



**I ILLINOIS**  
Extension  
COLLEGE OF AGRICULTURAL, CONSUMER  
& ENVIRONMENTAL SCIENCES

Photo: Layne Knoche



**ILLINOIS**  
NUTRIENT LOSS  
REDUCTION STRATEGY

Improving our  
water resources  
with collaboration  
and innovation



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# Key Points

- Overview of Illinois NLRS
- Gulf Hypoxia
- Nutrient Strategy Framework
- Illinois Process
  - Science Assessment
  - Policy Workgroup
  - Priorities & Approach
- Implementation of NLRS
- 2019 Biennial Report



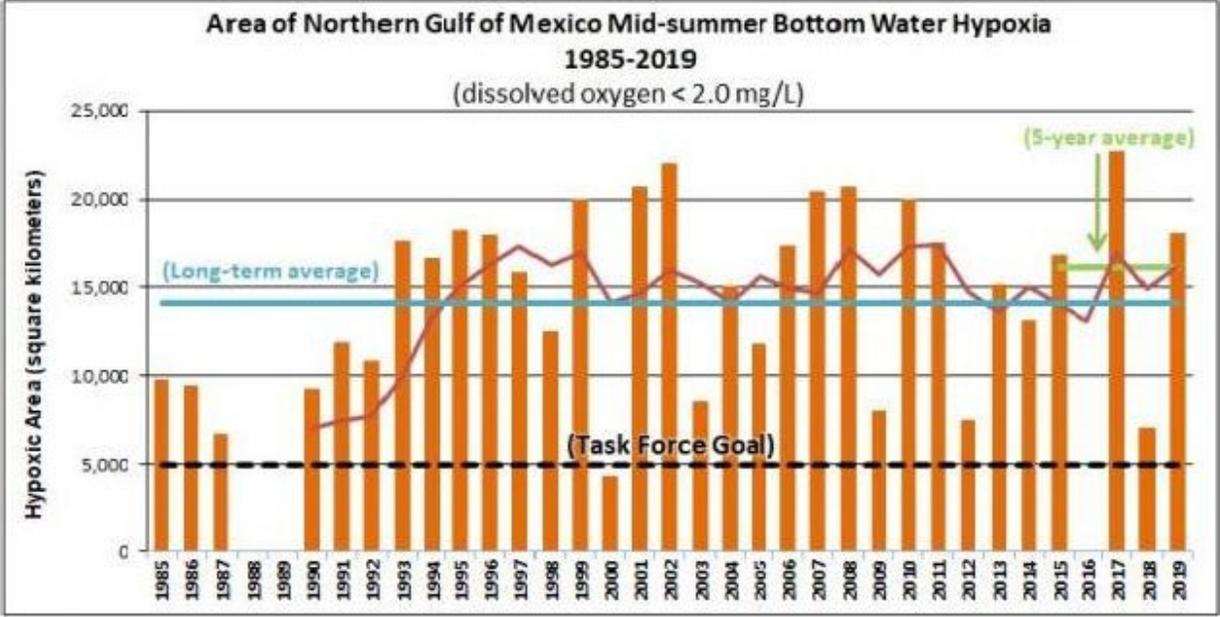
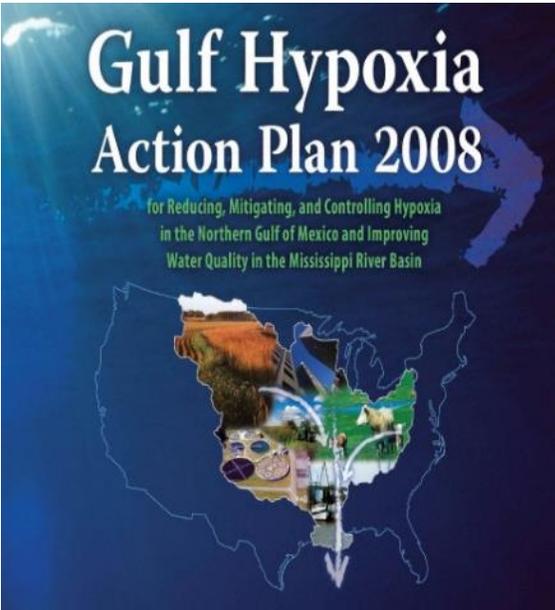
Photo: C. Eliana Brown



# Gulf Hypoxia Task Force Study

**GOAL:**

- Reduce Hypoxic Zone to 5,000 km<sup>2</sup> (1,930 mi<sup>2</sup>)
- Reduce Nutrient Loading to Gulf of Mexico
  - Total Phosphorus and Total Nitrogen 45%



Area of the Northern Gulf of Mexico Mid-summer Bottom Water Hypoxia from 1985 to 2019  
 (Source: Nancy N. Rabalais, LUMCON, and R. Eugene Turner, LSU)



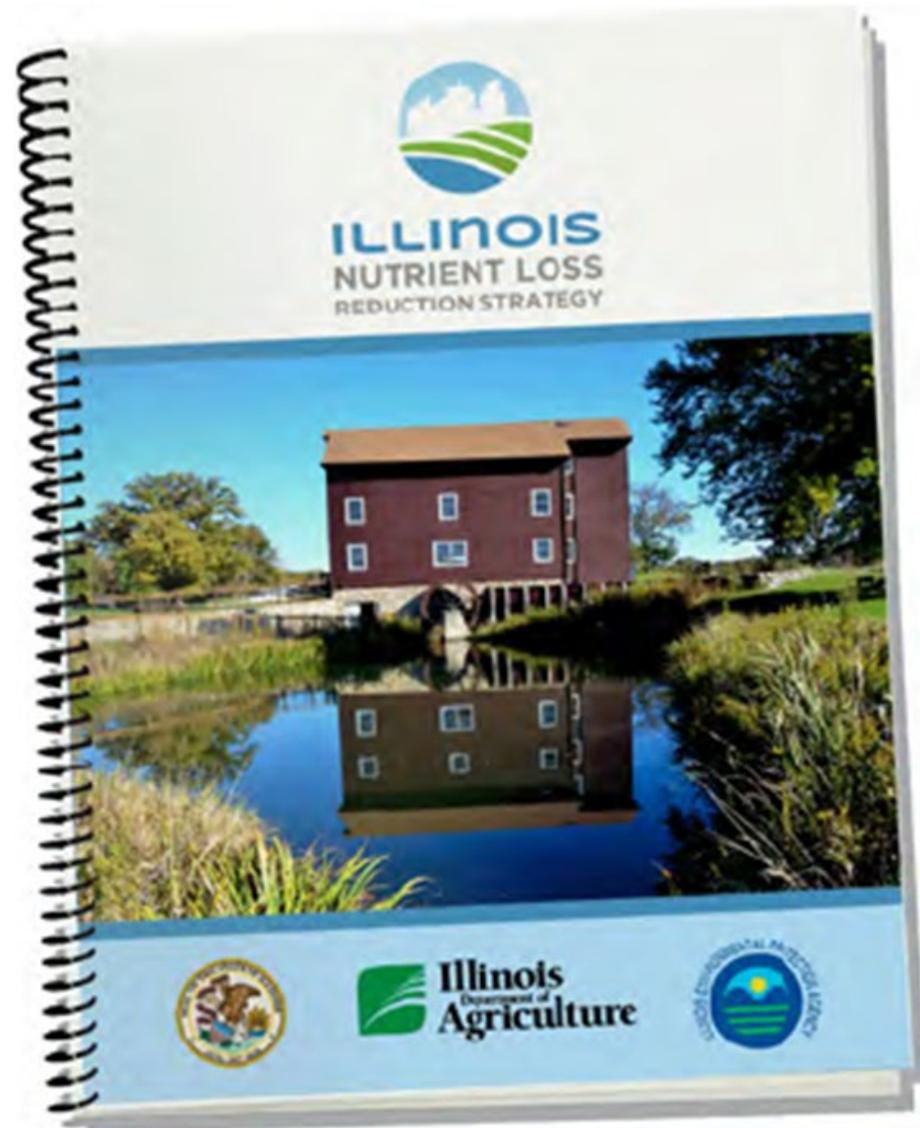
# USEPA Nutrient Strategy Elements

1. Prioritize watersheds for nitrogen and phosphorus loading reductions
2. Set watershed load reduction goals based upon best available information
3. Ensure effectiveness of point source permits in priority sub-watersheds
4. Agricultural Areas
5. Stormwater (non-MS4) and Septic Systems
6. Accountability and verification measures
7. Annual reporting of implementation and biennial reporting of load reductions
8. Develop work plan and schedule for numeric nutrient criteria development



# Illinois Nutrient Loss Reduction Strategy

**NLRS REPORT  
RELEASED JULY 2015**



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# Illinois Nutrient Loss Reduction Strategy

## GOALS

Establishes **45% Reduction** of Nitrogen and Phosphorus

## Interim Milestone—2025

25% Reduction in Phosphorus Loads

15% Reduction in Nitrogen Loads



# Illinois Nutrient Loss Reduction Strategy

Addresses nutrient loads from:

## Point Sources

(wastewater treatment facilities)



Photo: MWRDGC

## Urban Stormwater



Photo: C. Eliana Brown

## Agriculture nonpoint sources



Photo: NRCS



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# Illinois NLRs Science Assessment

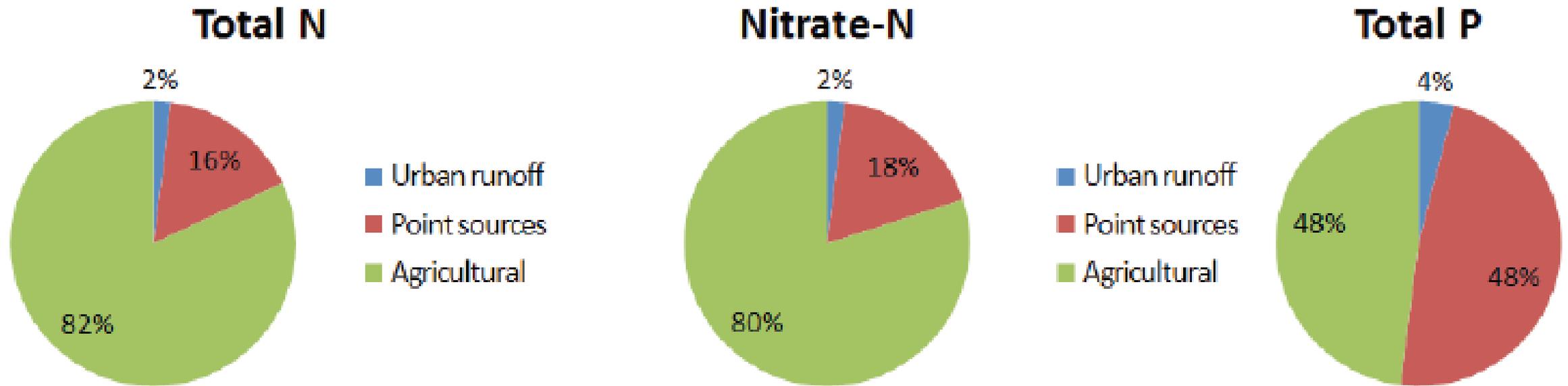


Figure 2.1. The proportion of nitrate and total phosphorus lost to the Mississippi River by source.



# Illinois NLRs Science Assessment

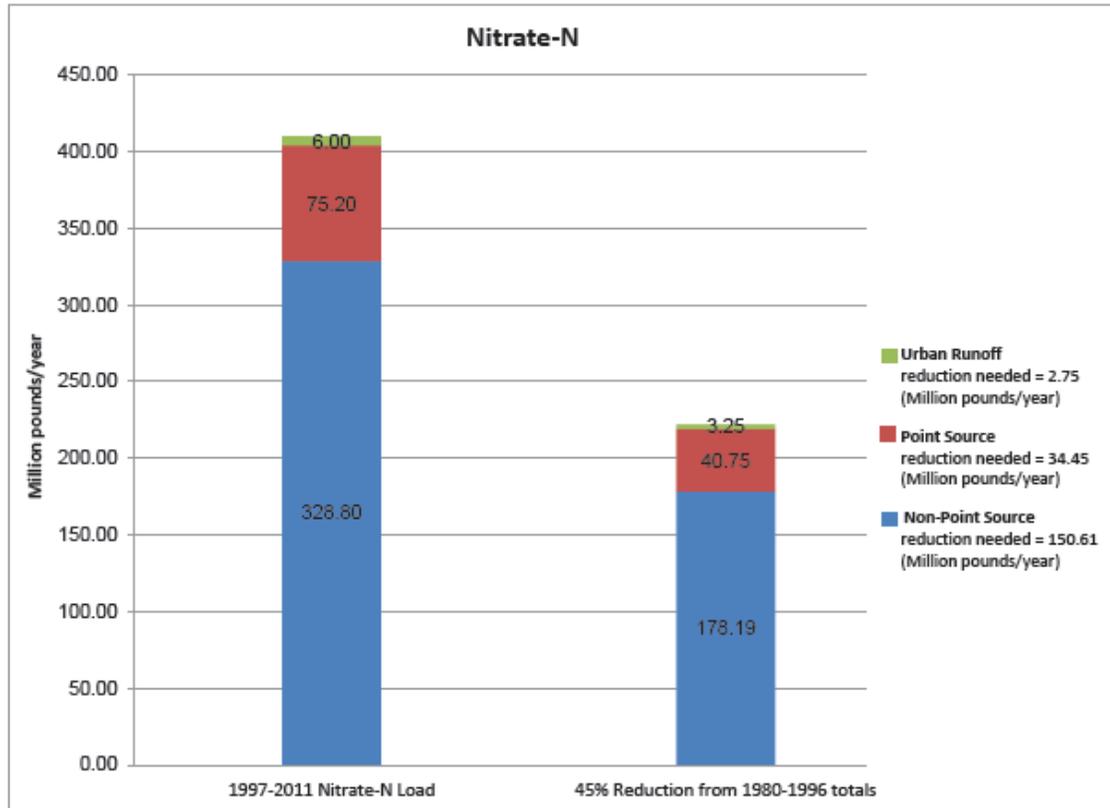


Figure 2.2. Nitrate-N reduction goal in pounds per year by source.

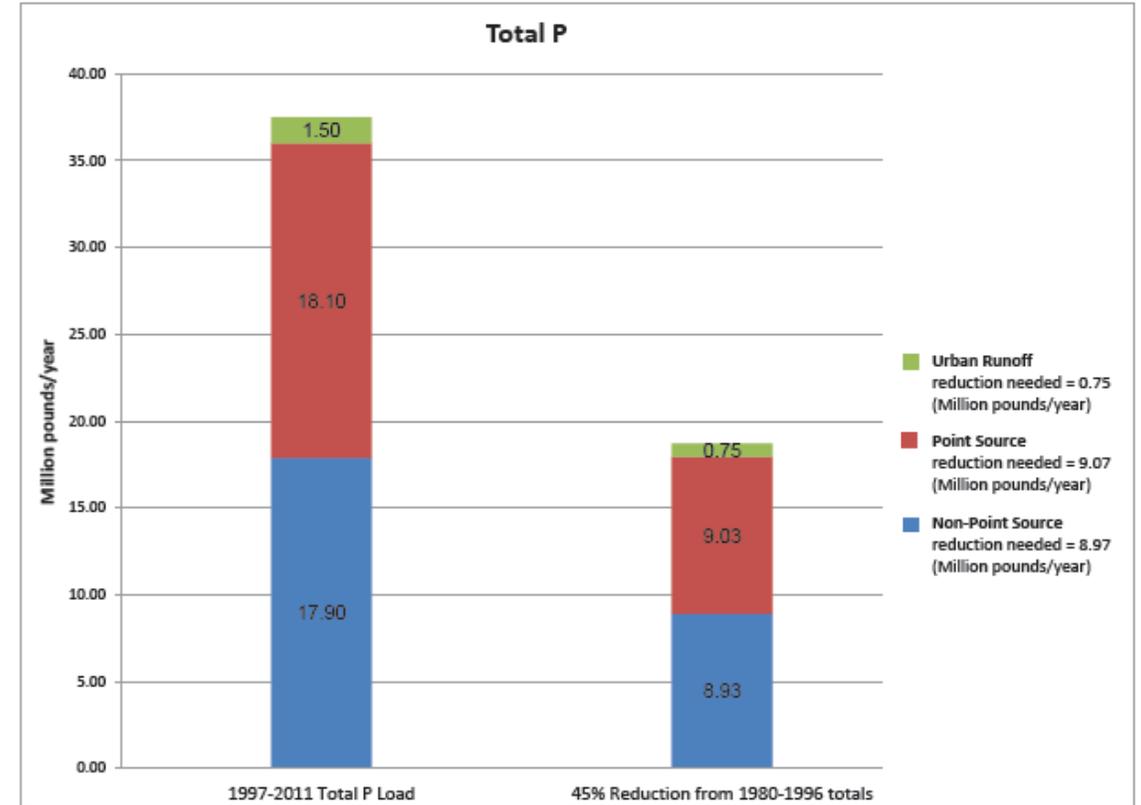


Figure 2.3. Total phosphorus reduction goal in pounds per year by source.



