

**CONSERVATION PRACTICE
TRACKING FRAMEWORK:
LESSONS LEARNED FROM
INDIANA & ARKANSAS**

Kate Gardiner, Reid Christianson
University of Illinois

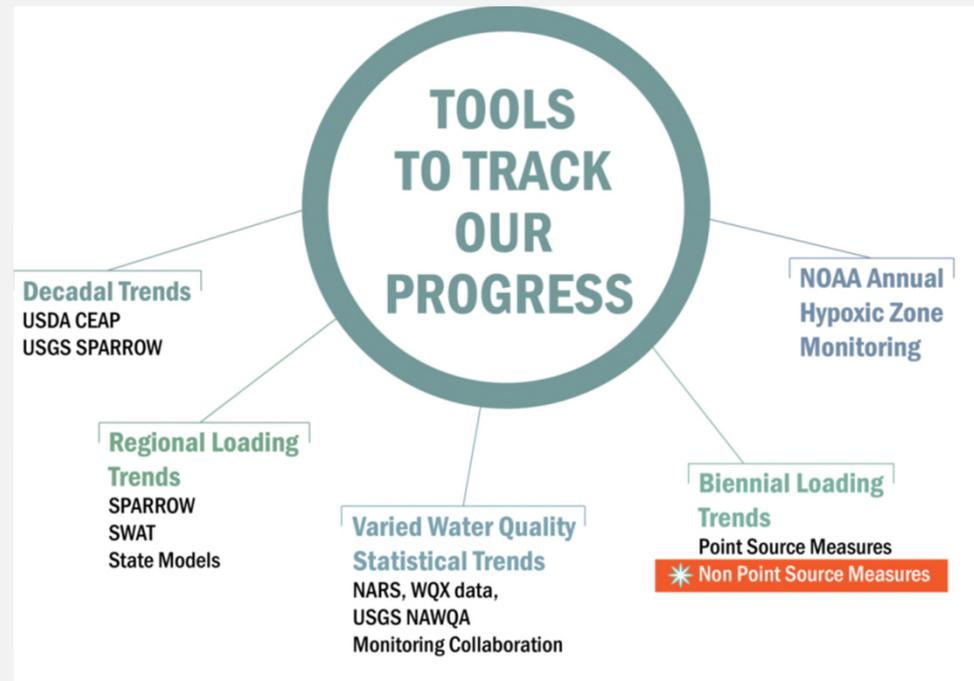
11th Annual National Monitoring Conference

March 28th, 2019 – Denver, CO

Thank you to Walton Family Foundation,
SERA-46, the Arkansas Natural Resource
Commission, and the Indiana State
Department of Agriculture

CONSISTENT STORY

- A measure of what we're doing on the ground
 - We already have tools for Water Quality and ways to measure the size of the hypoxic zone
- Incorporate practice life to track persistence in the environment



NONPOINT SOURCE (NPS) MEASURES WORKGROUP

PROGRESS REPORT SUMMARY

History and Mission of the Nonpoint Source Workgroup

- The Nonpoint Source Workgroup, founded in 2014, coordinates the Hypoxia Task Force (HTF) effort to account specifically for nonpoint source (NPS) changes, primarily agricultural, that influence nutrient loading from a variety of methods. This effort provides additional critical metrics for tracking and informing progress towards reducing nutrients to the gulf that complements other historical aspects of tracking nutrient loading. Though the focus of this effort relates to gulf hypoxia, HTF members are utilizing their state's efforts to reduce nutrients and track progress for reducing nutrients and improving local water quality in their respective states for other purposes (recreation, drinking water, etc.).
- The Workgroup established two guiding principles for establishing a common measure: 1.) must be reasonably reportable for all member states and 2.) was impactful towards reducing nutrient loads to the Gulf of Mexico.



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NONPOINT SOURCE (NPS) MEASURES WORKGROUP

- Implemented recommendations
 - “Key Base Parameters” to track for each conservation practice

Key Base Parameters of Practice Data as Determined by NPS Measures Workgroup

LIKELY AVAILABLE	LIKELY AVAILABLE DEPENDING ON SOURCE	LIKELY ABLE TO ASSUME VALUE BASED ON COLLECTED INFORMATION	NOT LIKELY AVAILABLE WITHOUT BROADER ASSUMPTIONS
State	HUC_12 watershed	Sunset Date	Pre-Implementation Tillage
County	Practice Code	Total Project Costs	
HUC_8 Watershed		Water Quality Benefits	
Practice Name		Practice Category	
Funding Source (State, Fed, Local, etc.)		Pre-Implementation Land Use	
Program		Area Treated (ac)	
Applied Amount		Ancillary Benefits	
Practice Units		Phosphorus Reduction (fraction)	
Applied Date		Nitrogen Reduction (fraction)	
Cost Share Funding Expended			

