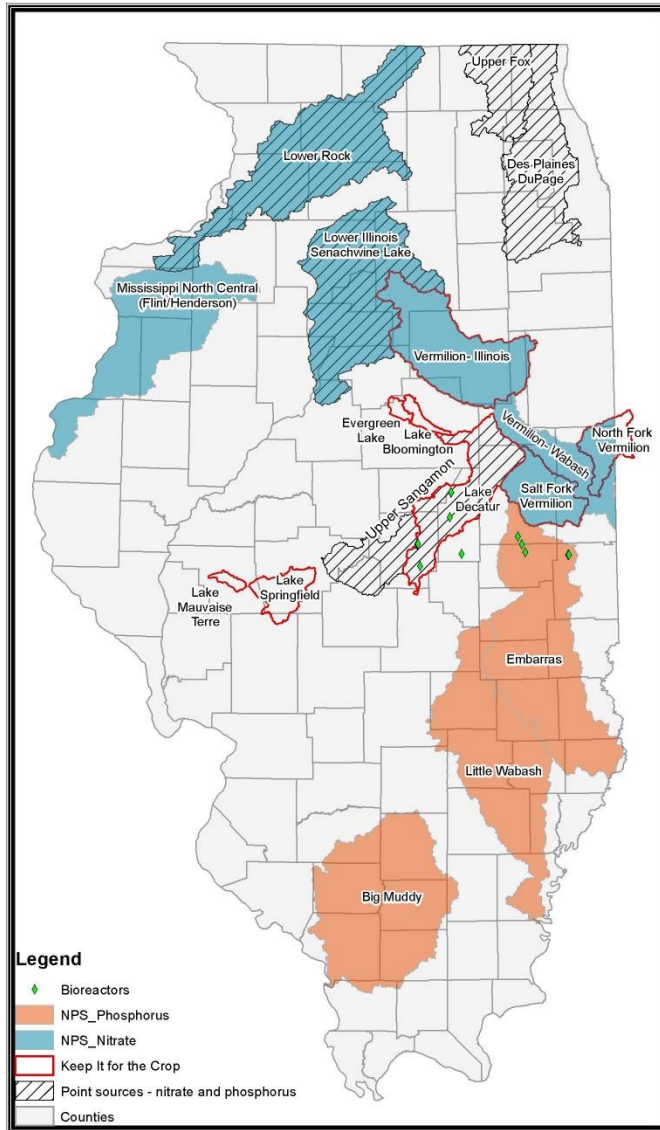
## HUC8 non-point source nitrate-N yield



## HUC8 non-point source P yield



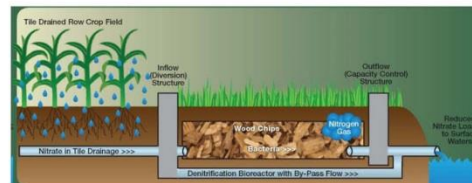
## Location of Bioreactors in Illinois



Bioreactor	HUC 8	AcresTreated
1	05120112	50.00
2	05120112	50.00
3	05120112	11.00
4	07140201	74.00
5	07140201	74.00
6	07140201	55.00
7	07140201	20.00
8	07140201	27.00
9	07140201	19.00
10	07130006	39
11	07130006	28
12	07130006	34
13	07130006	15
14	07130006	5
15	07130006	16
16	07130006	unknown
17	07130006	70
18	05120112	unknown
19	05120112	18

# Northern Most Bioreactor in the State of Illinois

Agricultural Sciences Volume 1 and Farm Knowledge – A Complete Manual Volume 2 (1919) provide insight into soil microclimates to maximize Nitrogen removal potential.





