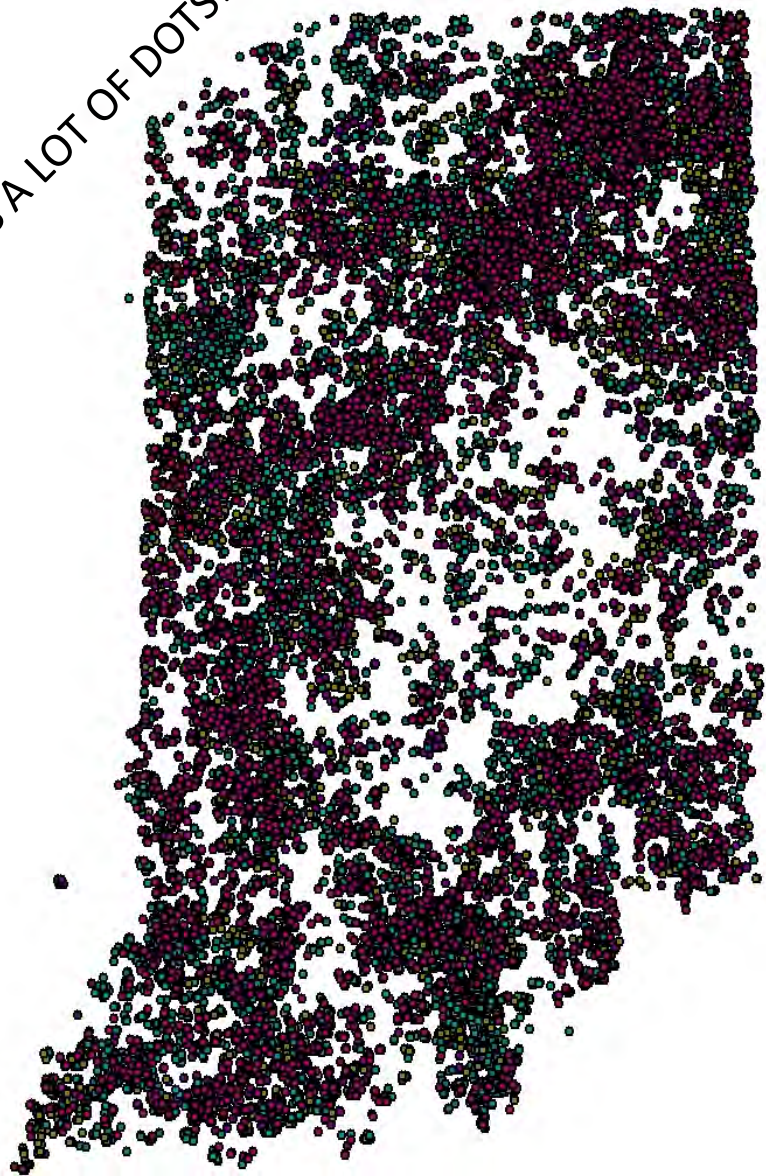


September 30, 2019

Indiana Data Collection Sharing And Telling Our Story

Nathan Stoelting & Laura Fibley
District Support Specialists
Indiana State Dept. of Agriculture

THAT'S A LOT OF DOTS!



Over 73,000 Region 5 Modeled practices since 2013!

Conservation Project Tracking

Indiana has a unique situation

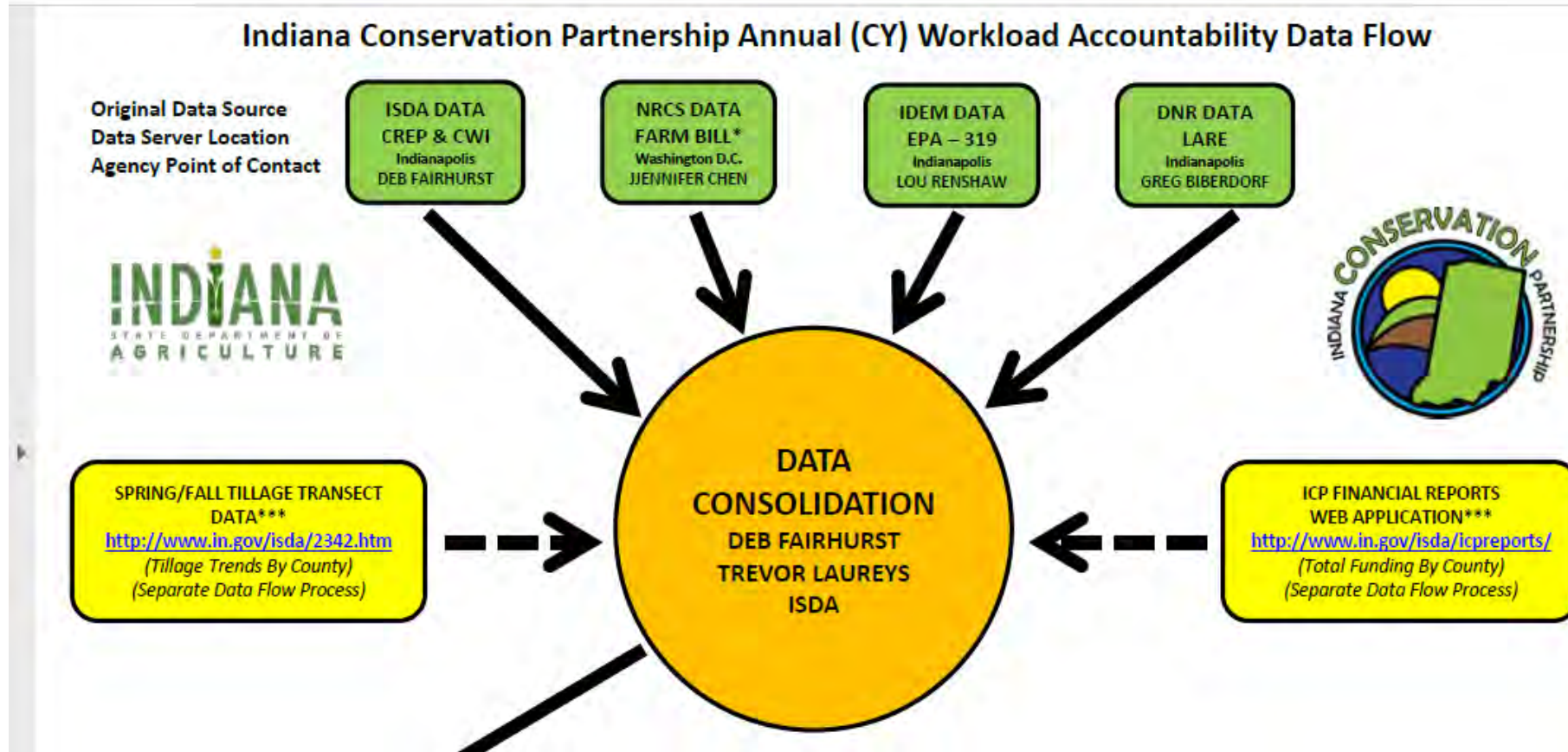
Tracking ALL ICP cost-shared practices since 2013