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Both pilot states used/are using subaward funding to advance this

FRAMEWORK ADVANTAGES

- As we get better information, our data improve as well
- We can retroactively update these data
- Example: the reported number of bioreactors is fixed, but area treated by those bioreactors might change
- We can assume the quantity of nitrates a bioreactor will remove, but our understanding of those systems might change, leading us to update these assumptions



Photo: IL Sustainable Ag Partnership, cover crops

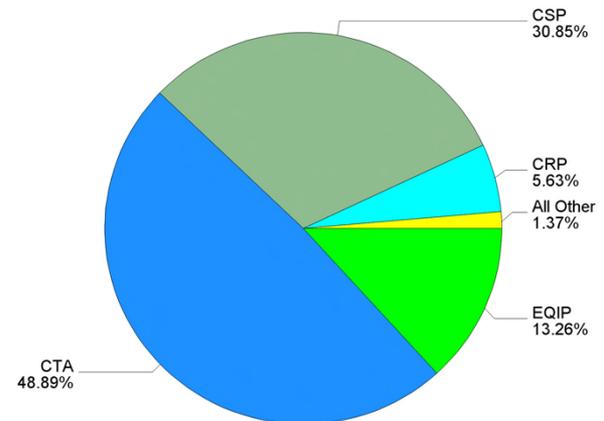


Photo: Illinois Drainage Research and Outreach Program (I-DROP)

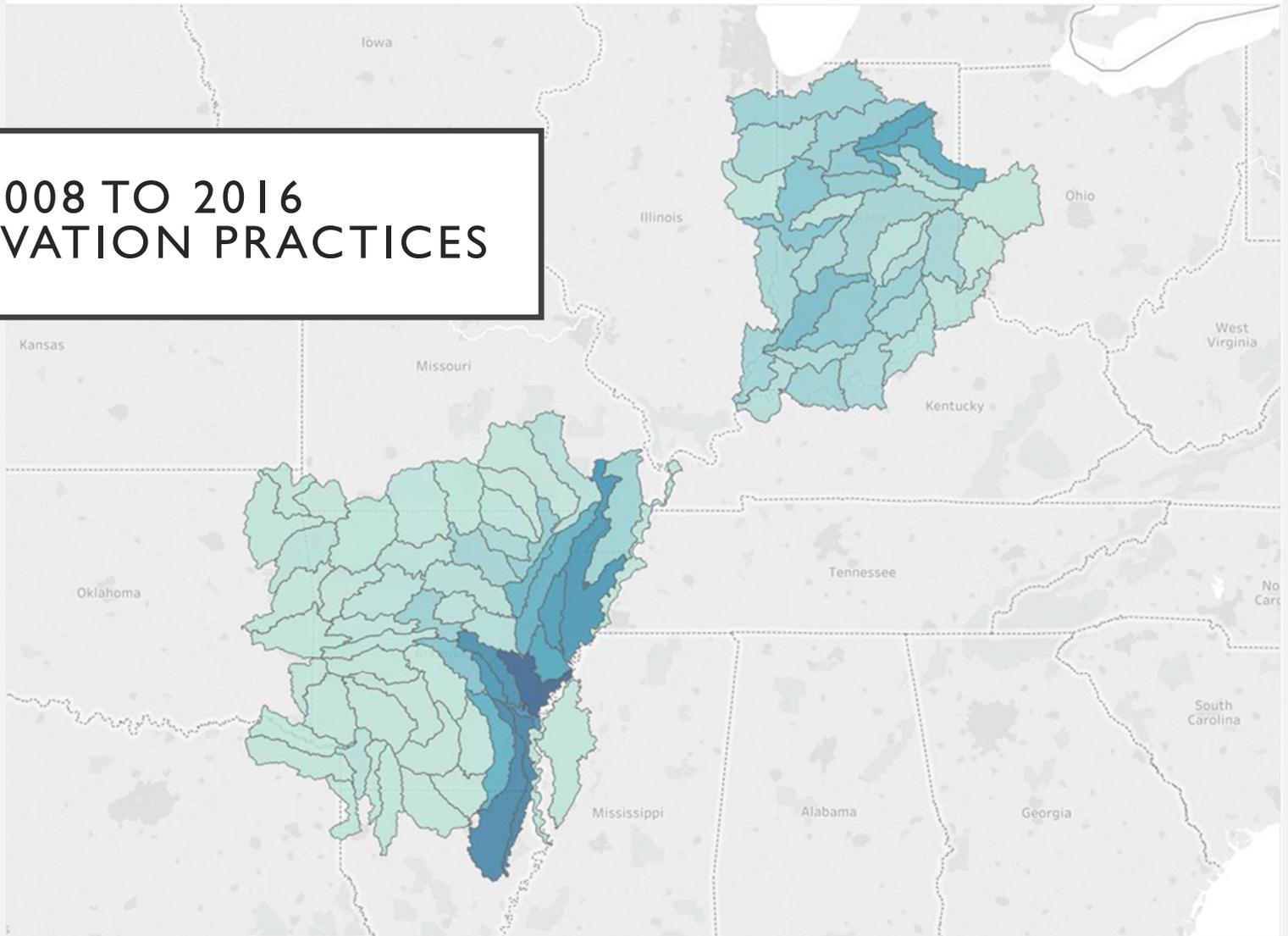
COMMON DATA (EQIP & CSP)