# Construction prior to Field Day

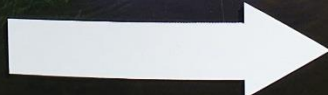


# Woodchip

## BIOREACTOR FIELD DAY



### PARKING



# Thank you to our speakers

Ken Anderson – Kane County Forest Preserve

Mike Kenyon – Kane County Forest Preserve

Lauren Lurkins – Director of Natural & Environmental Resources, Illinois Farm Bureau

Tom Huddleston – Huddleston-McBride Drainage Company

Jodie Wollnik – Director – Kane County Environmental & Water Resources

Graduate Students, Department of Crop Sciences – University of Illinois





# Educational signage along walk from parking area

## PRESERVING OUR WATER

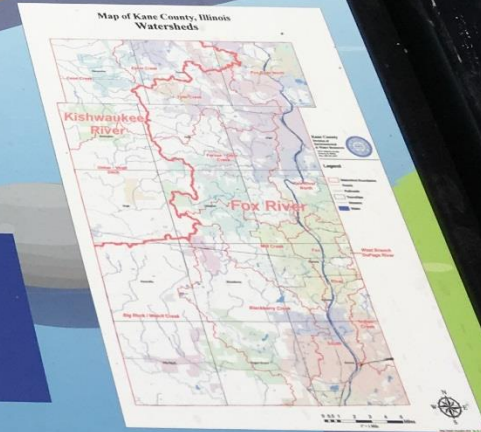
Illinois farmers and your community partners are working together to preserve our water. This site demonstrates innovative conservation efforts to prevent nutrient runoff and ensure that our water is preserved and protected.

### NUTRIENTS & WATER QUALITY

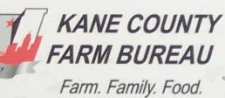
- Water quality is impacted by two nutrients essential to plant growth, nitrogen and phosphorus. In higher concentrations, these nutrients over-feed algae. This removes oxygen from water, which is harmful to aquatic life.
- Nutrients in the Fox River Watershed come from wastewater treatment plants, lawn fertilizer, failing septic systems and agriculture. These excess nutrients contribute to the Gulf of Mexico Hypoxia which causes fish and shellfish kills each summer.
- Phosphorus binds to soil particles and enters waterways by way of surface runoff and erosion. Farmers use practices to reduce soil erosion to hold the phosphorus on the field until it is ready to be used by the crops.
- Nitrogen dissolves in water and can enter waterways via agricultural drain tile systems. Farmers can reduce nitrogen loss by using nitrogen "stabilizers" or treating tile water to remove nitrogen before it reaches a stream.

**Each step *WE* take to improve water quality makes a difference.**

For more information on how you can do your part to remove nutrients in the Fox River Watershed, go to [www.countyofkane.org](http://www.countyofkane.org) and look for the Clean Water for Kane logo!



Brought to you by these community partners to improve water quality in your neighborhoods:



Participating contractors:

- Huddleston-McBride Land Drainage Company
- Countryside Professional Land Drainage Services
- Campton Construction Inc.





## ILLINOIS FARMERS USE VOLUNTARY CONSERVATION TO PREVENT NUTRIENT RUNOFF

Illinois farmers use best-management practices to protect our water quality:

-  Cover crops hold onto excess nutrients in the fields, and prevent water from running off.
-  Conservation tillage leaves a crop's stubble behind, which minimizes soil disturbance or erosion and keeps water in the soil.
-  Waterways and saturated buffers keep soil and nutrients in the fields.
-  Edge-of-field practices, like woodchip bio-reactors, treat the water and remove excess nitrogen before it leaves the field.



**IN FARMERS ACROSS ILLINOIS.** Protect our land and water by using voluntary conservation efforts to make a big difference.

Information on how you can do your part to remove nutrients in the Fox River Watershed, [countyofkane.org](http://countyofkane.org) and look for the Clean Water for Kane logo!

These community partners to improve water quality in your neighborhoods:







Participating contractors:  
 • Haulstone-Hoffick Land Drainage Company  
 • CountryPro Professional Land Drainage Services  
 • Grogan Construction Inc.