ICP Conservation Database includes

- » NRCS Applied Conservation Practices/Agronomic
- » SWCD Applied Conservation Practices
- » ISDA-DSC & CWI Applied Conservation Practices
- » DNR-LARE Applied Conservation Practices
- » IDEM-319 Applied Conservation Practices

ONLY state with a comprehensive data sharing agreement with our federal partners

Data Collection Flow Chart



Tracking allows the ICP to monitor the success of cost-share programs in various geographic regions

All conservation data is stored in points geodatabase

Some parameters tracked include

- Practice Name
- Load Reductions
- UTM XY
- Applied Date
- Program
- Size

We can defend the work we do as conservationists as well as the work of private landowners

Western Lake Erie Basin Nutrient and Sediment Load Reductions Accomplished By Private Landowners and the Indiana Conservation Partnership

Comparison of Landuse Across Basin

Land use calculated using the 2018 NASS Cropland Data Layer

Sediment Reduced: 106,342,230 lbs.
Enough to fill 532 freight cars!

Phosphorus Reduced: 67,515 lbs.
Enough to fill 68 truck beds (8' bed)!

Nitrogen Reduced: 136,815 lbs.
Enough to fill 137 truck beds (8' bed)!

Practices do not include the many unassisted practices designed and installed by private landowners without ICP assistance. Nutrient estimates only consider sediment bound N and P, not dissolved components. Load reductions are calculated using the EPA's Region 5 Load Reduction Model.

Calendar Year	Practices Installed	Active Practices	Sediment Reduction (lbs)	Phosphorus Reduction (lbs)	Nitrogen Reduction (lbs)
2013	733	733	102,000,275	58,720	119,310
2014	471	573	69,349,650	39,730	81,345
2015	823	1,007	105,006,120	62,315	126,495
2016	888	1,117	109,751,505	65,650	133,150
2017	1,197	1,446	134,319,580	79,755	161,370
2018	1,177	1,631	106,342,230	67,515	136,815
13-18	5,289		626,769,355	373,685	758,490

The "practices installed" column indicates the number of newly installed best management practices within a given calendar year, while the "active practices" column indicates the number of best management practices that are actively reducing sediment, nitrogen, and phosphorus loading regardless of the year of installation. Load reduction calculations have been rounded to the multiple of 5.


For more information visit: <http://www.in.gov/isda/2991.htm>
 contact: ISDANutrientReduction@isda.in.gov
 Last updated: 3/6/2019

Data provided by: Indiana State Department of Agriculture, Indiana Department of Natural Resources, Indiana Department of Environmental Management, Indiana Soil and Water Conservation Districts, and the USDA Natural Resource Conservation Service.