- The common measure of implemented practices
- Available from 2008 to 2017/2018
- 12 digit watershed scale
- Approximately 60 practices influence/impact water quality
 - See also the NRCS Resource Conservation Act reports for water quality-focused practices
 - Each state has their own report
 - Here is the Illinois Example
https://www.nrcs.usda.gov/Internet/NRCS_RCA/reports/cp_il.html

**Land Unit Acres Receiving Conservation by Program
FY 2005 - 2017**



2008 TO 2016 CONSERVATION PRACTICES



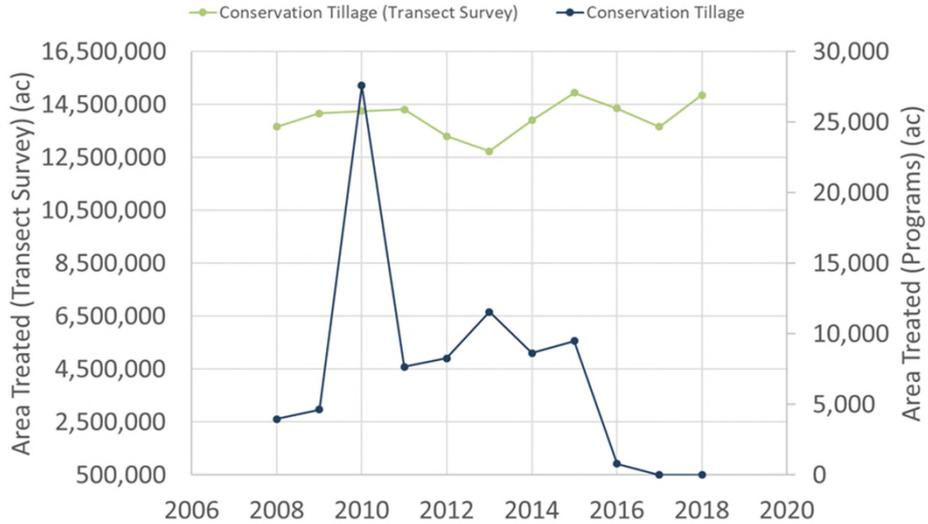
Treated (ac)
1 670K

ADDITIONAL DATA

- Each state likely has additional efforts being funded or tracked
 - For example, the state administered EPA 319 program
- Other efforts within the state
 - Practice mapping
 - Foundation or not-for-profit supported practices
 - Other private implementation
 - Surveys