# NLRS Implementation Recommendations: Agriculture Nonpoint Source

Practice Type	Nitrate	Total Phosphorus
In Field Practices	<b>Nitrogen Management</b> (MRTN, Inhibitors, Split Applications) <b>Cover Crops</b>	<b>Reduced Tillage</b> (no-till, strip till) <b>Nutrient Management</b> <b>Cover Crops</b>
Edge of Field Practices	<b>Woodchip Bioreactors</b> <b>Stream Buffers</b> (non-tile drained land) <b>Constructed Wetlands</b>	<b>Stream Buffers</b>
Land Use Change	<b>Perennial/Energy Crops</b>	<b>Perennial/Energy Crops</b>



# NLRS Implementation Recommendations: Urban Stormwater

- Municipal Separate Storm Sewer System (MS4) Permits
- Prioritize Green Infrastructure
- Technical and Financial Assistance for Green Infrastructure
- Urban Streambank Stabilization and Restoration
- Encourage Stormwater Collaboratives



Photo: C. Eliana Brown

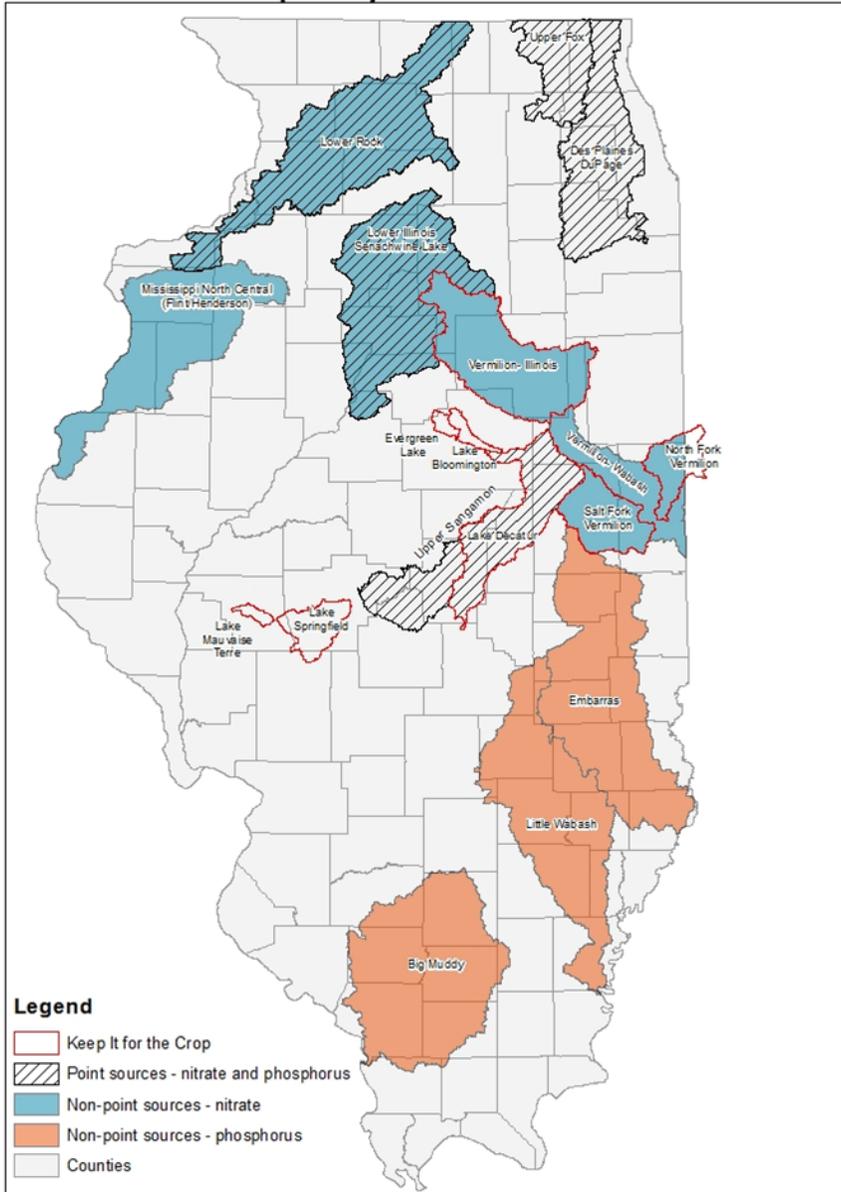


# NLRS Implementation Recommendations: Point Sources

- **National Pollutant Discharge Elimination System (NPDES) Permits**
  - Total Phosphorus limits for major (> 1 MGD) wastewater treatment facilities—New or expanded facility or discharge to an impaired water
  - Require Feasibility and Optimization studies for nutrient removal
- **Develop Nutrient Assessment Reduction Plans**
  - Facility that discharges to an impaired waterbody or waterbody at risk of eutrophication
  - Meet total phosphorus concentration limit of 0.5mg/L or lower
  - Determine activities needed to address eutrophication impairment
  - Schedule of implementation
- **Encourage Urban Watershed Planning Groups**



## Illinois Nutrient Loss Reduction Strategy priority watersheds



# NLRS Priority Watersheds

Prioritized by:

- Total loads (N or P)
- Local water quality concerns
- Active watershed plans



# NLRS Committee Structure

- **Policy Working Group**
  - Communications Subgroup
  - Agriculture Water Quality Partnership Forum
    - Technical Subgroup
  - Urban Stormwater Working Group
    - Education Subgroup
    - Tracking Subgroup
  - Performance Benchmark Working Group
  - Nutrient Monitoring Council
  - Nutrient Science Advisory Committee  
(Has completed its objective and no longer meets)



Photo: Kate Gardiner

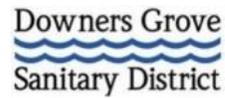


# Illinois NLRs Policy Working Group Participants

## Agriculture



## Point Source



BNWRD

## Stormwater and Public Water Supply



## Government



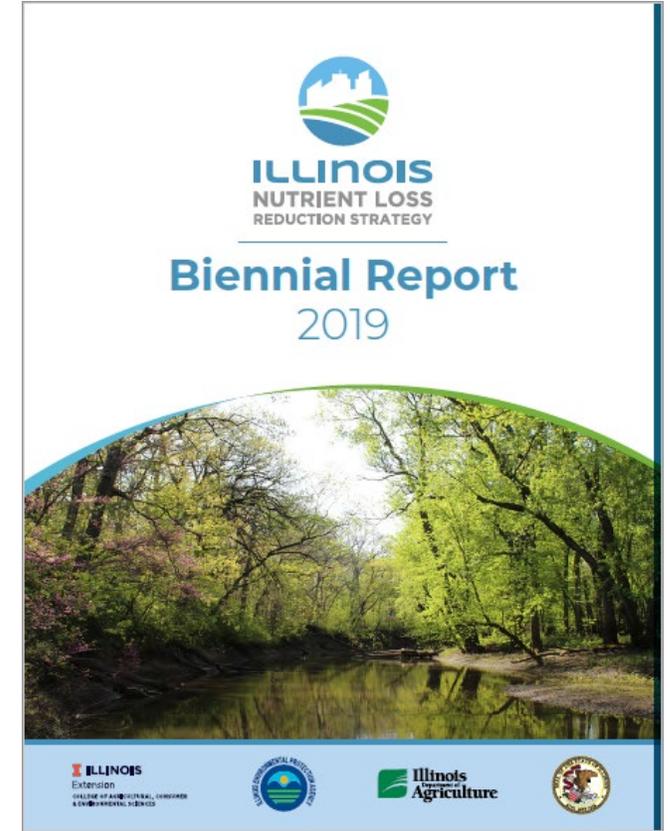
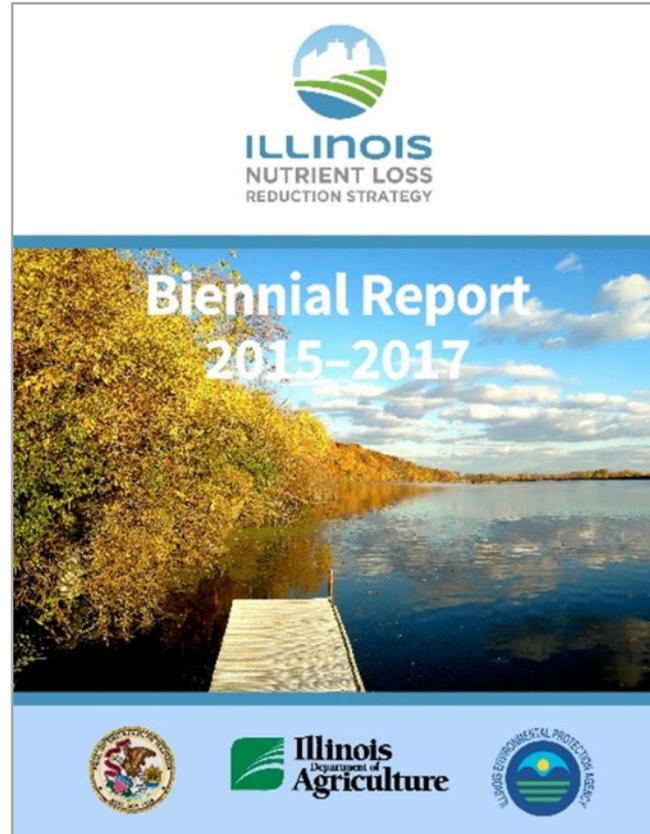
## Environment/Conservation



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# Biennial Reports

Every two years a Biennial Report will be written to document progress of implementing the NLRS.



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# Tracking Measures



*The NLRS Logic Model*

Biennial Reports are structured to report data on these tracking measures by each sector.



# 2019 Biennial Report

(2017 – 2018 Reporting Years)

## Overview





CHAPTER 3

# SCIENCE ASSESSMENT UPDATE



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# Statewide Nutrient Export Loading Network

Stream Name	Location	Station Drainage Area in Illinois only, in mi <sup>2</sup>
Rock River	Joslin	3,973
Green River	Geneseo	1,000
Illinois River	Florence	22,631
Kaskaskia River	New Athens	5,189
Big Muddy River	Murphysboro	2,168
Vermilion River	Danville	1,199
Embarras River	Lawrenceville	2,348
Little Wabash River	Carmi	3,102
Des Plaines River	Joliet	1,502

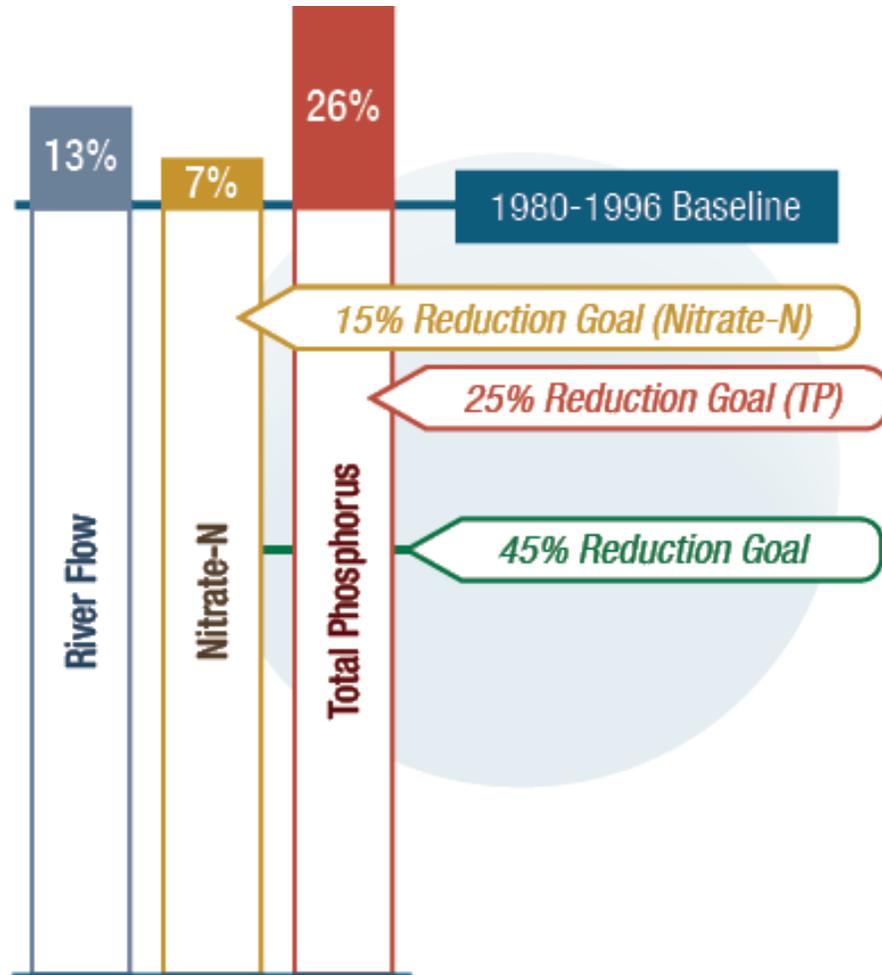
Basins cover almost 75% of the land area in the state



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# Water Quality Goals: Baseline and Current Status