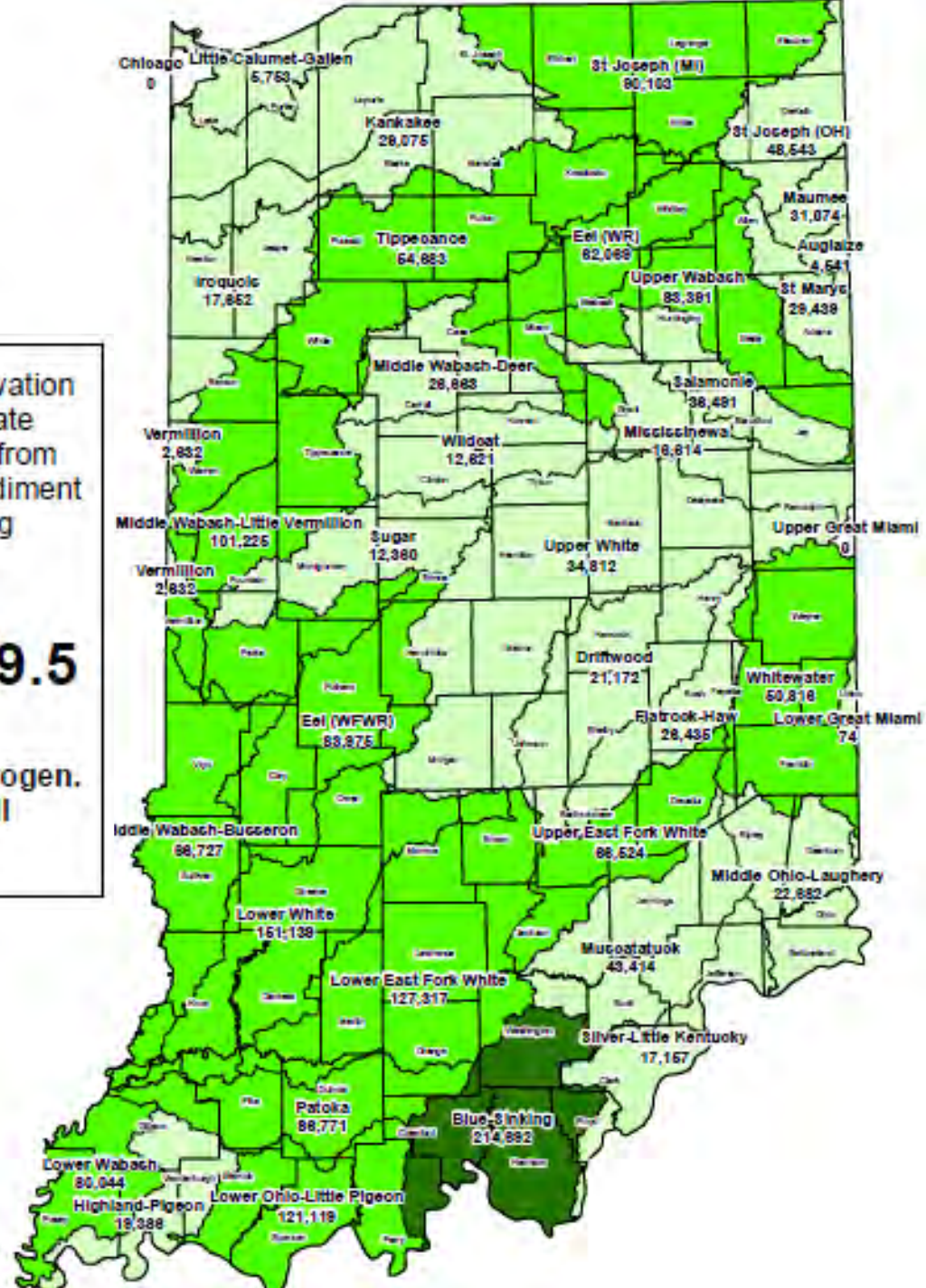
2018 Nitrogen Load Reductions 1,899,185 Pounds

In 2018, voluntary conservation efforts from Indiana's private landowners, with support from the ICP, have reduced sediment and nutrients from entering Indiana's waterways.



X 9.5

1,899,185 pounds of nitrogen.
That's enough to fill
9.5 freight cars.







Based on EPA Region 5 Model analyses conducted on 14,094 conservation practices installed by the Indiana Conservation Partnership January 2018 thru December 2018. This effort does not include the many unassisted practices designed and installed solely by a private landowner without ICP assistance.

Reductions in dissolved nutrients, such as dissolved reactive phosphorus (DRP) and nitrate (NO3), are not accounted for by the Region 5 Model.

March 7, 2019
Trevor Laureys, ISDA Program Manager
Deb Fairhurst, ISDA Program Manager
To learn more about Indiana's Nutrient Reduction Strategy visit: <http://www.in.gov/isda/2991.htm>
For questions and comments email ISDANutrientReduction@isda.in.gov

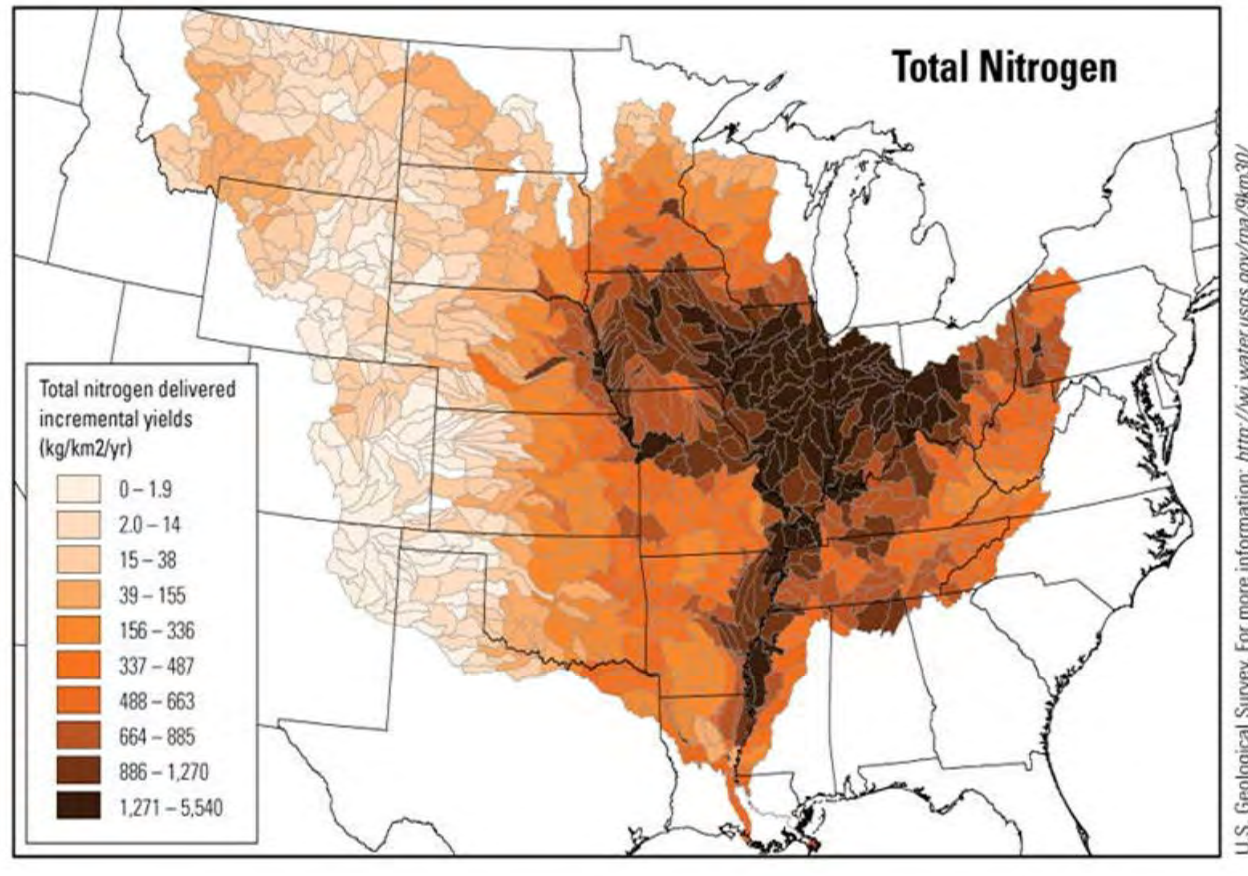
Nitrogen Reductions (lbs./year)