## Project Partners

Illinois Farm Bureau

Kane County Farm Bureau

Kane County Forest Preserve District

Kane County

USDA

Kane-DuPage Soil and Water  
Conservation District

Huddleston-McBride

Countryside Drainage

Campton Construction

# WOODCHIP BIOREACTOR

## STOP & TAKE A LOOK!

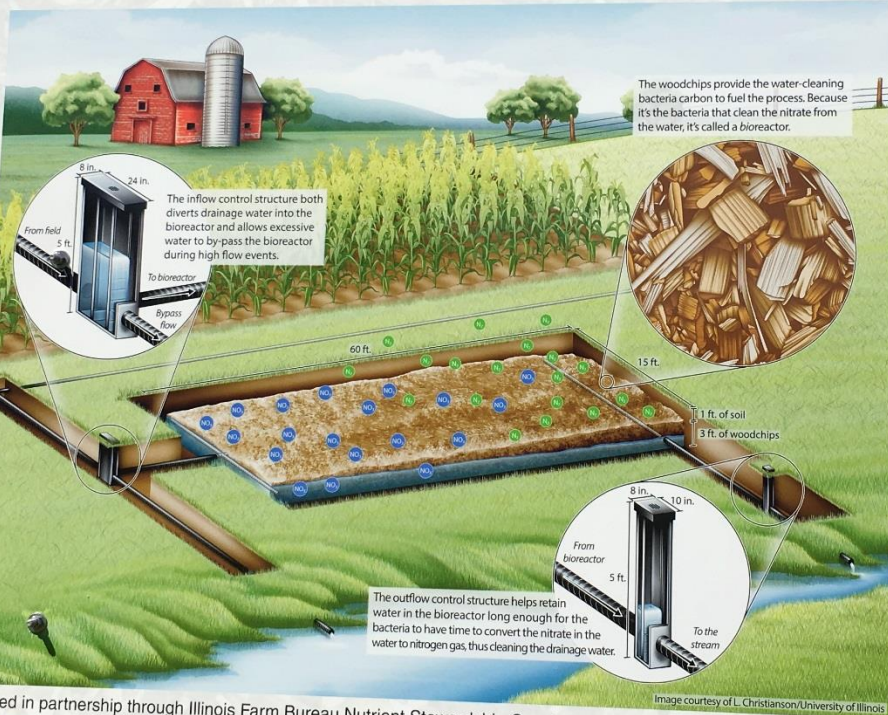


Image courtesy of L. Christianson/University of Illinois

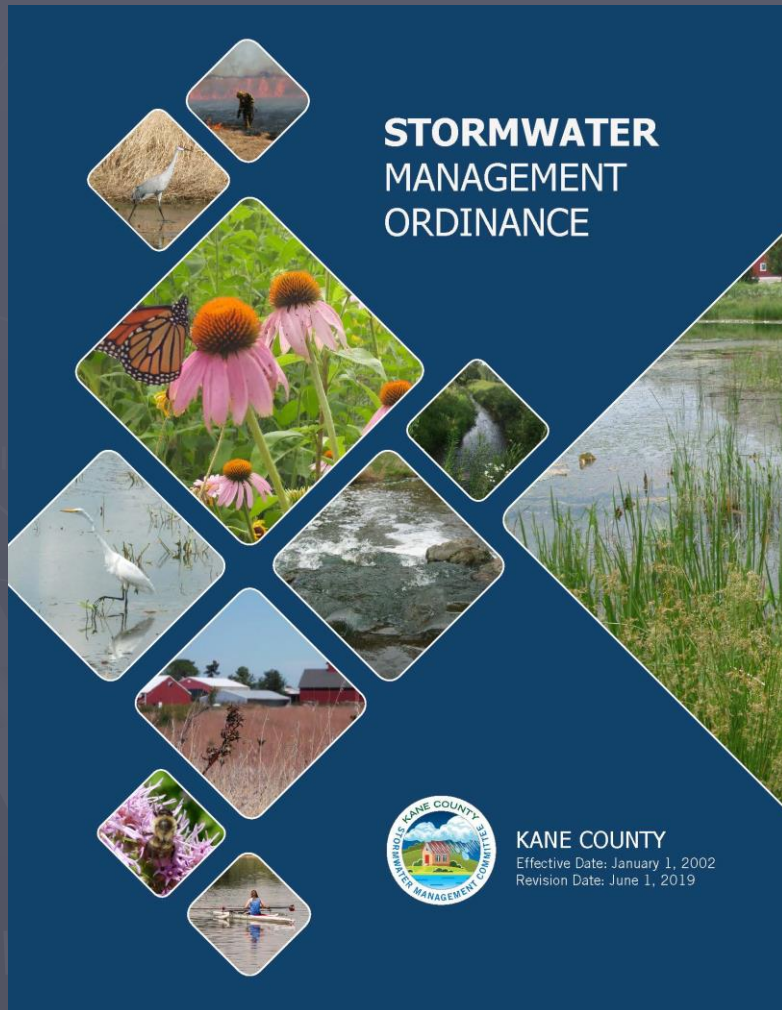
Funded in partnership through Illinois Farm Bureau Nutrient Stewardship Grant. [www.ilfb.org/protect](http://www.ilfb.org/protect)