Statewide loads based on 8 major river systems

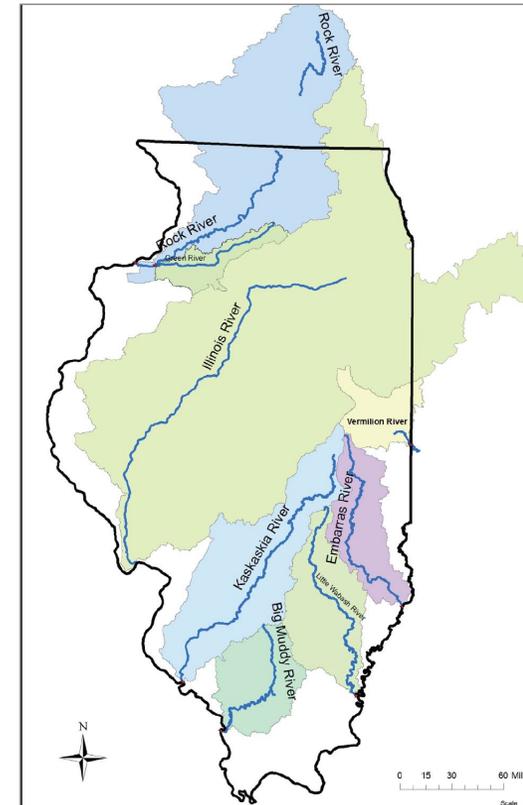
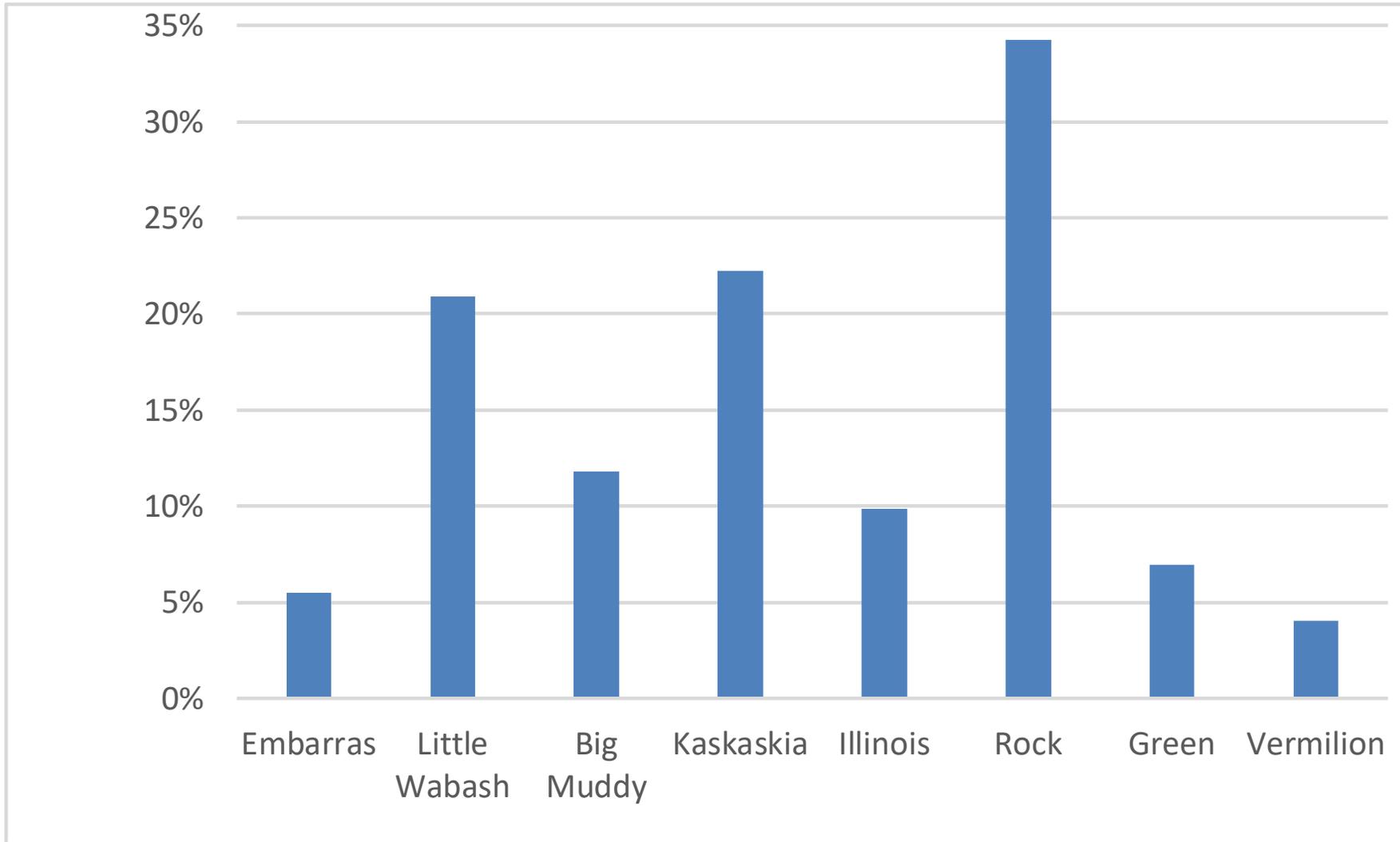


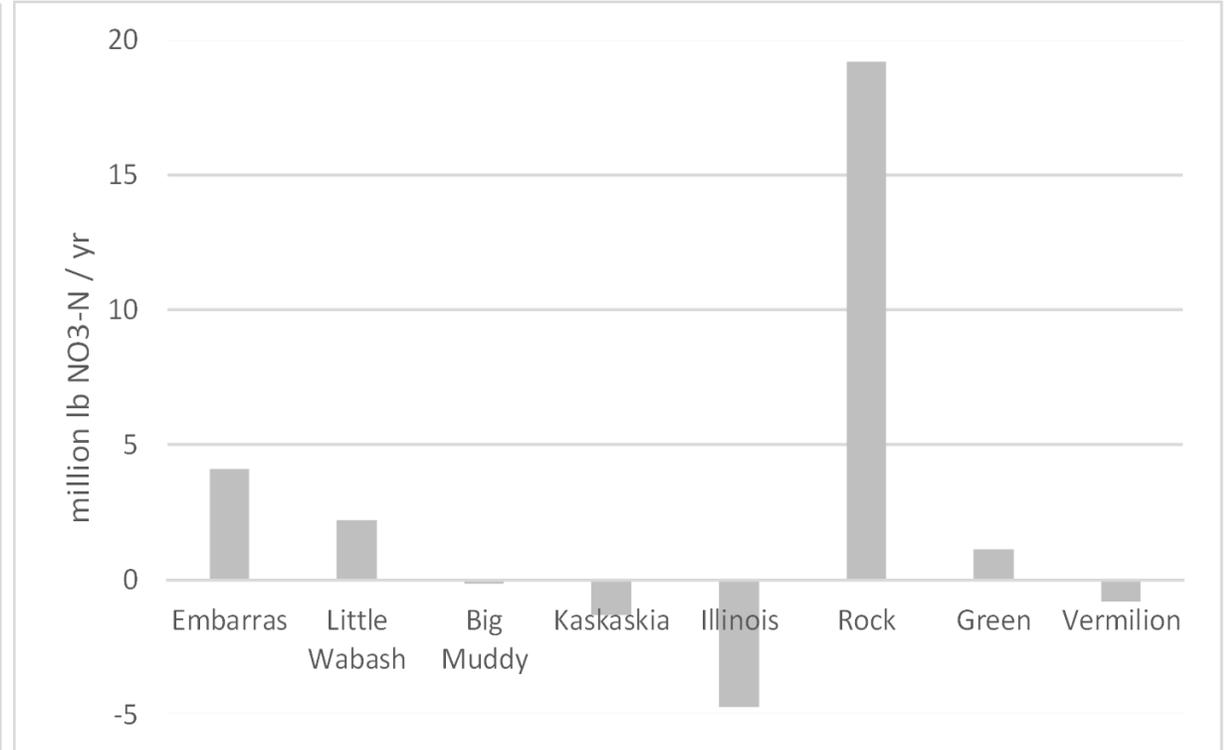
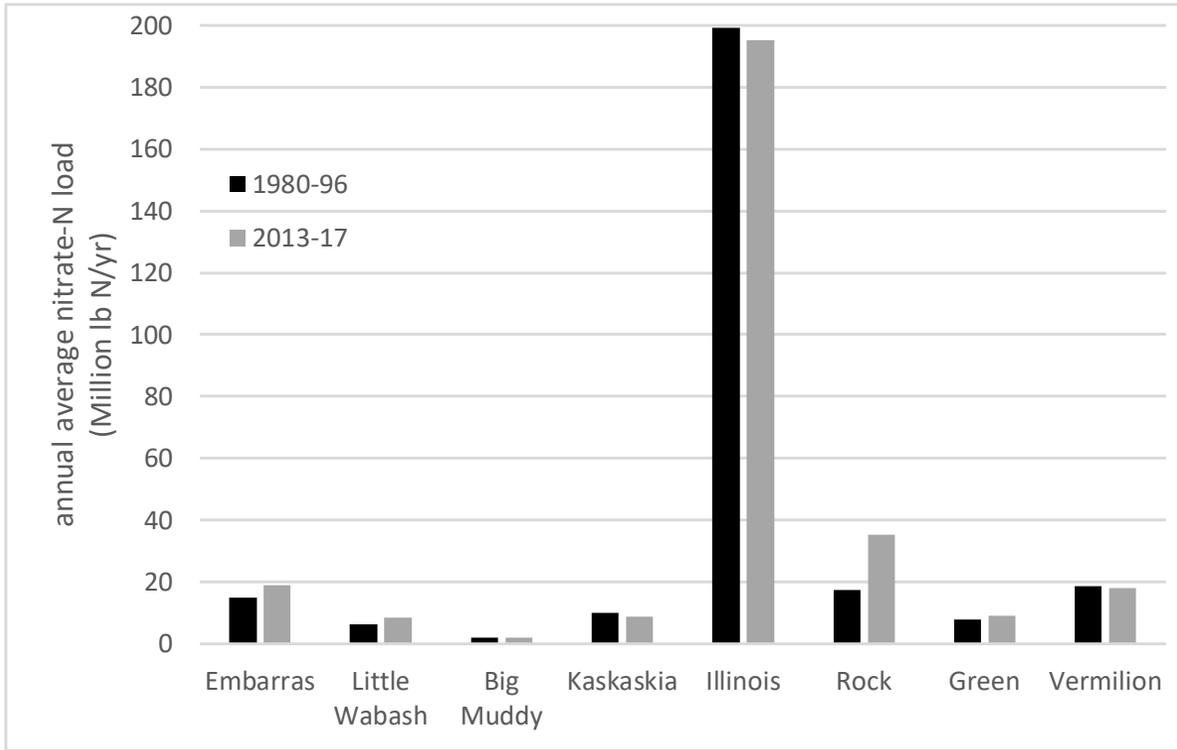
Figure 1.3. Percent increase from baseline to average 2013–2017





Percent changes in water flow from 1980–96 to 2013–17  
for major rivers in Illinois





Nitrate-N Load Estimates for Major Rivers in Illinois 1980–96 and 2013–17

Changes in Nitrate-N Loads for Major Rivers in Illinois 1980–96 to 2013–17

Estimated loads from Indiana and Wisconsin are not included in the Illinois, Rock, or Vermilion River loads

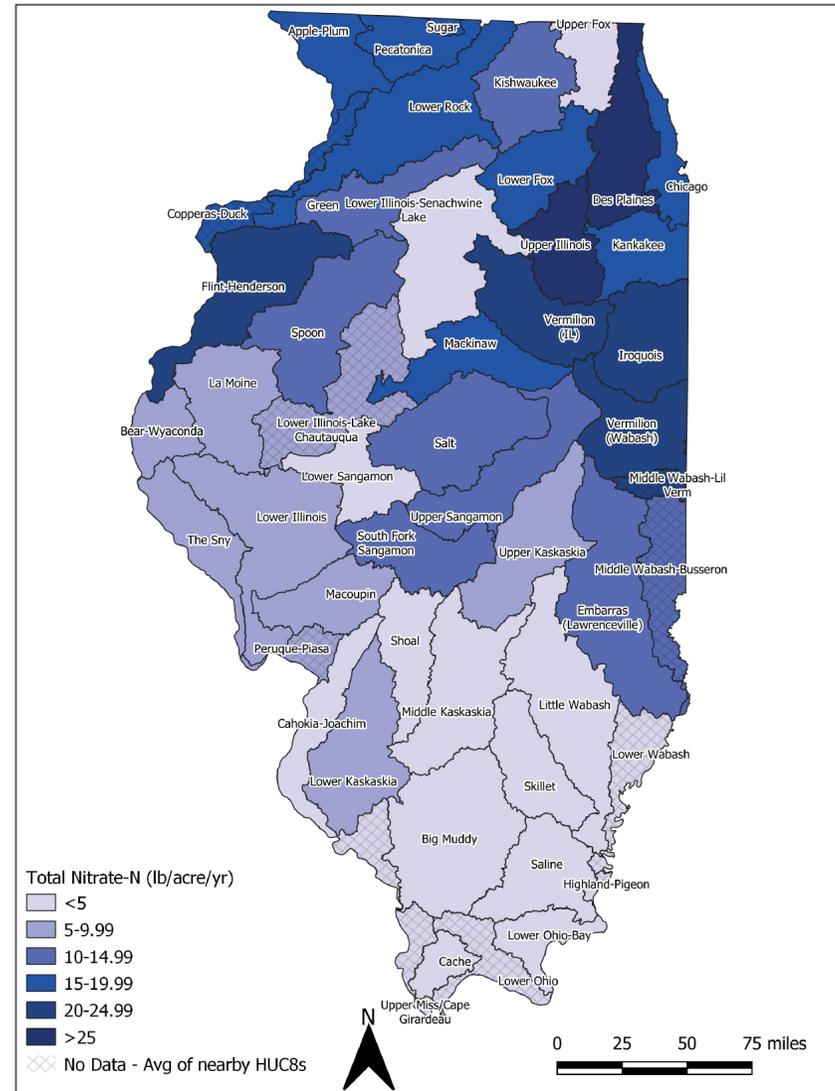
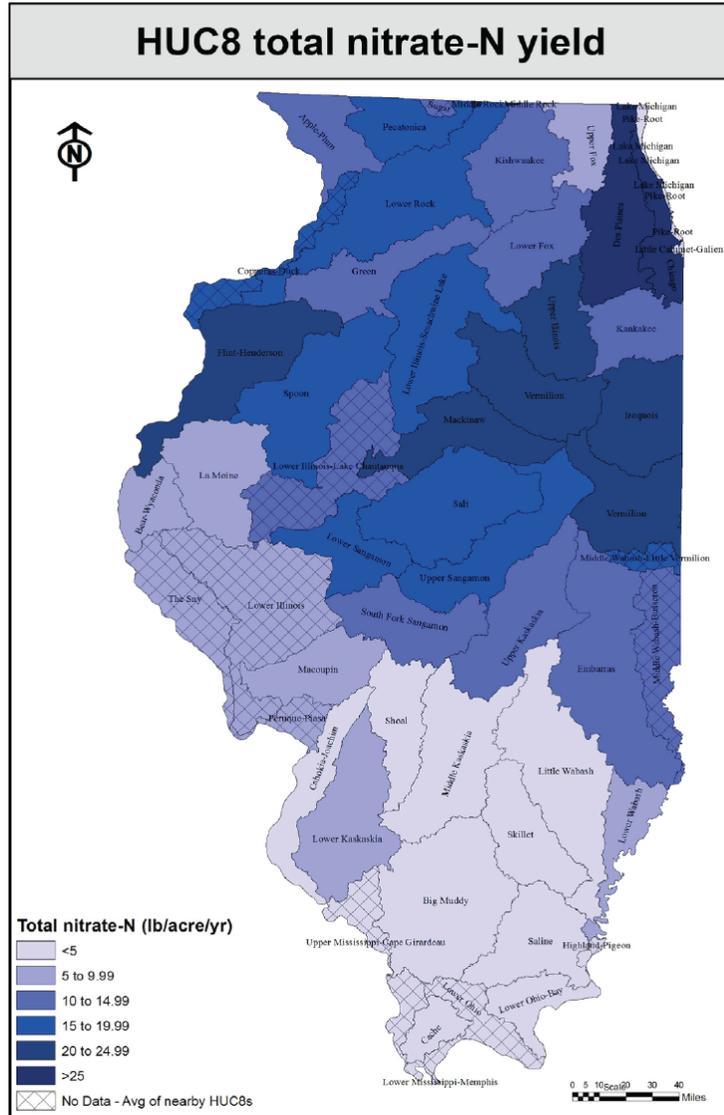