-  No Reported Reductions
-  1 - 50,000
-  50,001 - 200,000
-  200,001 - 300,000

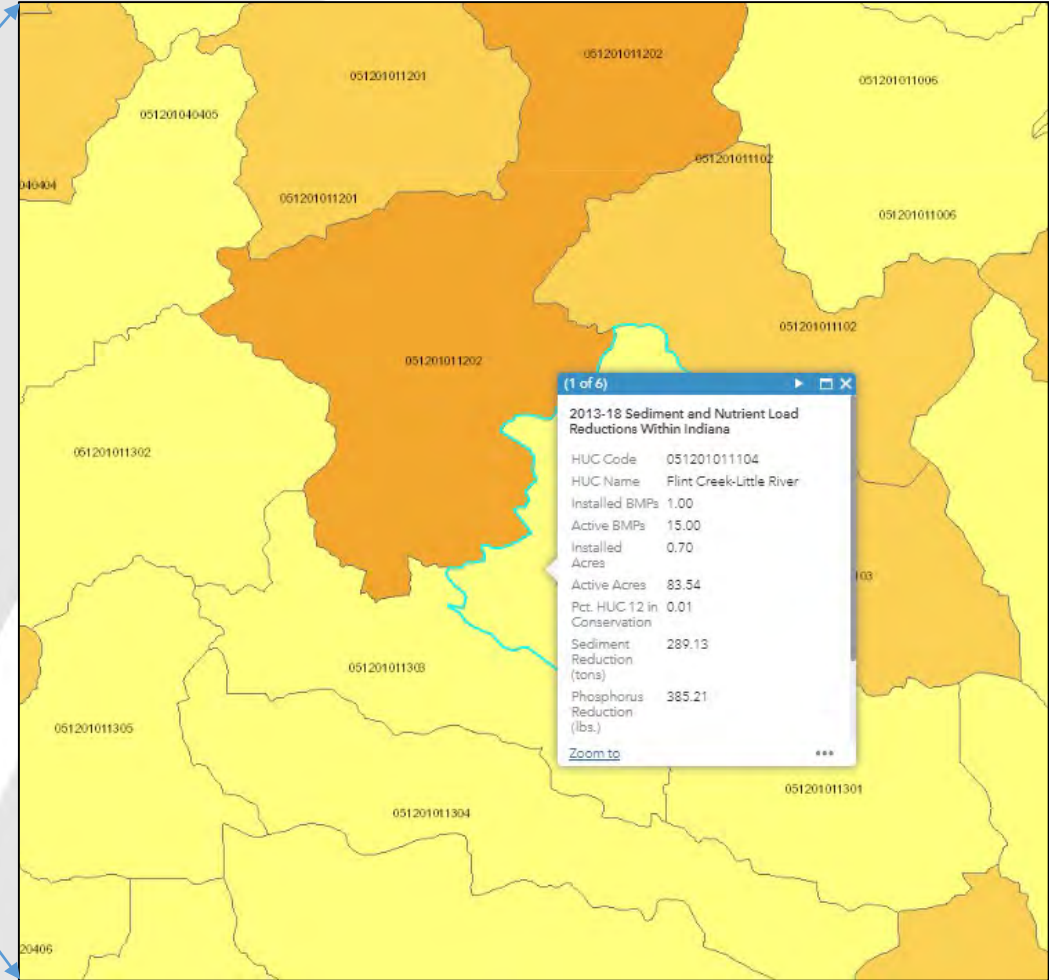
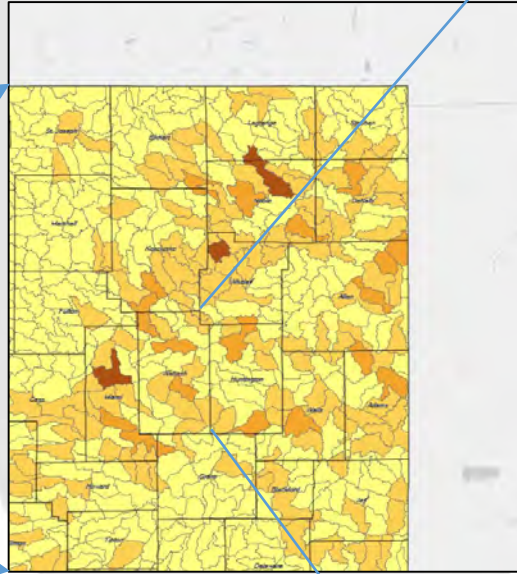
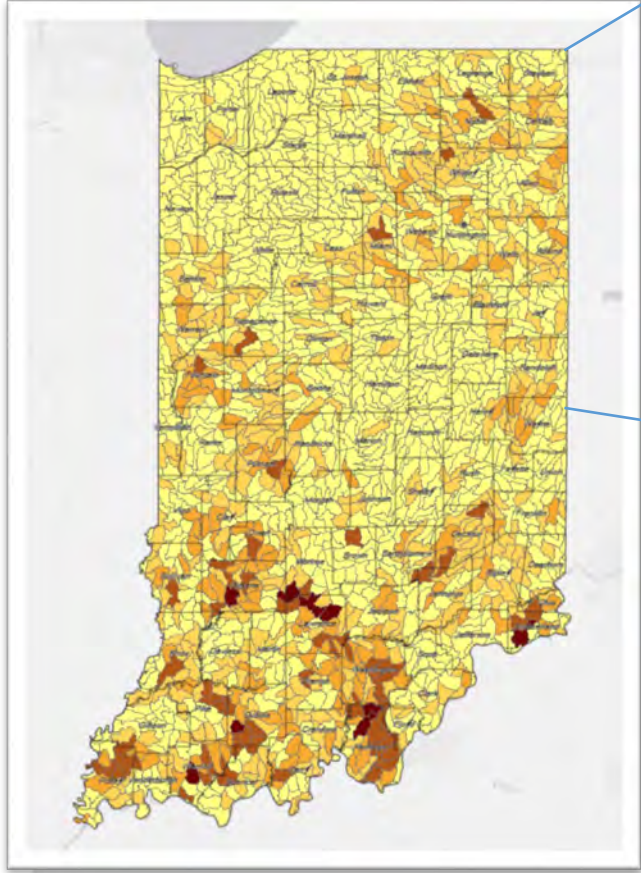
Tracking progress -