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- Participating Contractors:
- Huddleston-McBride Land Drainage Company
  - Countryside Professional Land Drainage Services
  - Campton Construction Inc.

# Kane County Stormwater Ordinance Update



Effective June 1, 2019

Water Quality options  
for large open space  
projects to work  
towards Illinois Nutrient  
Loss Strategy Goals

# Watershed Benefit Measures

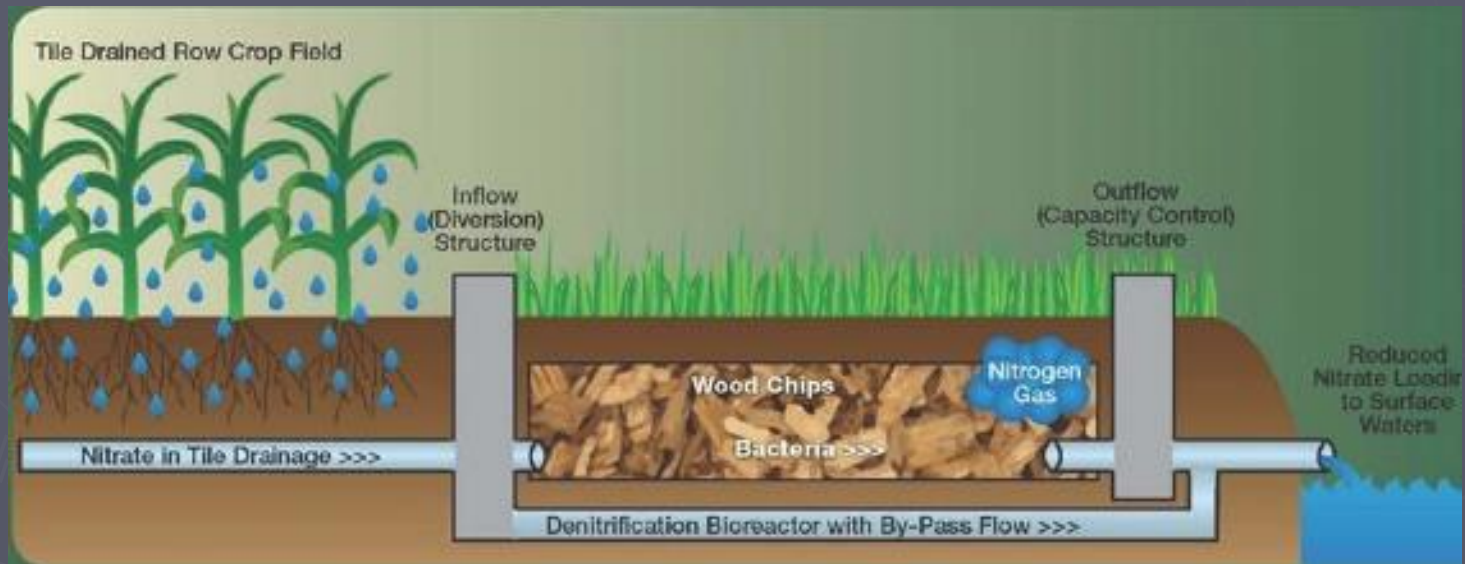




# Watershed Benefit Measures



# Questions?



Water with dissolved nitrates flows into a wood chip pit. The wood chips serve as a home and food for bacteria in the low-oxygen environment. Bacteria convert nitrates into dinitrogen gas, and water flows from the output minus nitrates.