# Estimated Average Annual Nitrate-N Yields by HUC 8 (lb N/ac-yr)



1997–2011

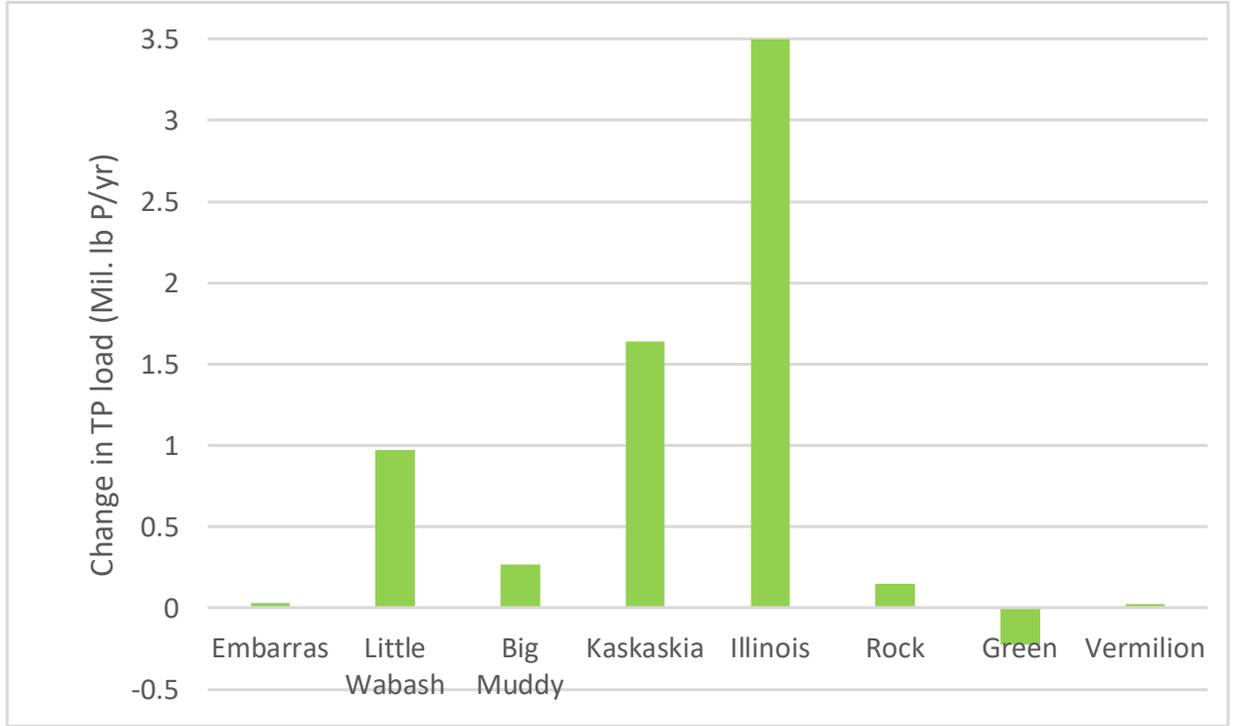
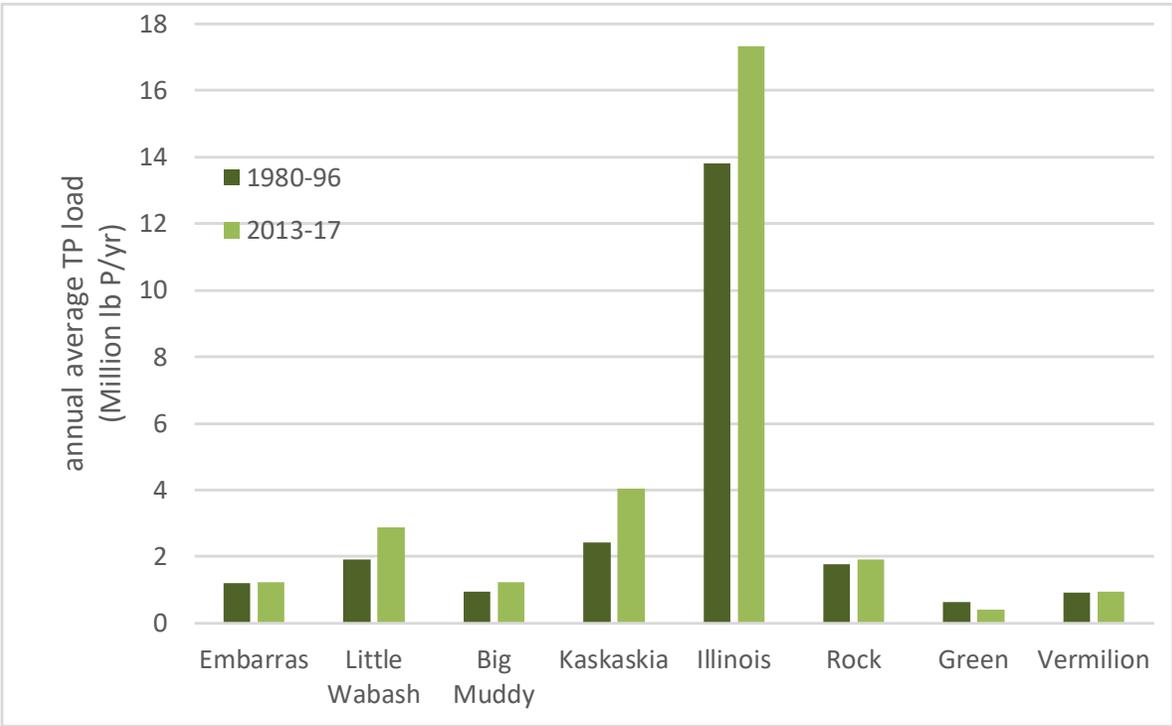
2012–17



Aaron Hoyle-Katz, NCSA

Figure 3.12. Total nitrate-nitrogen yields by HUC8 in Illinois.





## Total Phosphorus Load Estimates in Major Rivers Draining Illinois 1980–96 and 2013–17

## Changes in Estimated Annual Average Total Phosphorus Loads in Major Rivers Draining Illinois 1980–96 and 2013–17

Estimated loads from Indiana and Wisconsin are not included in the Illinois, Rock, or Vermilion River loads

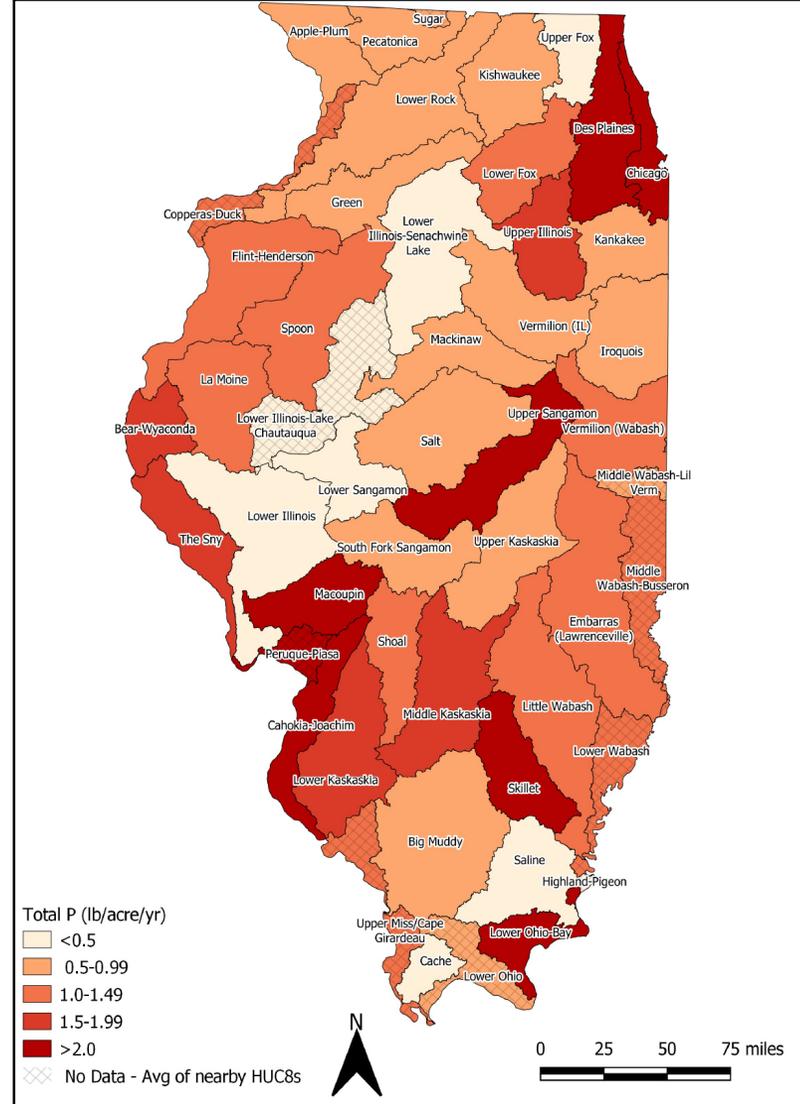
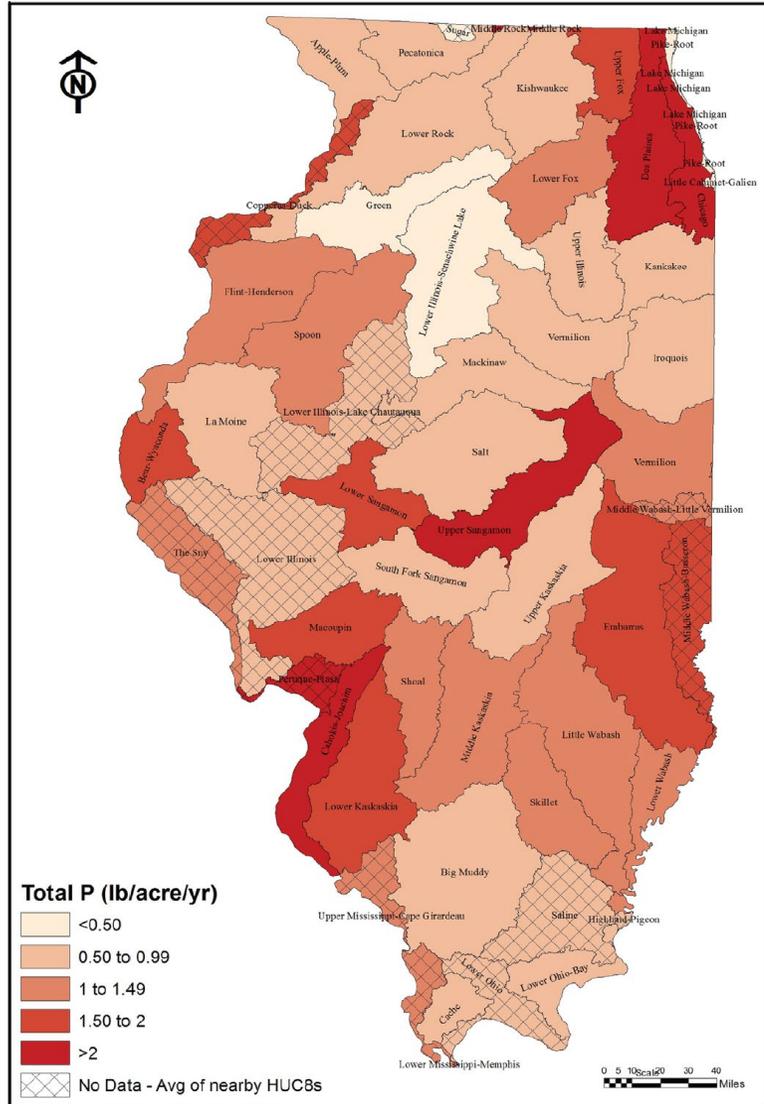


# Estimated Average Annual Total P Yields by HUC 8 (lb P/ac-yr)



1997–2011

2012–17





# Summary

- Statewide average riverine waterflow, nitrate-N load and TP load estimates 2013–2017 were 13%, 7%, and 26% greater than the 1980–96 baseline period.
- Point source 2017 estimated point TP and TN discharges were 22% and 14% lower than 2011 estimates.
- At the HUC 8 scale, nitrate-N and TP yields 2012–17 were generally similar to 1997-2011 values, with some exceptions:
  - TP load reductions in Chicago and Des Plaines
  - TP increases in the Upper Sangamon and elsewhere
  - Changes in nitrate-N load were correlated with changes in water flow for HUCs with high N yields
  - Nitrate-N reductions per unit of water yield in the Mackinaw, Spoon and Kaskaskia Rivers and Henderson Creek





CHAPTER 4

# AGRICULTURAL SECTOR



Photo: Jennifer Woodyard



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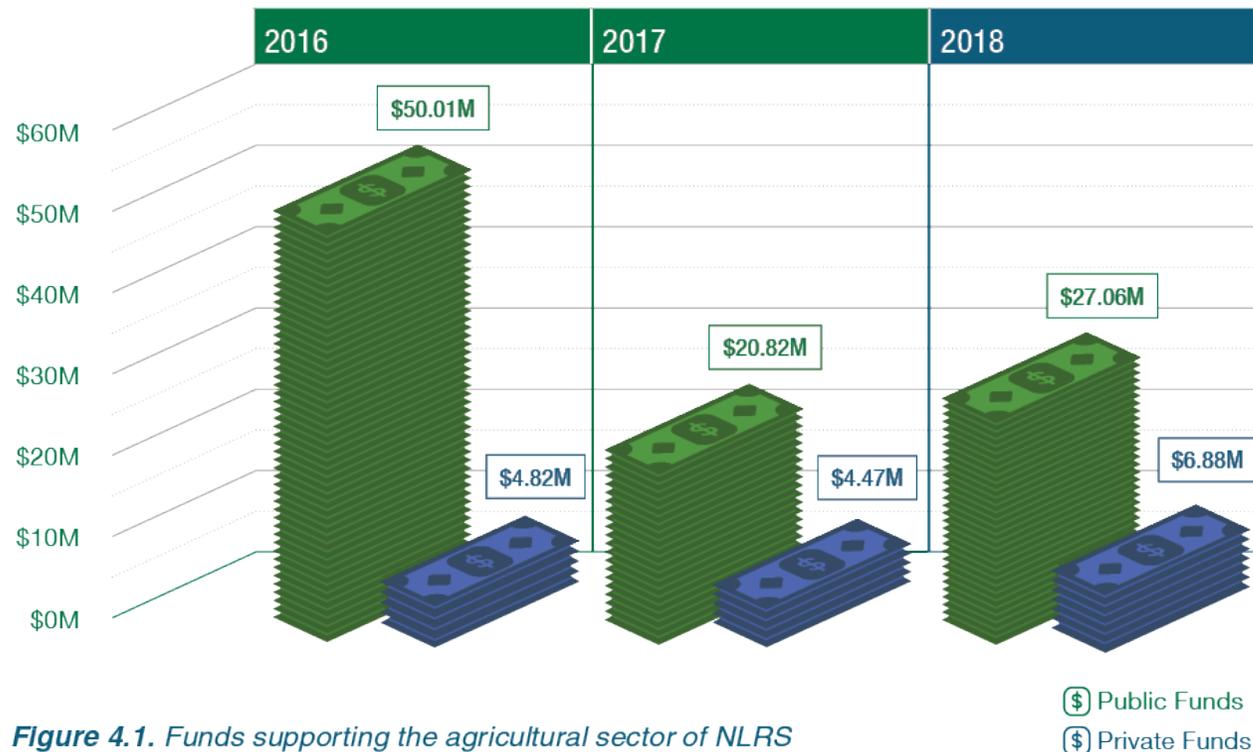


Figure 4.1. Funds supporting the agricultural sector of NLRS

Table 4.1. Outreach activities and associated attendance

Type of Outreach	2015–2016		2017–2018	
	Number of Events	Total Attendance	Number of Events	Total Attendance
Presentations	457	16,000	602	38,155
Field Days	130	3,692	204	18,493
Workshops	607	12,695	423	18,478
Conferences	27	6,935	42	9,355
Total	1,221	39,325	1,271	84,481



Photo: Haley Haverback-Gruber



# NLRS NASS Survey 2019

Based on 2017 Cropping Year



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# NLRS NASS Survey 2019



**Table 4.3.** Illinois NLRS survey result—Farmer BMP knowledge (percent reporting in 2019)

	Not at all Knowledgable	Slightly Knowledgable	Somewhat Knowledgable	Knowledgable	Very Knowledgable
Nutrient Loss Reduction Strategy	21.0%	27.0%	38.4%	11.6%	2.0%
MRTN Strategy	20.3%	33.5%	25.5%	14.1%	6.6%
Bioreactors	53.8%	23.0%	15.0%	5.5%	2.7%
Constructed Wetlands	19.7%	29.6%	38.0%	10.2%	2.5%
Cover Crops Management	15.2%	16.7%	35.5%	28.4%	4.2%