Key Regulatory Challenge:

Water Quality as it relates to Nutrients and Non-point Source Runoff

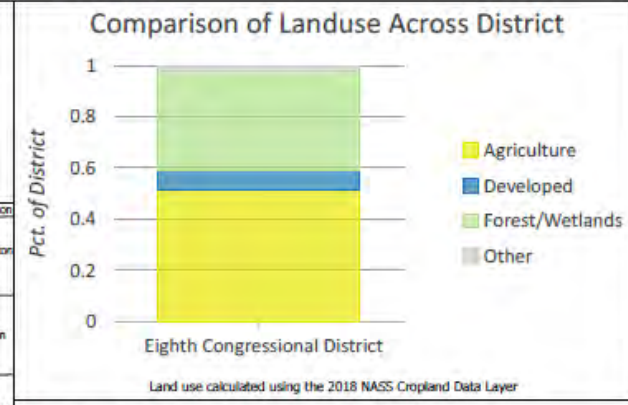


A WHOLE LOT OF DATA




8th Congressional District Nutrient and Sediment Load Reductions

Accomplished By Private Landowners and the Indiana Conservation Partnership




Sediment Reduced: 905,871,620 lbs.
Enough to fill 4,529 freight cars!




x4,529

Phosphorus Reduced: 425,010 lbs.
Enough to fill 425 truck beds (8' bed)!



x425

Nitrogen Reduced: 850,965 lbs.
Enough to fill 850 truck beds (8' bed)!



x850

Practices do not include the many unassisted practices designed and installed by private landowners without ICP assistance. Nutrient estimates only consider sediment bound N and P, not dissolved components. Load reductions are calculated using the EPA's Region 5 Load Reduction Model.

Calendar Year	Practices Installed	Active Practices	Sediment Reduction (lbs)	Phosphorus Reduction (lbs)	Nitrogen Reduction (lbs)
2013	3,129	3,129	729,790,235	343,330	687,005
2014	2,603	3,465	742,172,930	345,865	692,265
2015	2,730	4,047	856,394,375	400,300	801,075
2016	2,254	4,029	751,253,275	352,535	705,780
2017	2,426	4,739	834,775,050	391,060	783,085
2018	3,638	6,268	905,871,620	425,010	850,965
13-18	16,780		4,820,257,485	2,258,100	4,520,175

The "practices installed" column indicates the number of newly installed best management practices within a given calendar year, while the "active practices" column indicates the number of best management practices that are actively reducing sediment, nitrogen, and phosphorus loading regardless of the year of installation. Load reduction calculations have been rounded to the multiple of 5.

For more information visit: <http://www.in.gov/isda/2991.htm> or contact ISDANutrientReduction@isda.in.gov
Last updated: 3/6/2019

Data provided by: Indiana State Department of Agriculture, Indiana Department of Natural Resources, Indiana Department of Environmental Management, Indiana Soil and Water Conservation Districts, and the USDA Natural Resource Conservation Service.