ILLINOIS EXAMPLE

Agricultural Tillage Practices Over Time

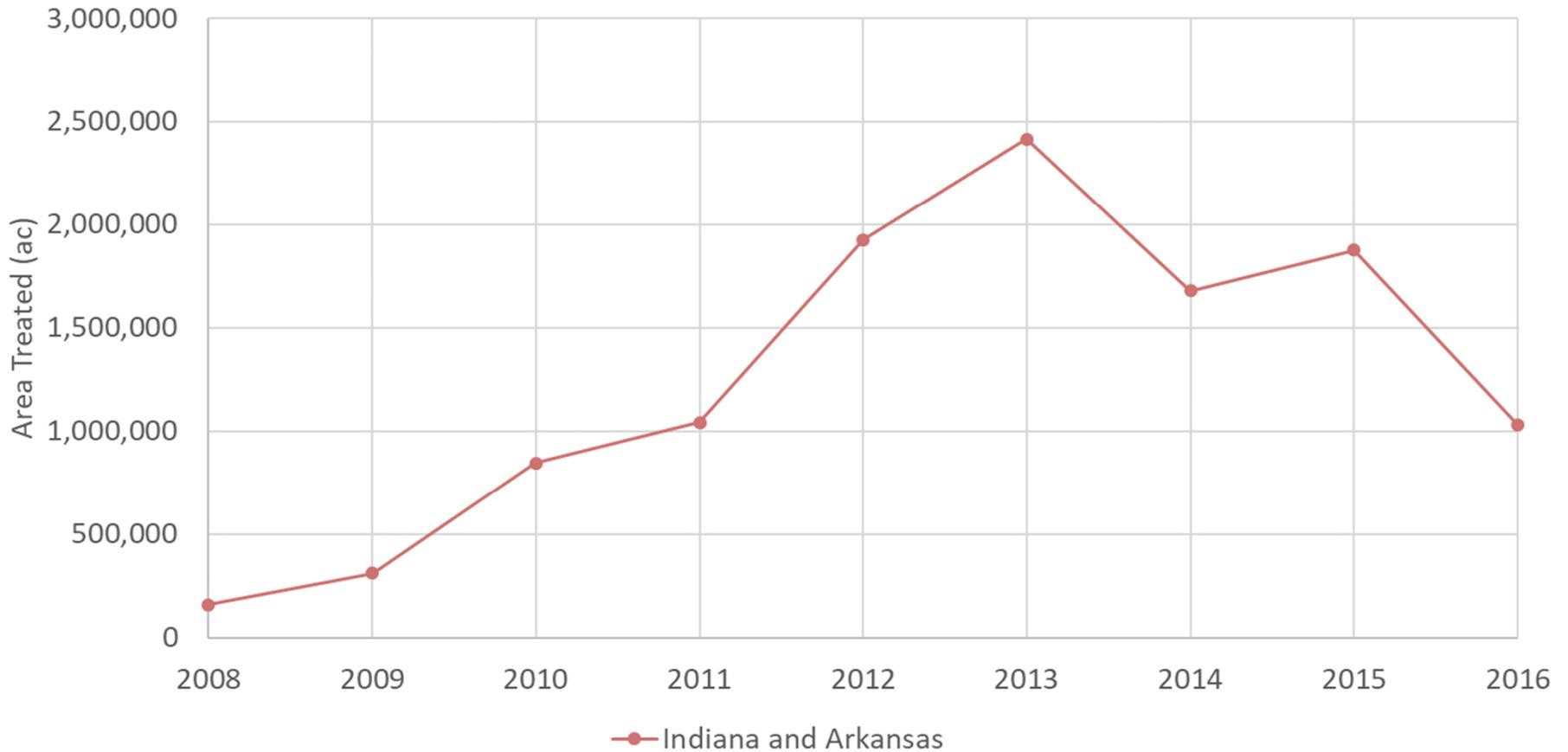


Illinois EPA Section 319 Grant

<u>AGRICULTURE</u>	<u>ACRES</u>
Conservation Tillage (Code 329)	734
Filter Strip (Code 393)	13882
Nutrient Management (Code 590)	107061
Wetland Restoration (Code 657)	464

2008 TO 2016 CONSERVATION PRACTICES

Area Treated over Time



LESSONS LEARNED

- Need to partner with individuals compiling these data
- Quality control is needed at every level
- Some states do not have a pre-developed infrastructure to meet tracking needs
- Important to further quantify nutrient loss reduction
 - Indiana held a workshop in Nov. 2018
 - Arkansas is working through a series of workshops
- Potential to fill reporting gaps
 - Satellite imagery – cover crops and tillage
 - Historic aerial photography – structural practices, etc.
 - Farmer surveys, etc.

2019 ADDITIONAL PILOT STATES:

- Minnesota
 - Helping to fill data gaps and reviewing current data visualizations
- Illinois
 - Trying to add the most relevant data to our Biennial Report
 - Reviewing data sources, data visualization
- Kentucky
 - Starting a science assessment
 - Assessing impact of important animal agriculture-related conservation practices on water quality



Thank you!

Please direct questions to Dr. Reid Christianson (ReidDC@Illinois.edu)