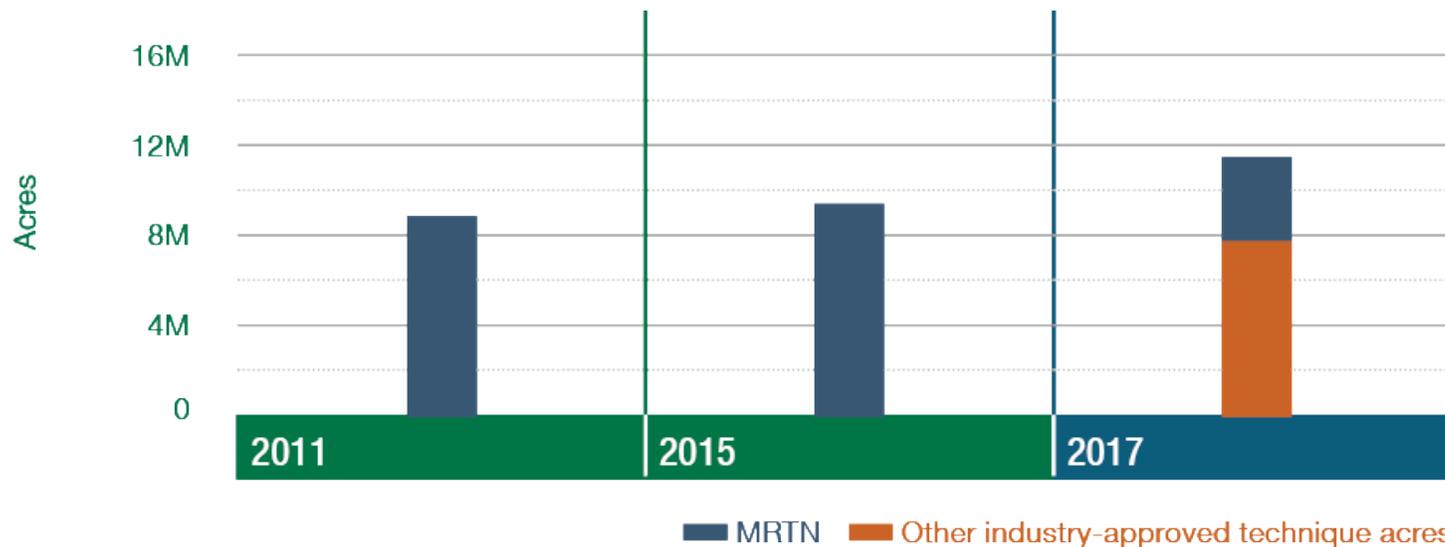


# NLRS NASS Survey 2019



**Table 4.15.** Acres with a nitrogen management strategy

	Acres in 2011	Acres in 2015	Acres in 2017
Acres of corn planted	12,600,000	11,700,000	11,200,000
Acres where an MRTN strategy was used to determine application rates	8,820,000 or 70% of planted acres	9,430,000 or 81% of planted acres	3,730,000 or 33% of planted acres
Other industry-approved technique	Not asked	Not asked	7,750,000 or 69% of planted acres



**Figure 4.23.** Acres where a nitrogen management strategy was used to determine application rates.



# NLRS NASS Survey 2019



**Table 4.16.** Tiled acres with fertilizer application strategies for corn

	Acres in 2011	Acres in 2015	Acres in 2017
Acres of corn planted	12,600,000	11,700,000	11,200,000
Fall/winter nitrogen was applied with a nitrification inhibitor	3,240,000 or 26% of planted acres	2,970,000 or 25% of planted acres	3,550,000 or 32% of planted acres
Spring nitrogen was applied with a nitrification inhibitor	Not asked	Not asked	2,790,000 Or 25% of planted acres

**Table 4.17.** Non-tiled acres with fertilizer application strategies for corn

	Acres in 2011	Acres in 2015	Acres in 2017
Acres of corn planted	12,600,000	11,700,000	11,200,000
Fall/winter nitrogen was applied with a nitrification inhibitor	Not asked	Not asked	1,040,000 or 9% of planted acres
Spring nitrogen was applied with a nitrification inhibitor	Not asked	Not asked	1,020,000 or 9% of planted acres



# NLRS NASS Survey 2019



**Table 4.18. Tiled acres with fertilizer application strategies for corn**

	Acres in 2011	Acres in 2015	Acres in 2017
Acres of corn planted	12,600,000	11,700,000	11,200,000
Fall/winter nitrogen was 50% or less of total nitrogen	940,000 or 7% of planted acres	950,000 or 8% of planted acres	780,000 or 7% of planted acres
Fall/winter nitrogen was 0% of total nitrogen (all spring applications)	2,480,000 or 20% of planted acres	2,660,000 or 23% of planted acres	1,850,000 or 17% of planted acres
Less than 50% fall/winter applications, with remaining nitrogen applications split between pre-plant and side-dress applications	1,730,000 or 14% of planted acres	2,220,000 or 19% of planted acres	1,790,000 or 16% of planted acres

**Table 4.19. Non-tiled acres with fertilizer application strategies for corn**

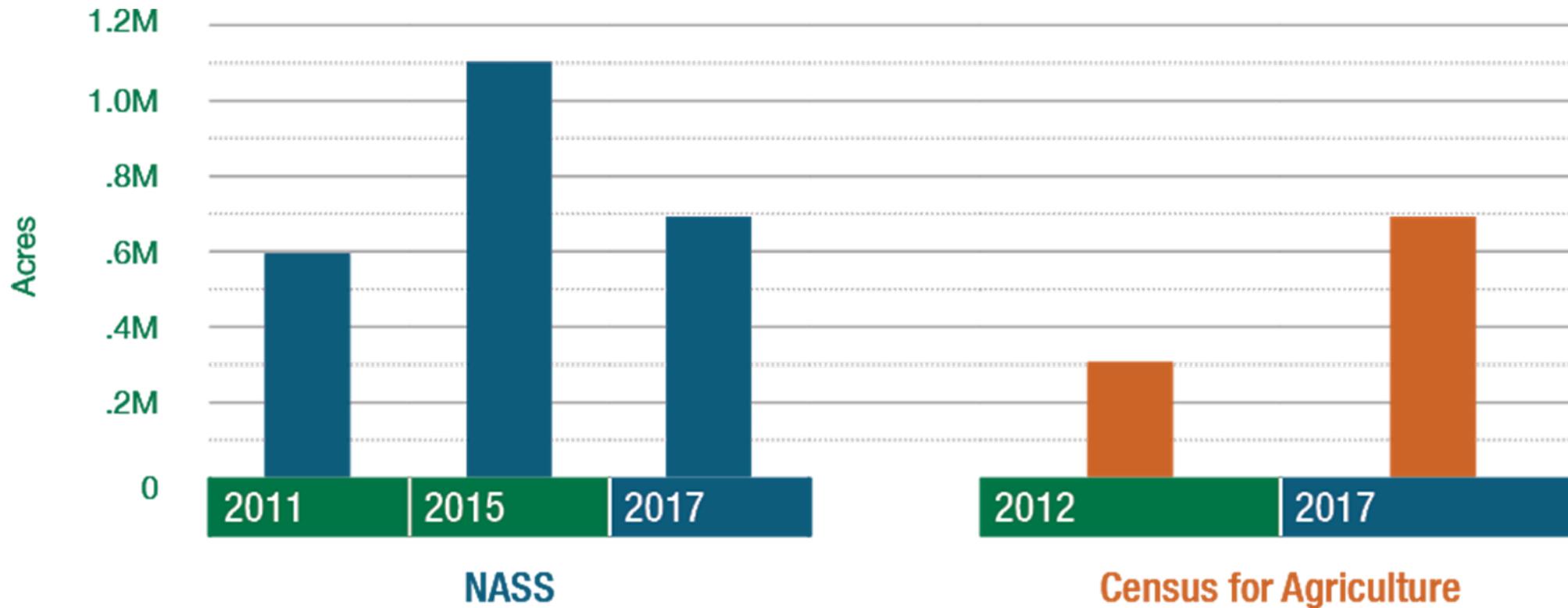
	Acres in 2011	Acres in 2015	Acres in 2017
Acres of corn planted	Not asked	Not asked	11,200,000
Fall/winter nitrogen was 50% or less of total nitrogen	Not asked	Not asked	340,000 or 3% of planted acres
Fall/winter nitrogen was 0% of total nitrogen (all spring applications)	Not asked	Not asked	1,250,000 or 11% of planted acres
Less than 50% fall/winter applications, with remaining nitrogen applications split between pre-plant and side-dress applications	Not asked	Not asked	930,000 or 8% of planted acres



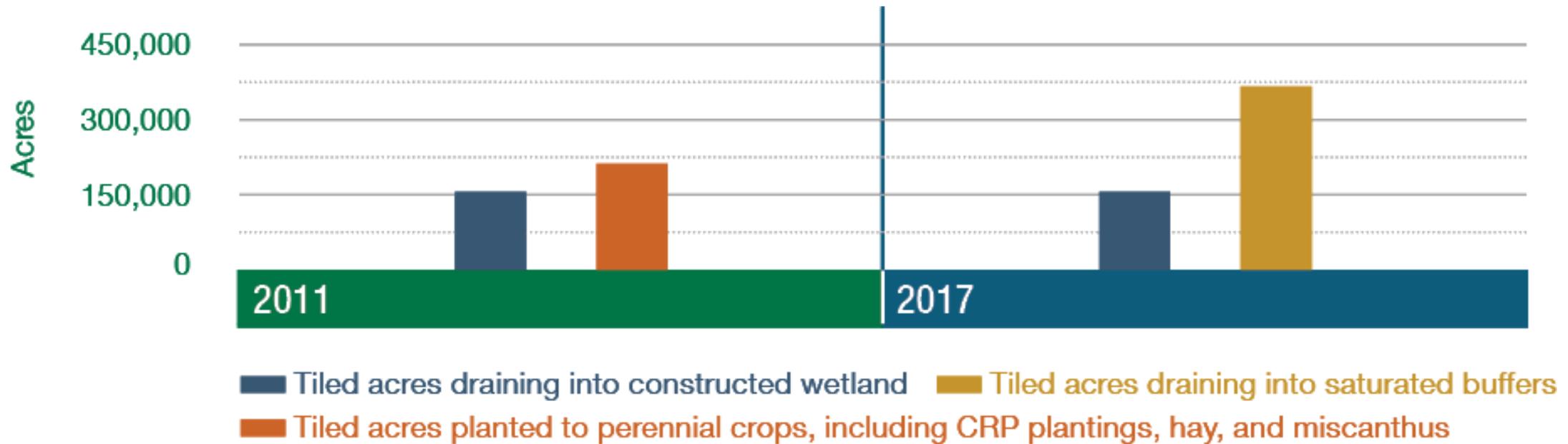
# NLRS NASS Survey 2019



Figure 4.28. Cover crop acres in Illinois, with data from NASS and the Census for Agriculture.



# NLRS NASS Survey 2019



**Figure 4.29.** Acres with edge-of-field practices and perennial crops.



# Agriculture Sector:

## State and Federal Cost-Share Programs





# Conservation Reserve Program

Table 4.4 Acres in CRP Wetlands and Buffers

	2011	2015	2017	2018
CRP Wetlands	57,463	45,790	43,826	55,716
CRP Buffers	145,813	279,534	270,002	265,753

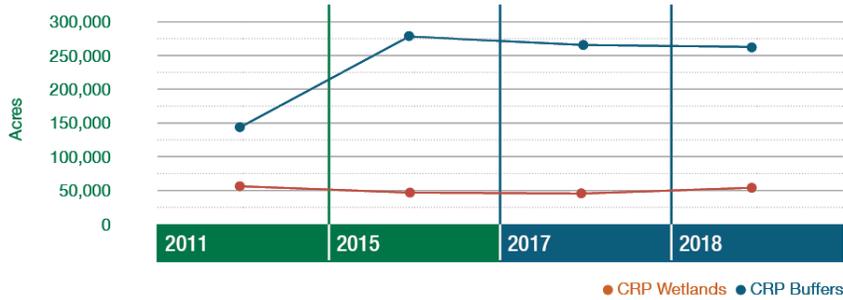


Figure 4.2. Acres in CRP wetlands and buffers.

Table 4.5. Acres in CRP Perennials/Energy/Pasture

	2011	2015	2017	2018
CRP Perennials/ Energy/Pasture	985,531	1,524,379	1,547,612	1,086,474

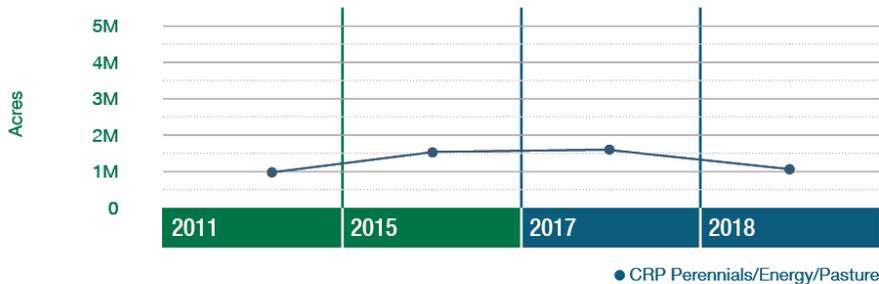


Figure 4.3. Acres in CRP perennials, energy, and pasture.

# Cover Crops

Table 4.6. Acres in Cover Crops reported by producers to FSA

	2011	2015	2017	2018
Cover crops	768	11,064	83,980	92,970

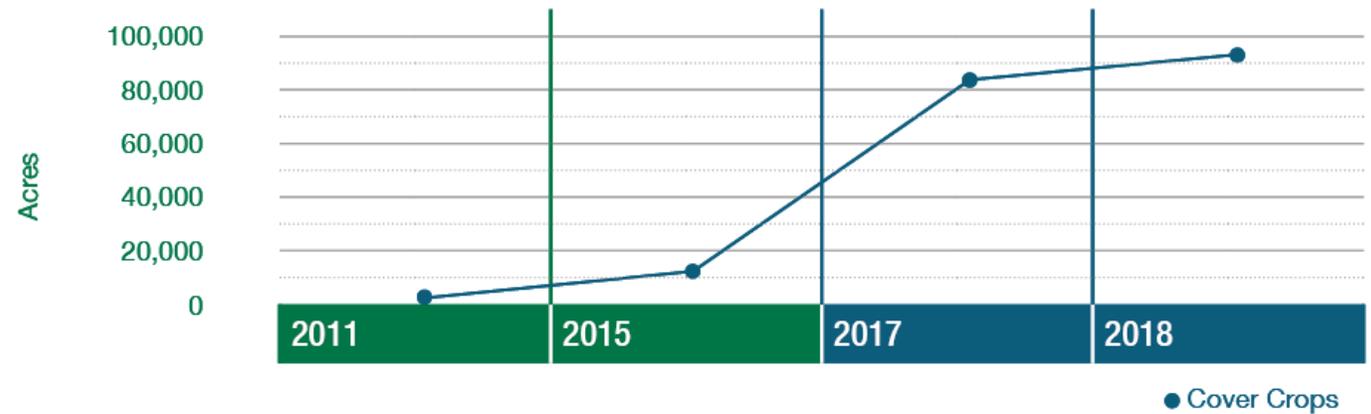


Figure 4.4. Acres in cover crops reported by producers to the Farm Service Agency.