Congressional Districts



in.gov/isda/2991.htm

Why do we use the Region 5 Model?

It's simple, and we need a lot of people with different backgrounds to be able to implement it

Requires little training and no software

Helps us illustrate the value and impact of conservation practice implementation.

The model can locate exact locations to accurately determine load reductions.

GUIDANCE

- Available on SharePoint: <https://ingov.sharepoint.com/sites/ISDAPortal/swcd>
 - Theres a link on the sidebar titled “Region 5 Model”
 - Go here for BMP descriptions http://it.tetratex.com/steplweb/STEPLmain_files/BestManagementPracticesDefinitions.pdf

Practice from SharePoint Conservation Tracking Sheet	Region 5 Model Worksheet	C factor before	C factor after	P factor	Notes	# of Years	LRR	BMP Efficiency Value	Life (in years)
Access Road (560)(ft.)	Ag Fields and Filter Strips	0.9 - 0.7	0.2	1.00	May need to use with HUAP; Contributing Area = 0.5 acres minimum per unit				10
Channel Bed Stabilization (584)(feet)	Bank Stabilization						based on site	0.9	10
Conservation Cover (327)(acres)	Ag Fields and Filter Strips	refer to charts on C factor tab		1.00	Contributing Area: For partial field cover, use drainage area + acreage of seeded area. For whole field cover, use total field acres treated by conservation cover.			S - 0.65, P - 0.75, N - 0.70	5
Constructed Wetland (656)(acres)	Ag Fields and Filter Strips	use default from R5 Model	0.04	1.00	Contributing Area (acres) should be the drainage area for the practice				15
Full Season Grasses (CP1)(acres)	Ag Fields and Filter Strips	refer to charts on C factor tab		1.00	Contributing Area should be acres treated by grass planting.				5
Cover Crop (340)(acres)	Ag Fields and Filter Strips	refer to charts on C factor tab		1.00	Contributing Area should be acres treated by Cover Crop.				1
CP2 Establishment of Permanent Native Grass (ft and acres)(327)	Ag Fields and Filter Strips	refer to charts on C factor tab		1.00	Contributing Area is acreage draining to Filter Strip + acreage of seeded area.			S - 0.65, P - 0.75, N - 0.70	5
CP1 Filter Strips (ft and acres)(393)	Ag Fields and Filter Strips	refer to charts on C factor tab		1.00	Contributing Area is acreage draining to Filter Strip + acreage of seeded area.			S - 0.65, P - 0.75, N - 0.70	5

INDIANA'S TILLAGE & COVER CROP TRANSECT

Windshield survey has been conducted since 1989 (30 YEARS OLD!), established during Indiana's T-2000 movement

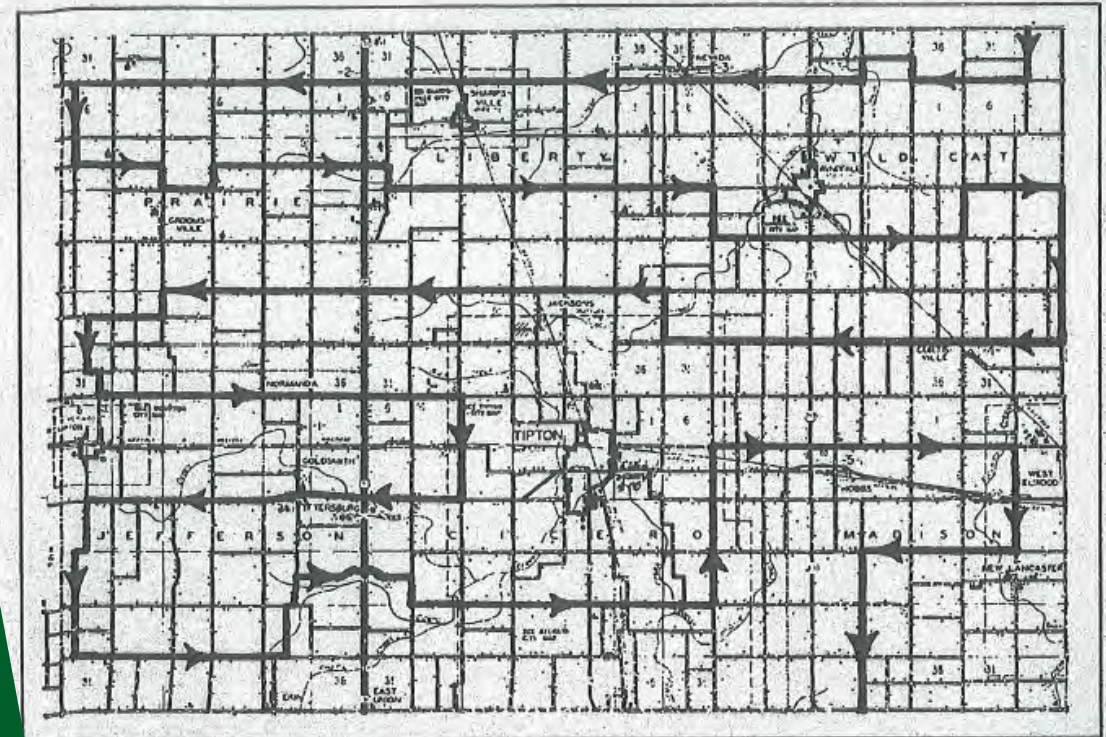
Established originally to:

- Evaluate progress towards T-2000 goals
- Provide SWCDs with information for establishing priorities
- Provide accurate data on tillage systems and crop residue