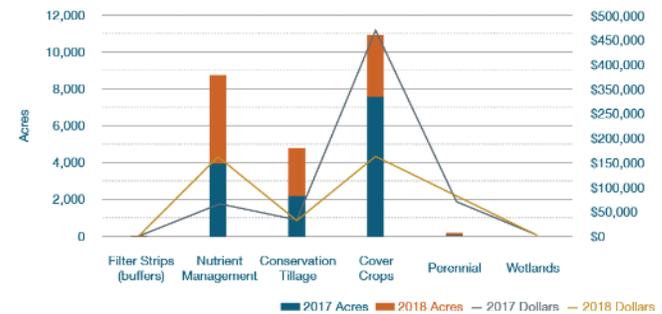




# Environmental Quality Incentives Program

**Table 4.8.** Enrolled acres and dollars spent on BMPs through the NRCS Environmental Quality Incentives Program

	2017 Acres	2017 Dollars	2018 Acres	2018 Dollars
Filter Strips (buffers)	14	\$7,105	3	\$1,296
Nutrient Management	3,975	\$73,955	4,773	\$181,440
Conservation Tillage	2,326	\$35,740	2,456	\$39,662
Cover Crops	7,514	\$462,344	3,343	\$176,559
Perennial	108	\$77,820	126	\$86,520
Wetlands	0	\$0	1	\$895

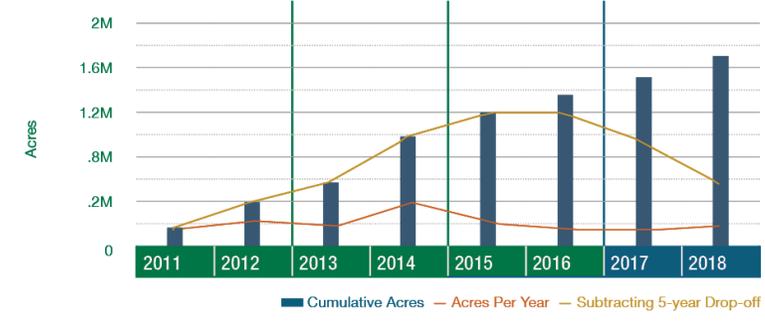


**Figure 4.7.** Enrolled acres and dollars spent on NRCS recommended BMPs through NRCS EQIP

# Conservation Stewardship Program

**Table 4.9.** New acres enrolled in Conservation Stewardship Program

	2011	2012	2013	2014	2015	2016	2017	2018
Acres Per Year	165,416	229,815	188,731	399,024	214,557	160,172	149,844	200,455
Subtracting the 5-year Drop-off	165,416	395,231	583,962	982,986	1,197,543	1,192,299	946,912	563,405
Cumulative Acres	165,416	395,231	583,962	982,986	1,197,543	1,357,715	1,507,559	1,708,014

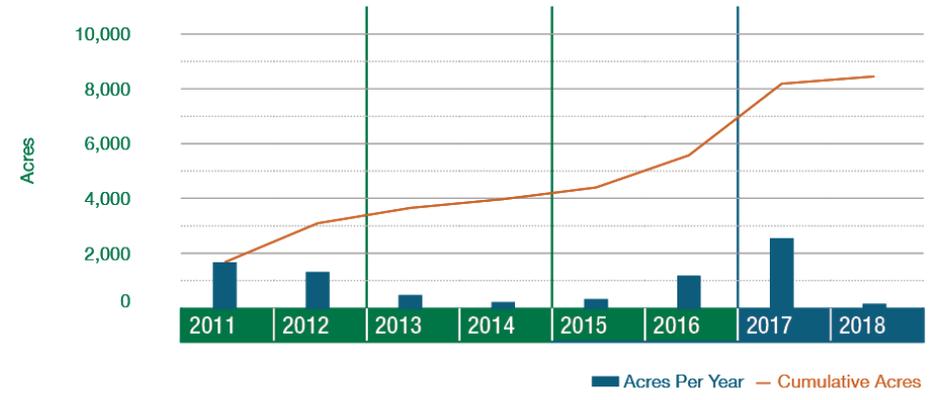


**Figure 4.8.** New acres enrolled in Conservation Stewardship Program

# Wetland Reserve Easement Program

**Table 4.10.** New wetland acres enrolled in Wetland Reserve Easement Program

	2011	2012	2013	2014	2015	2016	2017	2018
Acres Per Year	1,788	1,420	569	305	396	1,237	2,600	260
Cumulative Acres	1,788	3,208	3,777	4,082	4,478	5,715	8,315	8,575



**Figure 4.9.** New acres enrolled in the Wetland Reserve Easement Program from 2011 to 2018.

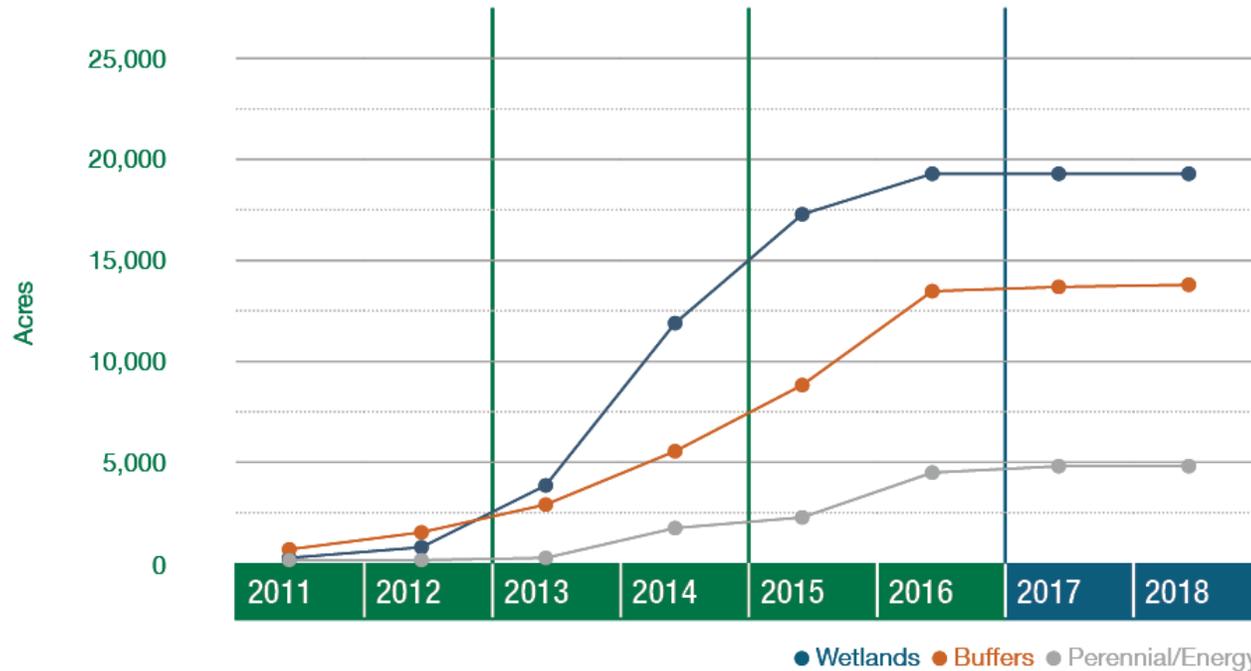




# Conservation Reserve Enhancement Program

*Table 4.7. Acres with Illinois DNR Conservation Reserve Enhancement Program Easements*

	2011	2012	2013	2014	2015	2016	2017	2018
Wetlands	20	651	3,681	11,976	17,406	19,467	19,523	19,523
Buffers	526	1,324	2,720	5,467	8,768	13,568	13,764	13,850
Perennial/Energy	0	7	84	1,622	2,107	4,395	4,670	4,718



*Figure 4.6. Acres with Illinois Department of Natural Resources CREP Easements.*





# Partners for Conservation

Table 4.11. Partners for Conservation FY17 and FY18

	2017 Acres	2018 Acres	2017 Cost-Share Dollars	2017 Landowner Dollars	2018 Cost-Share Dollars	2018 Landowner Dollars
Bioreactors	75	-	\$8,000	\$2,667	-	-
Wetlands	24	-	\$6,021	\$4,429	-	-
Filter Strips	22	-	\$304	\$481	-	-
Tillage	1,124	95	\$9,934	\$17,817	\$4,132	\$8,380
Perennial	89	36	\$12,980	\$7,950	\$6,406	\$2,717
Cover Crops	13,293	5,555	\$249,524	\$230,848	\$104,021	\$120,001

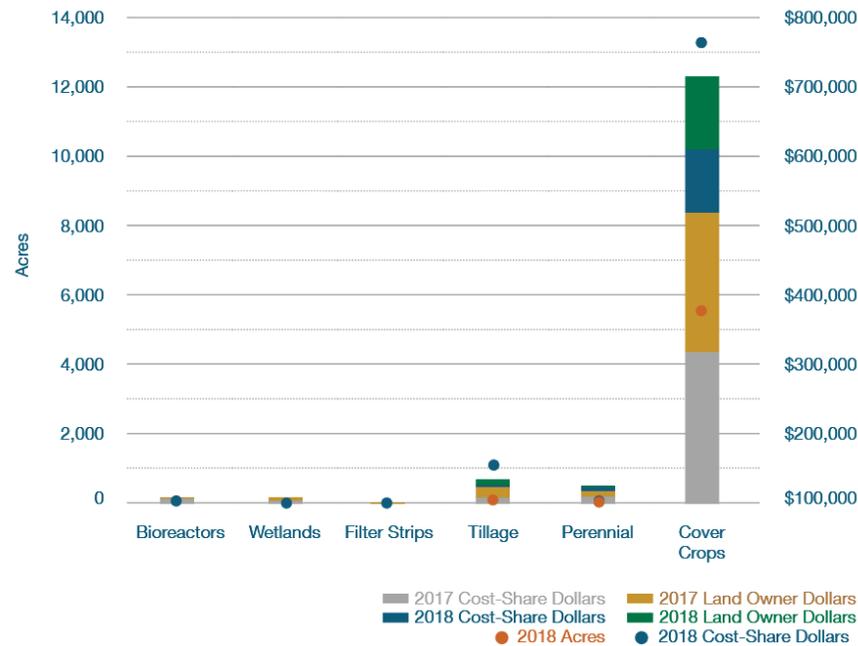


Figure 4.11. Acres treated by and dollars spent on Partners for Conservation best management practices.





# Soil Transect Survey

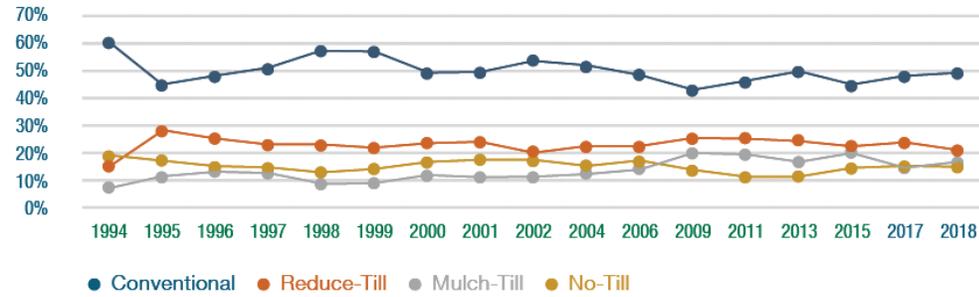


Figure 4.15. Statewide corn tillage from the Soil Transect Survey

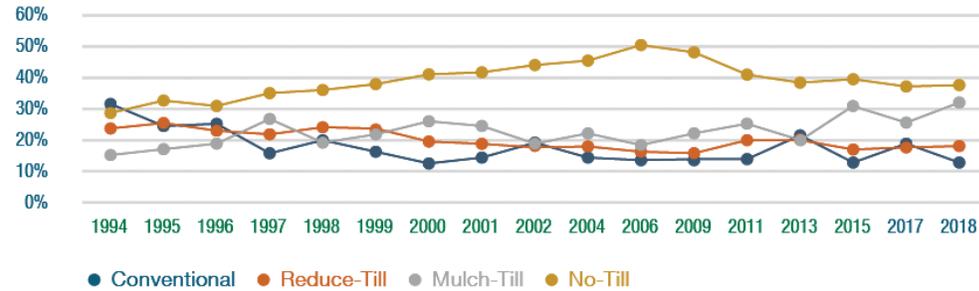


Figure 4.16. Statewide soybean tillage from the Soil Transect Survey

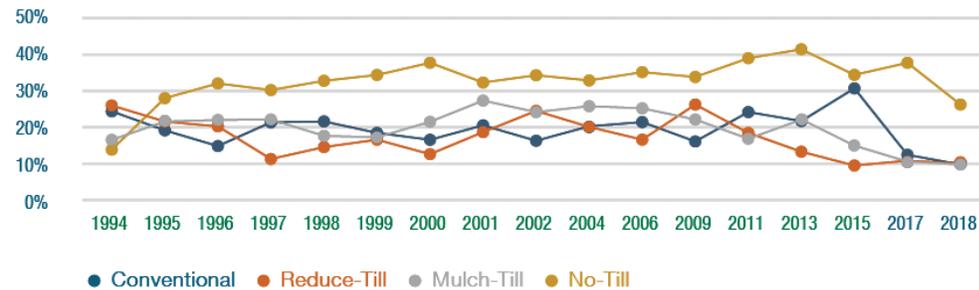


Figure 4.17. Statewide small grains tillage from the Soil Transect Survey



# Soil Transect Survey



Percent of HUC8 watershed transect points 1-2T



Legend

- 0.0–7.0
- 7.0–12.5
- 12.5–17.8
- 17.8–24.1
- 24.1–50.0

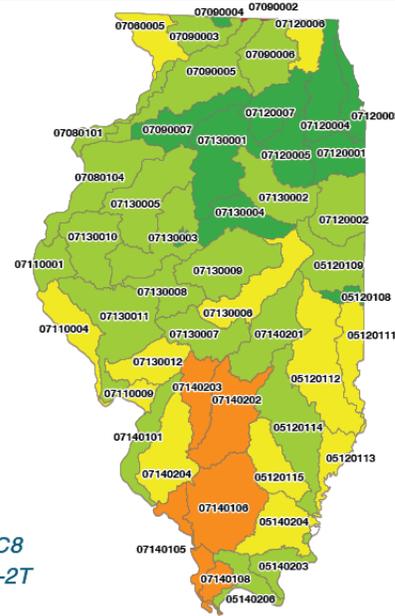


Figure 4.21. Percent of HUC8 watershed transect points 1-2T

Percent of HUC8 watershed transect points >2T



Legend

- 0.0–2.1
- 2.1–5.0
- 5.0–9.5
- 9.5–15.7
- 15.7–27.9

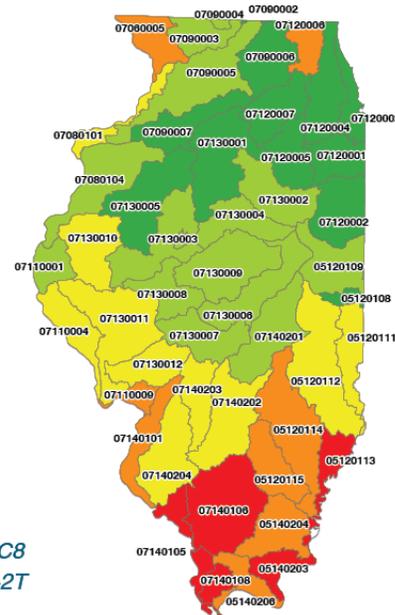


Figure 4.22. Percent of HUC8 watershed transect points >2T



Photo: IDOA





# 319 Nonpoint Source Grant Program

Table 4.12. Acres treated by agricultural practices installed under Section 319 Grant Program 2011–18

	2011	2012	2013	2014	2015	2016	2017	2018
Cover and Green Manure Crop	-	-	-	453	2,544	2,583	3,978	1,570
Conservation Tillage	-	9,998	-	-	-	-	151	-
Filter Strip	-	-	-	-	8	8	3	9
Nutrient Management	-	-	-	-	-	3,062	-	5,713
Wetland Restoration	24	255	380	116	164	1	1	1
Total	24	10,253	380	569	2,716	5,654	4,133	7,293

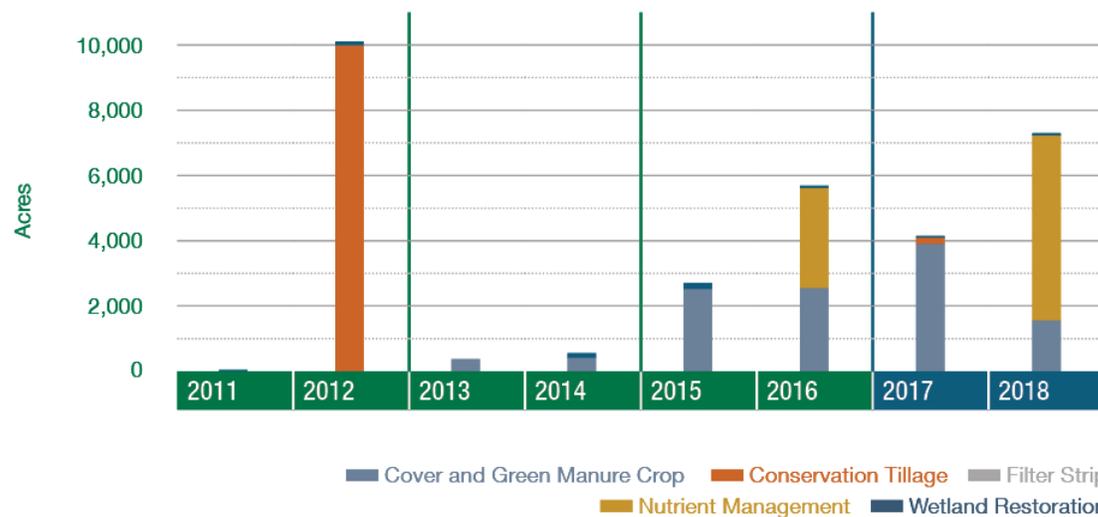


Figure 4.12. Acres treated by agricultural practices installed under Section 319 Grant Program 2011–18

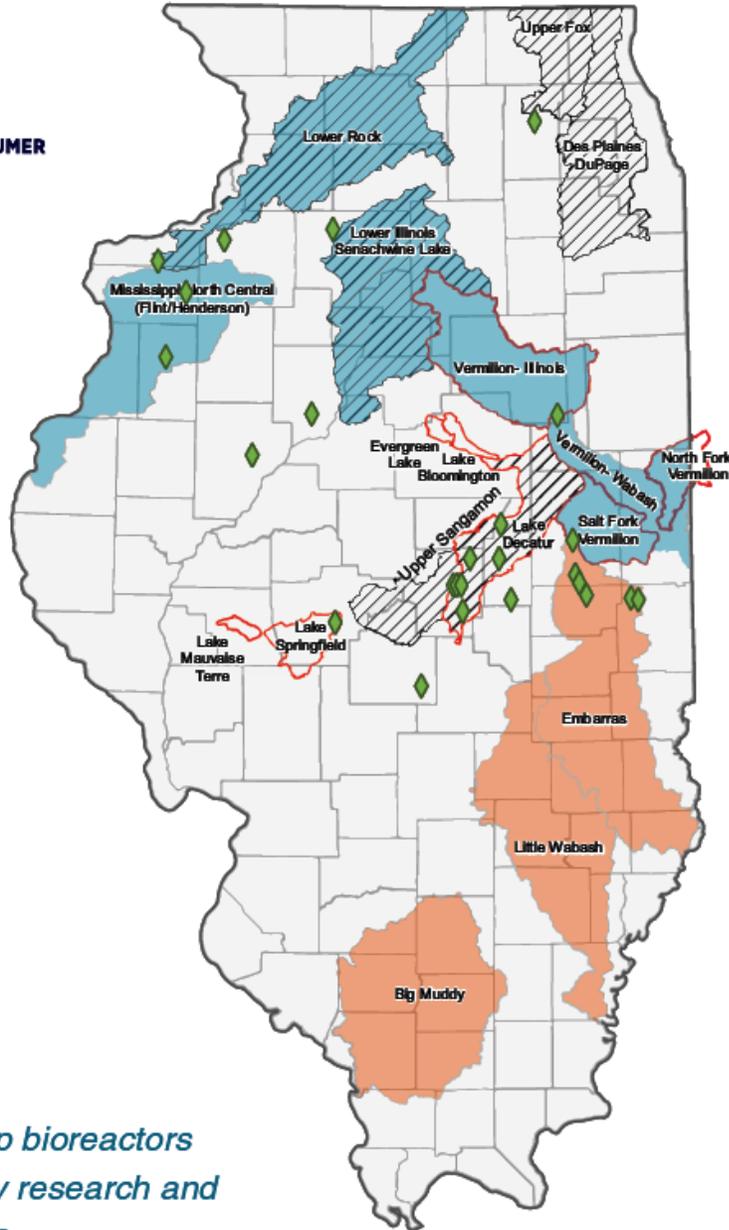




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**Legend**

- ◆ Bioreactors
- Counters
- NP3 Phosphorus
- NPS Nitrate
- Keep it for the crop
- Point Sources: Nitrate and Phosphorus



## 36 Woodchip Bioreactors Treating 1,345 acres



Photo: University of Illinois Extension

*Figure 4.10. Woodchip bioreactors identified via university research and demonstration projects.*



# Partner Updates

## Non-Governmental Organization Programs and Projects

4R Metrics .....	p.79
4R4U: A Nutrient Stewardship Partnership.....	p.70
5-Year Soil Health Transition .....	p.74
Advanced Soil Health Training .....	p.73
Building Connections with Absentee Farmland Owners.....	2017 Biennial Report p.42
Cover Crop Training Initiative .....	Illinois NLRs p.6-10
Crop Grower Satellite Imagery Analysis .....	p.76
Demonstration Farm Partnership .....	Illinois NLRs p.6-11
Field Laboratories .....	p.70
The Franklin Demonstration and Research Farm .....	p.71
Free, Confidential Water Testing Program.....	2017 Biennial Report p.44
Illinois Alphabet Soup Group.....	p.75
Illinois Buffer Partnership .....	p.71
Illinois Cover Crop Programs .....	p.72
Illinois Sustainable Agriculture Partnership.....	p.73
Keep it 4R Crop Program.....	p.76
Leadership for Midwestern Watersheds .....	p.80
Local Farmer-Led Networks.....	p.76
N-WATCH™ .....	p.78
Nitrogen Rate Trials.....	p.76
Nutrient Research & Education Council.....	p.80
Nutrient Stewardship Grant Program .....	p.83
Precision Conservation Management .....	p.85
Risk Management Conference.....	p.75
The S.T.A.R. Farmer Recognition Program .....	p.74
Upper Macoupin Watershed Regional Conservation Partnership Program .....	p.87
Water Supply & Industry Partnerships.....	p.78
Women for the Land.....	p.88

## New Initiatives Supporting Nutrient Reduction Goals

Edge-of-Field Partnerships for Saturated Buffers .....	88
Edge-of-Field Partnerships for Woodchip Bioreactors .....	89
Fall Covers for Spring Savings .....	89
Illinois Extension Watershed Outreach Associates .....	90



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# CHAPTER 5 POINT SOURCE SECTOR



Photo: MWRDGC





**Table 5.1.** Funds supporting 2017–18 nutrient reduction-related activities in the point source sector for IAWA reporting agencies and reporting watershed groups

Nutrient reduction-related activity	2017 Totals	2018 Totals
Capital improvement	\$26,025,314	\$186,175,448
Operations and maintenance	\$934,474	\$2,398,542
Feasibility studies or permit required projects	\$1,255,866	\$2,328,001
Staff	\$1,979,250	\$2,283,170
Other	\$135,800	\$555,500
Total	\$30,330,704	\$193,740,661

**Table 5.2.** 2017-18 Point source outreach activities reported by IAWA facilities and reporting watershed groups

Type of Activity	Number of Events	Attendance
Conferences	2	140
Field Days	2	160
Presentations	23	2467
Workshops	2	160
Totals	29	2927



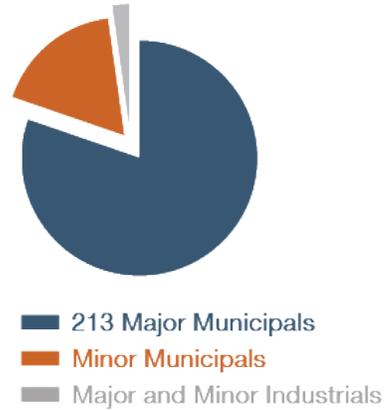
Photo: MWRDGC



**Table 5.3.** Statewide total phosphorus loads by the point source sector in 2018



Point Source Sector	Total Phosphorus Load (million lb/yr)
<b>2011 Baseline</b>	<b>18.1</b>
<b>2018 Total Phosphorus Load</b>	<b>13.8</b>
> 213 Major Municipals	11.1
> Minor Municipals	2.4
> Major and Minor Industrials	0.3
<b>Reductions from 2011 Baseline</b>	<b>4.3 (24%)</b>



**Figure 5.2** Statewide total phosphorus loads by the point source sector in 2018

**Major Municipal Point Source Achievements 2011-2018**  
**24% Total Phosphorus Reduction**  
**10% Total Nitrogen Reduction**

**Table 5.6** Comparison of statewide total nitrogen loads 2011–18

Point Source Sector	Total Nitrogen Load (million lb/yr)
<b>2011 Baseline</b>	<b>87.3</b>
<b>Total Nitrogen Load</b>	<b>78.5</b>
<b>Reductions from 2011 Baseline</b>	<b>8.8 (10%)</b>





## Top 10 Wastewater Treatment Facilities for Total Phosphorus Removal

Facility Name	2018 Average Flow (MGD)	2018 Average TP Concentration (mg/L)	2011 TP Load (lb/yr)	2018 TP Load (lb/yr)	Reduction (lb/yr)	Percent Reduction
MWRDGC-Stickney	775	0.31	2,344,030	707,230	1,636,800	70
MWRDGC-Kirie	38.48	0.27	141,985	40,012	101,973	72
MWRDGC-Calumet	247	2.6	2,058,425	1,990,902	67,523	3
Sangamon County Water Reclamation District-Spring Creek	34.98	0.48	113,296	49,419	63,877	56
North Shore Sanitary District-Gurnee	15.4	1.11	116,070	52,700	63,370	55
Village of Fox Lake	9.19	0.63	76,657	17,808	58,849	77
City of Belleville	5.32	0.65	67,701	11,040	56,661	84
DuPage County Public Works	7.59	0.72	73,625	17,683	55,942	76
Village of Plainfield	4.59	0.58	63,469	7,918	55,551	88
Greater Peoria Sanitary and Sewage District	22.4	0.64	96,827	42,477	54,350	56





**Table 5.7. Feasibility studies and optimization studies submitted by major facilities (216 total)**

<b>Optimization</b>	<p><b>122</b> Permits to be issued requiring optimization study</p>	<p><b>22</b> Issued permits awaiting optimization study</p>	<p><b>72</b> Optimization studies submitted</p>
<b>Feasibility</b>	<p><b>111</b> Permits to be issued requiring feasibility study</p>	<p><b>21</b> Issued permits awaiting feasibility study</p>	<p><b>84</b> Feasibility studies submitted</p>



*Figure 5.3 Percentage of major municipal NPDES permits with total phosphorus limits statewide*

Corrected from previous version



# Nutrient Assessment Reduction Plan (NARP)

- IAWA and NGO Agreement for Major (>1 MGD) Facilities
- Special Condition in NPDES permits
- Required if facility:
  - Is located upstream of a waterbody or stream segment that has been determined to:
    - have a phosphorus related impairment, or
    - be at risk of eutrophication due to phosphorus levels in the waterbody
- Effluent limit of 0.5 mg/L Total Phosphorus 12 month rolling geometric mean by January 1, 2030 unless not technologically feasible or economically reasonable or meets one of the special circumstances
- Not an Effluent or Water Quality Standard



# Nutrient Assessment Reduction Plan (NARP)

- Developed and submitted to Illinois EPA by December 31, 2023
- Supported by data and sound scientific rationale
- Must cooperate and work with other stakeholders in the watershed
- Target Levels –
  - Recommendations by the Nutrient Science Advisory Committee – Dec 2018
  - Develop its own watershed-specific target levels
- Identify phosphorus input reductions from point sources and non-point sources
- Schedule for implementation
- Provisions for water quality trading





CHAPTER 6

# STORMWATER SECTOR

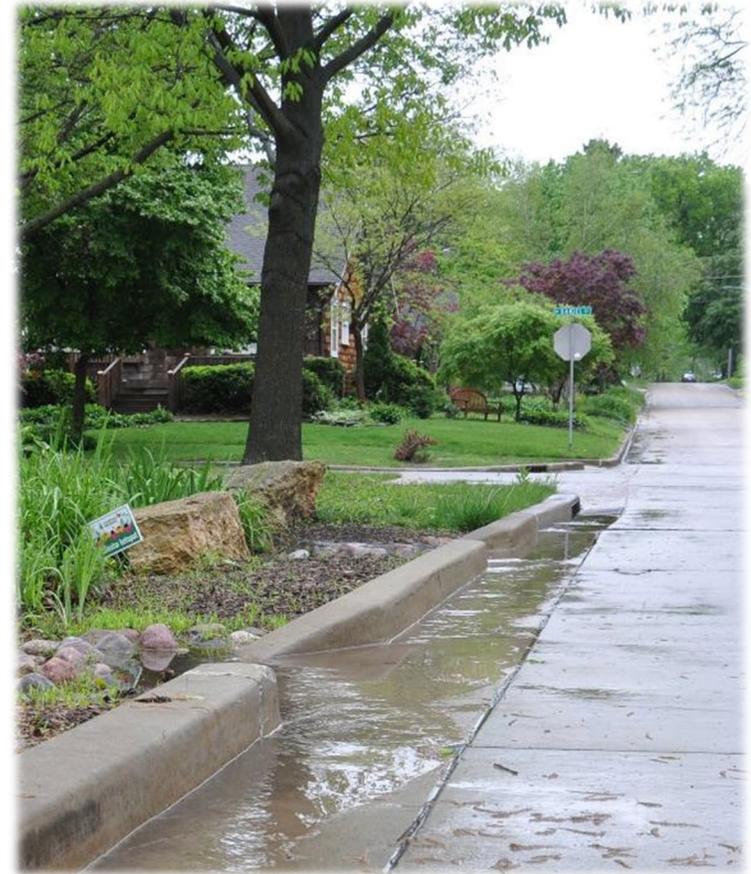


Photo: C. Eliana Brown



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**Table 6.1.** Funds supporting 2018 nutrient reduction-related activities in the stormwater sector.

Nutrient reduction-related activity	2018 Totals
Grants or Loans Received	\$607,944
Grants Given	\$334,934
Other	\$13,000
Total	\$955,878

**Table 6.2.** Outreach events reported by the stormwater sector.

Type of Activity	Number of Events	Attendance
Field Days	9	555
Presentations	31	3,815
Conferences	3	650
Workshops	17	1,150
Totals	60	6,170



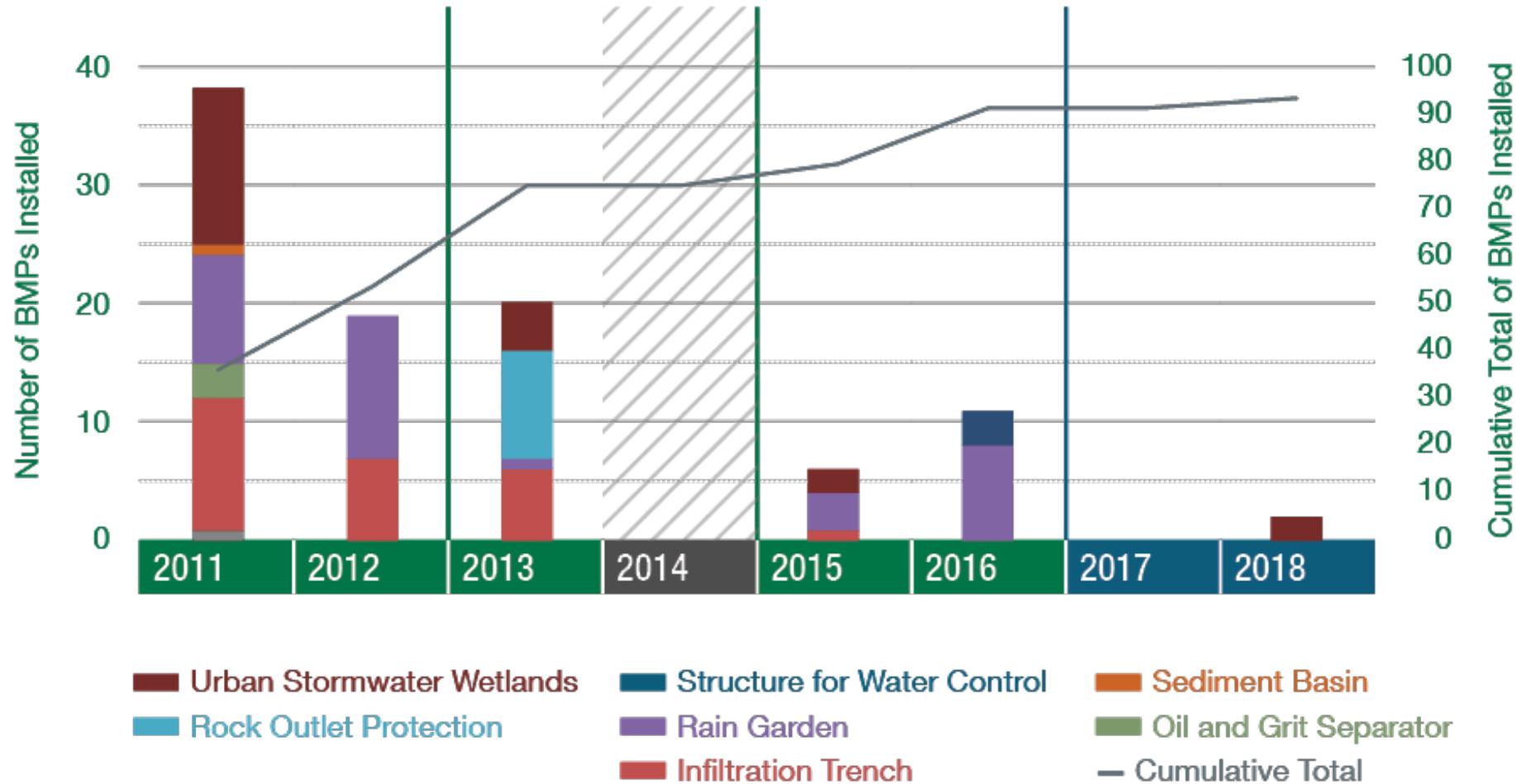


Figure 6.1. Number of urban practices installed under Section 319 Grant Program 2011–18