Predefined "random route" – most county routes still resemble original

A Roadside Survey Method for Obtaining Reliable County- and Watershed-Level Tillage, Crop Residue, and Soil Loss Data

Procedures for Cropland Transect Surveys



Indiana's T-by-2000 Soil Conservation Education Program



Department of Agronomy

Purdue University



SOME QUICK THOUGHTS

1. Methodology suggests “approximately 460 (~900+ observations) different cropland sites will need to be observed along the route” in half-mile intervals
2. In counties with high urbanization, woodlands, etc, collecting data on 460 cropland sites may not be feasible, collect as much as possible
3. Alternate methods have been investigated and supported



DATA ENTRY

COUNTY TRANSECT							
Field No	Prev Crp	Fall Tillage	Residue	Cover Crop	CC Quality	CC Method	Notes
1L	B	N	5	N	N	N	
1R	B	N	5	N	N	N	
2L	B	N	5	N	N	N	
2R	B	N	5	N	N	N	
3L	B	N	5	N	N	N	
3R	B	N	5	N	N	N	
4L	C	N	5	N	N	N	
4R	B	N	5	N	N	N	
5L	B	N	5	N	N	N	
5R	B	N	5	N	N	N	
6L	B	N	5	N	N	N	
6R	B	N	5	N	N	N	
7L	C	N	5	N	N	N	
7R	C	N	5	N	N	N	
8L	B	N	5	N	N	N	
8R	C	M	3	N	N	N	
9L	B	N	5	N	N	N	
9R	B	M	3	N	N	N	
10L	B	N	5	N	N	N	
10R	B	N	5	N	N	N	

TRANSECT DATA REPORT

- **Percent and number of fields with indicated tillage system for each present crop**
 - *Example: corn: 46% no till, 17% mulch till, 10% reduced till, 28% conventional till*
- **County's tillage on cropland - impacts on sheet/rill erosion**
 - *Example: as a result of the actual conservation practices in the county, an estimated 10.1 tons of soil/acre/yr are SAVED!*
- **Estimated acres county corn and soybeans with indicated tillage system for each present crop (based on 2017 NASS data)**
 - *Example: present crop acreage of no till/strip till/ridge till: corn 23,000 acres/ soybeans 31,700 acres*
- **Impacts on diesel fuel**
 - *Example: as a result of the actual tillage practices on the county's corn and soybeans, an estimated 158,400 gallons of diesel fuel in 2018 are SAVED*

TRANSECT DATA EXAMPLE REPORT

DUBOIS County's Tillage on Cropland - Impacts on Sheet/Rill EROSION in 2018:

If each Corn or Soybean site on the 2017 transect in DUBOIS County were:

CONVENTIONALLY TILLED = an estimated **1,363,500** tons of soil would be lost from sheet/rill

DUBOIS County's Conventionally-Tilled Corn will lose **148,198** tons of soil in 2017

DUBOIS County's Conventionally-Tilled Beans will lose **28,003** tons of soil in 2017

REDUCE-TILLED = an estimated **986,340** tons of soil would be lost

DUBOIS County's Reduce-Tilled Corn will lose **57,432** tons of soil in 2017

DUBOIS County's Reduce-Tilled Beans will lose **42,421** tons of soil in 2017

MULCH TILLED = an estimated **850,960** tons of soil would be lost

DUBOIS County's Mulch-Tilled Corn will lose **84,518** tons of soil in 2017

DUBOIS County's Mulch-Tilled Beans will lose **48,370** tons of soil in 2017

NO-TILLED/STRIP/RIDGE TILLED = an estimated **290,100** tons of soil would be lost

DUBOIS County's No-Tilled Corn will lose **81,413** tons of soil in 2017

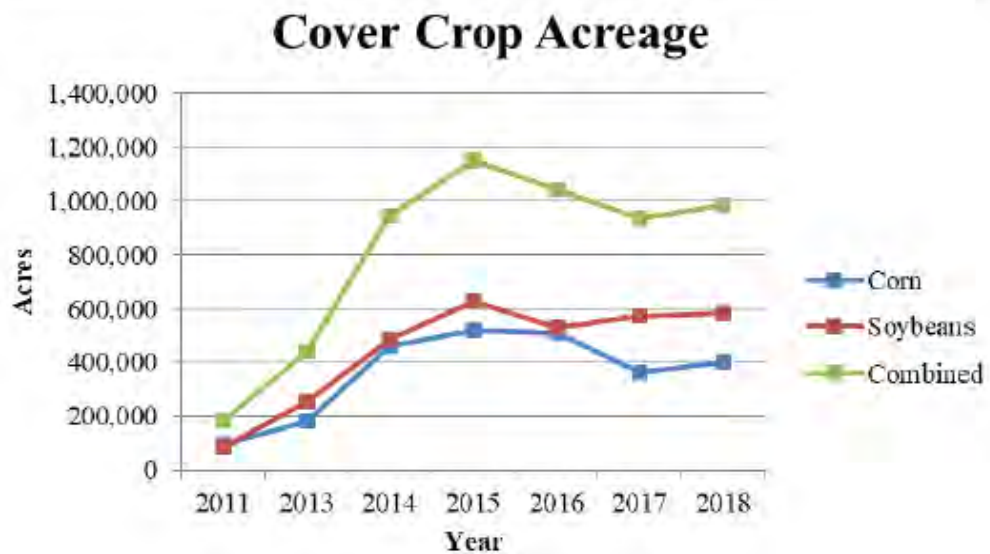
DUBOIS County's No-Tilled Beans will lose **99,377** tons of soil in 2017