**Table 6.4. Number of MS4s implementing practices**



	Practice	Number of MS4s	Percent of MS4s
Physical Practices	Dry Weather Screening	143	49%
	Street Sweeping	114	39%
	De-icer Management	101	35%
	Detention Basin Maintenance	89	31%
	Litter Clean up Event	51	18%
	● Community Rain Gardens	30	10%
Plans and Policies	● Bioswales	16	5%
	● Green Infrastructure Grants	32	12%
	Stormwater Master Plans	27	9%
	● Stormwater Utility Fees	24	8%
Residential Programs	Community Outreach	278	97%
	Household Hazardous Waste Collections	92	32%
	● Rain Barrel Programs	80	27%
	Electronic Recycling	40	14%
	● Homeowner Rain Garden Incentives	23	8%

● Practices and programs depicted in Figure 6.6

Location of Illinois MS4 Communities

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Legend

● MS4 Communities



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

Figure 6.5. MS4 communities with available annual reports





CHAPTER 8

# ADAPTIVE MANAGEMENT AND MEASURING PROGRESS



Photo: C. Eliana Brown



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# Water Quality Goals—Nitrate

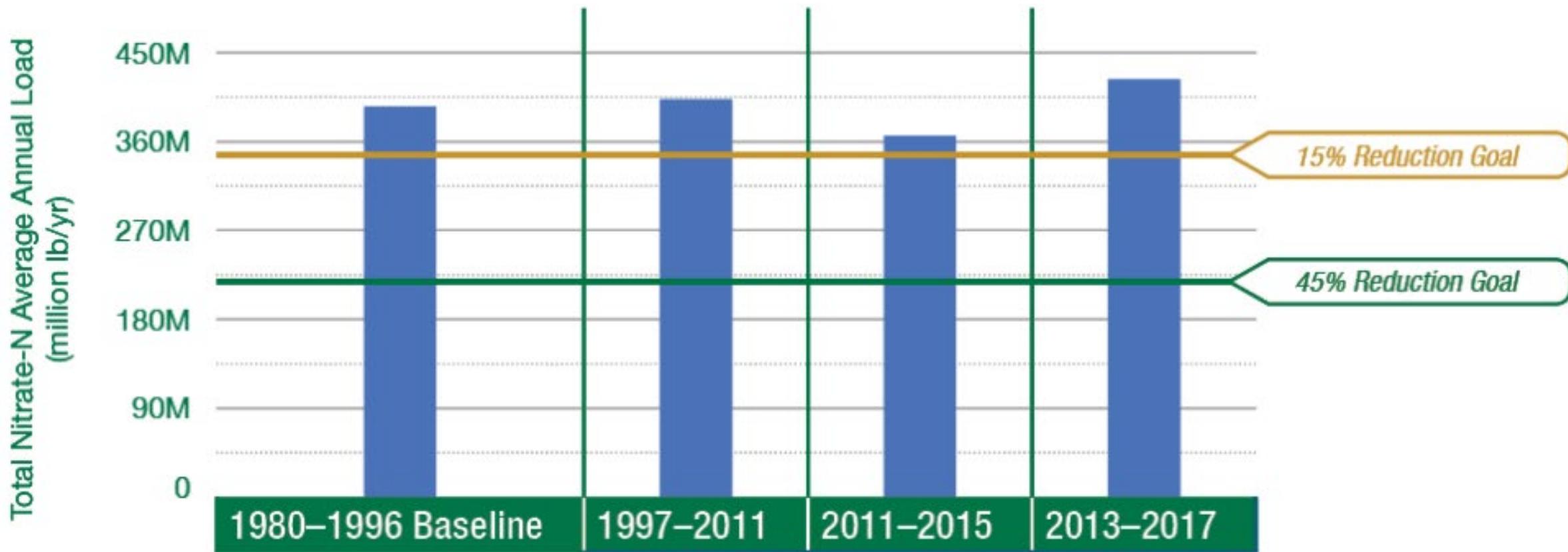


Figure 8.1. Illinois Nitrate Load

# Water Quality Goals—Total Phosphorus

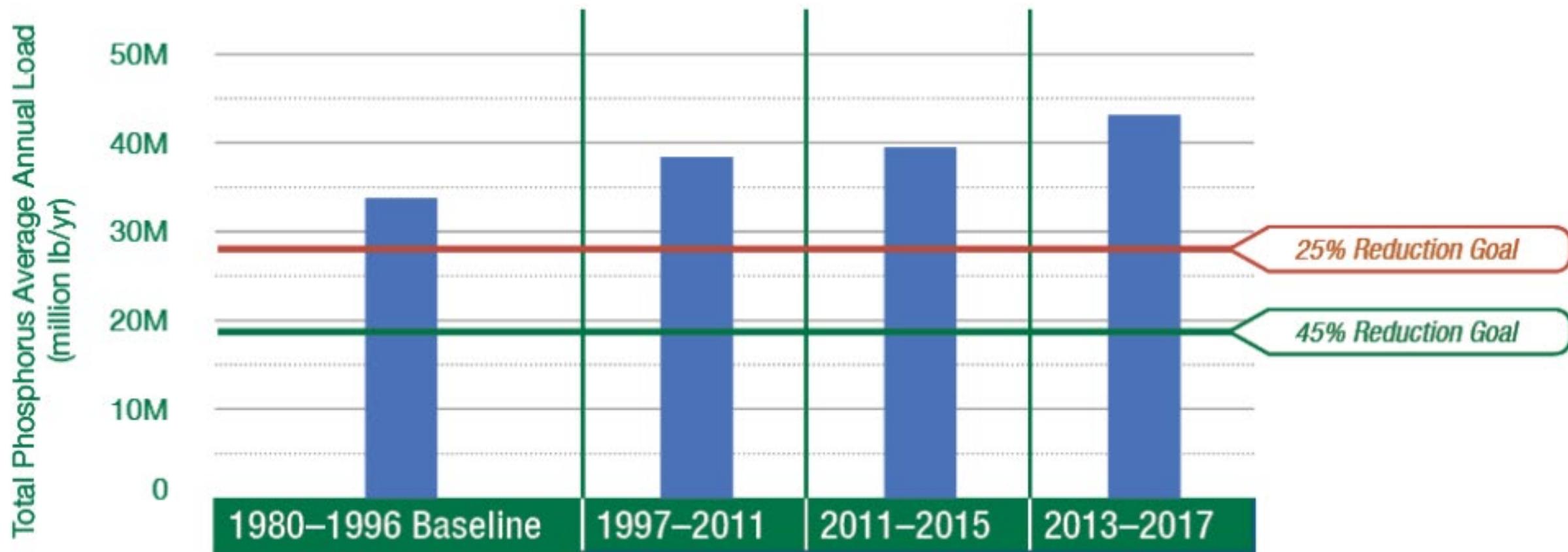


Figure 8.2. Illinois Total Phosphorus Load

# Implementation Scenarios

**Table 8.1**

Name	Combined Practices and Scenarios	Nitrate-N reduction (percent)	Total P reduction (percent)	Cost of reduction (\$/lb)	Annualized costs (million \$/yr)
NP2	MRTN, spring-only N application, bioreactors on 50 percent of acres, wetlands on 10 percent of acres, no P fertilizer on 12.5 million acres above STP maintenance, reduced till on 1.8 million conventionally tilled acres eroding >T, cover crops on all corn/soybean acres, point source to 1 mg total P/L and 10 mg nitrate-N/L	45%	45%	**	878
NP3	MRTN, spring-only N application, bioreactors on 30 percent of acres, no P fertilizer on 12.5 million acres above STP maintenance, reduced till on 1.8 million conventionally tilled acres eroding >T, cover crops on 87.5 percent of corn/soybean acres, buffers on all applicable lands, perennial crops on 1.6 million and 0.9 million additional acres	45%	45%	**	827



# Agriculture Implementation Scenarios

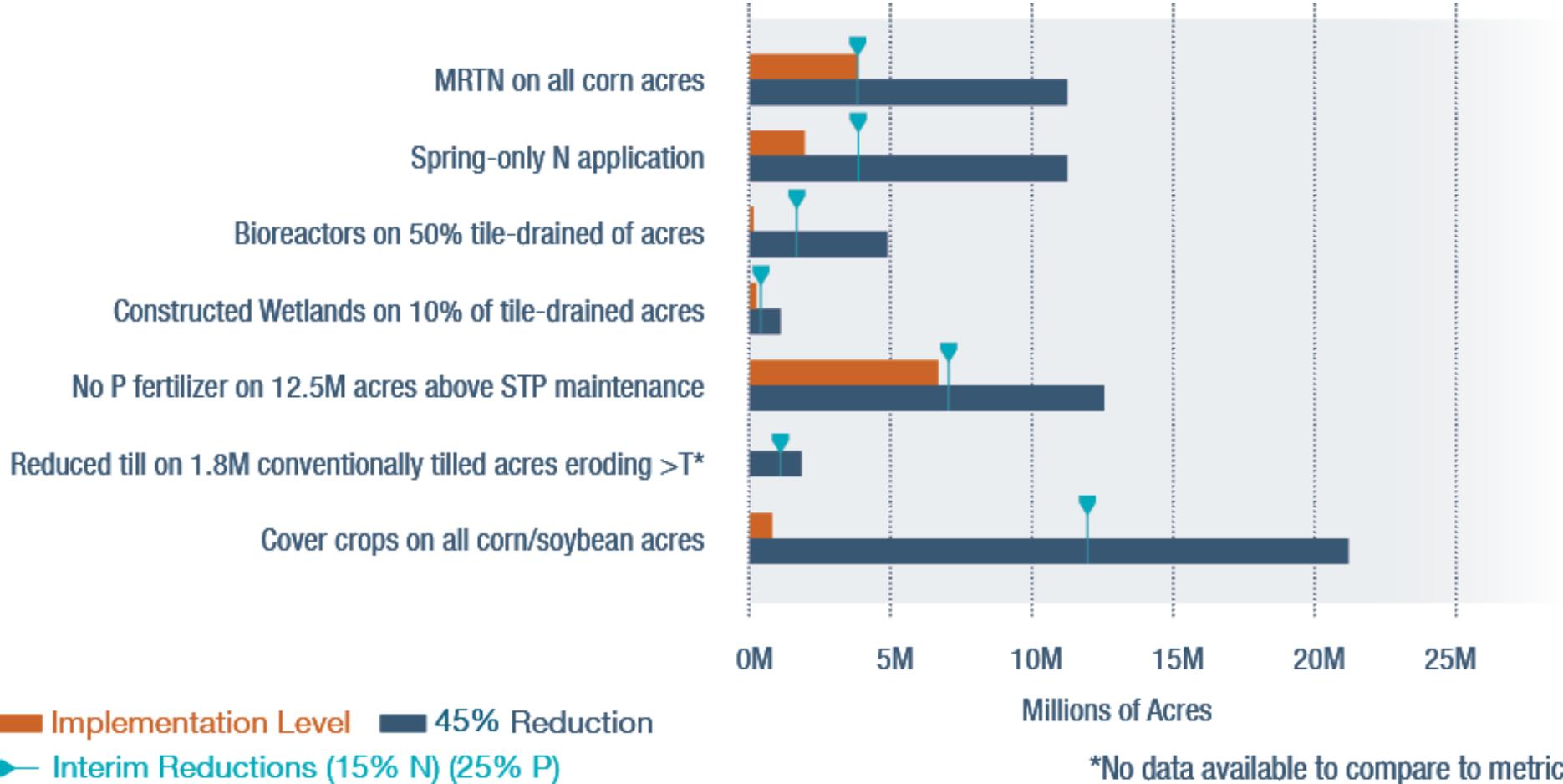


Figure 8.3. Agricultural implementation as compared to Scenario NP2

# Agriculture Implementation Scenarios

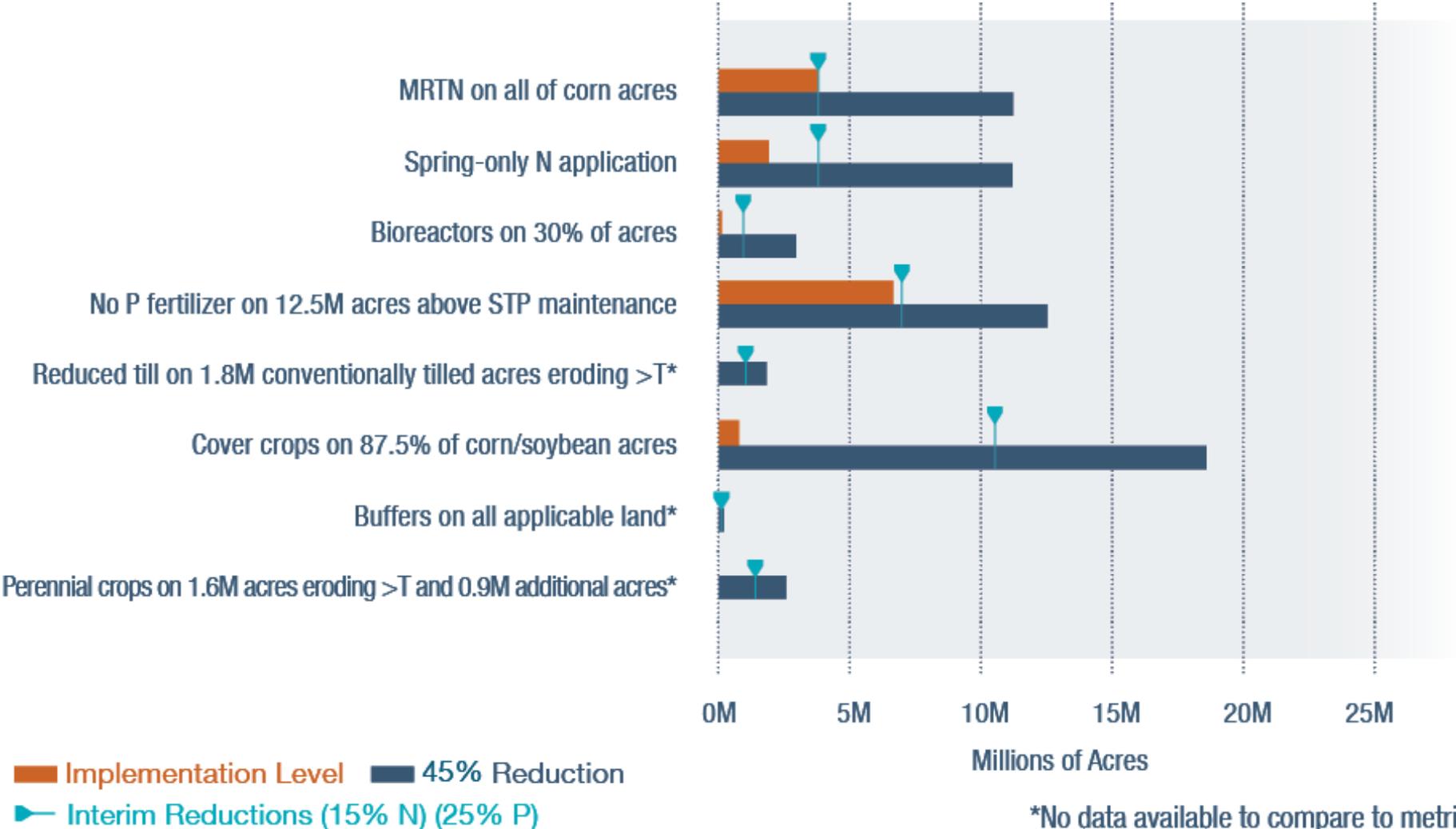


Figure 8.4. Agricultural implementation as compared to Scenario NP3

# Point Source Implementation Scenarios



-  All Point Source Facilities
-  Major Municipal Facilities
-  Industrial and Minor Municipal Facilities

\* Includes all point source facilities not differentiated by type or size

Figure 8.5. Total Phosphorus (Point Source Load), Estimated Future Total Phosphorus (Point Source Load)



# Moving Forward

- Policy Working Group and other workgroups and committees will continue to meet.
- Collaboration among agencies and organizations is encouraged to continue.
- Promote Planning and Implementation at the watershed scale.



Photo: Haley Haverback-Gruber





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water resources  
with collaboration  
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# Contact Us

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