As a result of the actual tillage practices on DUBOIS County's Corn and Soybean acres,

*an estimated: **974,800** tons of soil in 2018 are **SAVED!***

Cover Crop and Tillage Transects

in.gov/isda/2383.htm

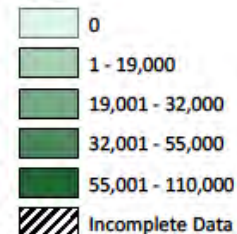


2018 Living Covers Planted in All Crops

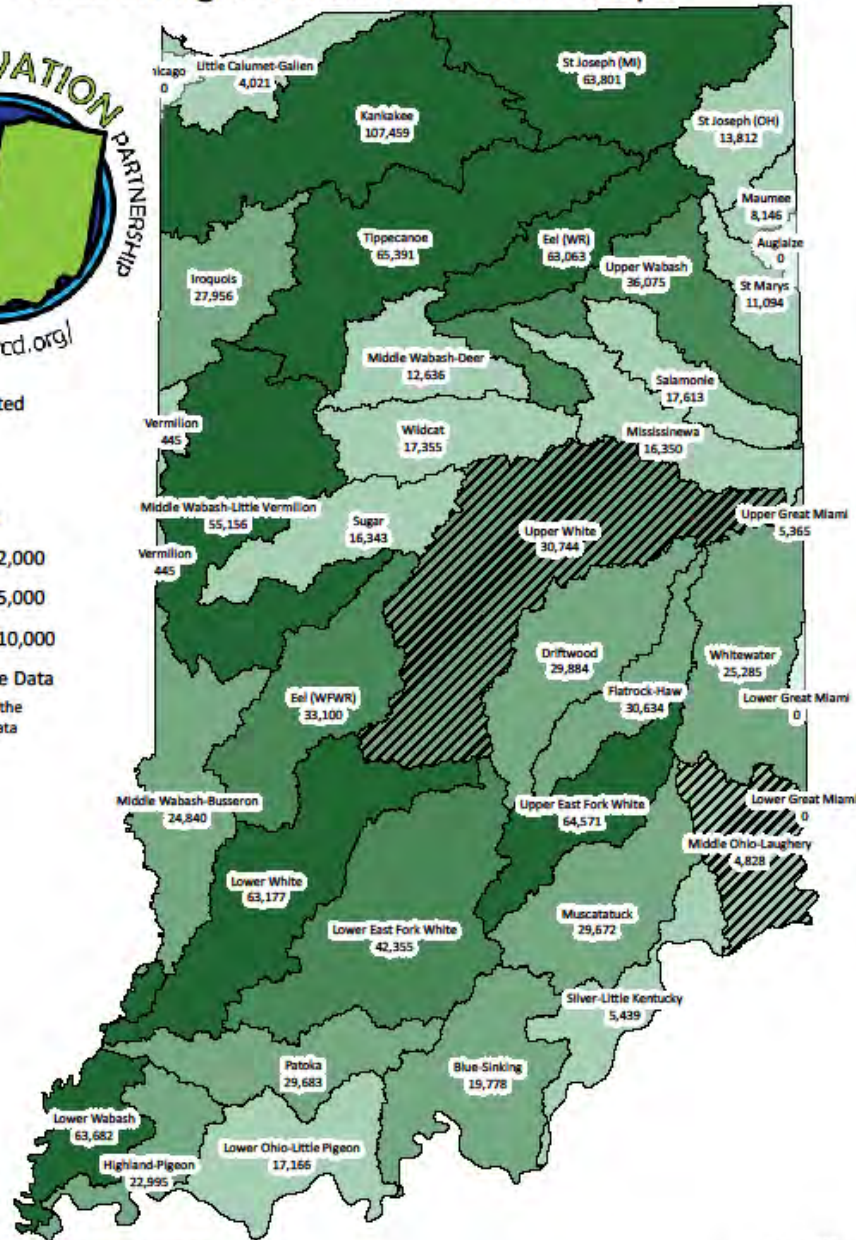


Living Covers Planted

Acres



Acres are based on the 2018 NASS Cropland Data Layers




*Windshield surveys were conducted between November 2018 and April 2019, and therefore may not reflect cover crops or cereal grains that emerged beyond said timeframe. Hamilton and Ohio county data are not included at this time, but will be updated in time. Marion County does not conduct Tillage and Cover Crop Transects due to heavy urbanization.

SHARING THE STORY

- *The big picture*
 - *Showcases voluntary conservation work*
 - *Accountability*
 - *Staffing decisions*
- *Other local uses:*
 - *Grant applications*
 - *Working with local officials*
 - *Targeting cost-share programs*
 - *Identifying need*
 - *New customers*

WASHINGTON COUNTY SOIL AND WATER CONSERVATION DISTRICT




CONSERVATION

NUTRIENT REDUCTION LOADS: A REVIEW

RESULTS: CLEANER STREAMS AND HEALTHIER LAND

In 2014, by adopting voluntary land and water conservation practices, **Washington County landowners and operators have prevented 35,496 tons of sediment,**

planting crops for the protection and enrichment of the soil (cover crops), and establishing grasses for livestock that reduce erosion (pasture and hayland seeding.) Funding for these projects comes from a variety of sources. The Soil and Water Conservation District



IN 2015, THE CROPLAND TRANSECT SURVEY INDICATED THE FOLLOWING TONS OF SOIL PER ACRE PER YEAR ARE SAVED IN WASHINGTON COUNTY:

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