

AGRICULTURE WATER QUALITY PARTNERSHIP FORUM

MEETING 3

FEBRUARY 23, 2016

Introductions

Illinois EPA

Lisa Bonnett (Marcia Willhite)

IDA

Warren Goetsch

USDA-NRCS

Ivan Dozier (Eric Gerth)

IDNR

James Herkert

AISWCD

Kelly Thompson

The Nature Conservancy

Maria Lemke

IFCA

Jean Payne

American Farmland Trust

Mike Baise

Prairie Rivers Network

Kim Knowles

Illinois Farm Bureau

Lauren Lurkins

Illinois Pork Producers Association

Jennifer Tirey

Illinois Soybean Association

Amy Roady

University of Illinois - Extension

George Czapar

Farm Service Agency

Scherrie Giamanco (Kim Martin)

Illinois Certified Crop Advisor Board of Directors

Tom Kelley

Illinois Stewardship Alliance

Lindsey Record

Illinois Soc of Prof. Farm Man. & Rural Appr.

Randy Fransen

Illinois Corn Growers Association

Rodney Weinzierl

Committee Charge

Agriculture Water Quality Partnership Forum

- Steer and coordinate outreach and education efforts to help farmers address nutrient loss and select the most appropriate BMPs:
 - Identify needed education initiatives or training requirements for farmer and technical advisors.
 - Strengthen connections between industry initiatives, certified crop advisor continuing education requirements, state initiatives, and other technical services.
- Track BMP implementation
- Coordinate cost sharing and targeting
- Develop other tools as needed
 - Consider an agriculture water quality certification program.

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OUTREACH & EDUCATION UPDATE

Outreach and Education

Outreach to absentee land owners/farm managers

- How do we reach out to absentee landowners through farm managers?
 - Written material?
 - Face to face meetings?

Needs and next steps

Committee Charge

Agriculture Water Quality Partnership Forum

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- **Track BMP implementation**
- Coordinate cost sharing and targeting
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 - Consider an agriculture water quality certification program.

PRIORITY WATERSHEDS

Illinois Nutrient Loss Reduction Strategy Nutrient Monitoring Council

3rd Meeting, 12/3/15, Urbana, IL



Introductions

Illinois EPA

Gregg Good, Rick Cobb

Illinois State Water Survey

Laura Keefer

Illinois Natural History Survey

Andrew Casper

Illinois Dept. of Natural Resources

Ann Holtrop

University of Illinois

Mark David

Sierra Club

Cindy Skrukrud

MWRDGC

Justin Vick

Illinois Corn Growers Association

Laura Gentry

U.S. Army Corp of Engineers-Rock Island

Marvin Hubbell

U.S. Geological Survey

Kelly Warner (temp assign)

National Center for Supercomputing Apps

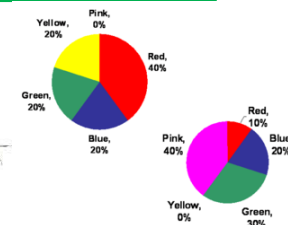
Jong Lee

Aqua America

Kevin Culver (pending)

NMC Charges (Revised 10/26/15)

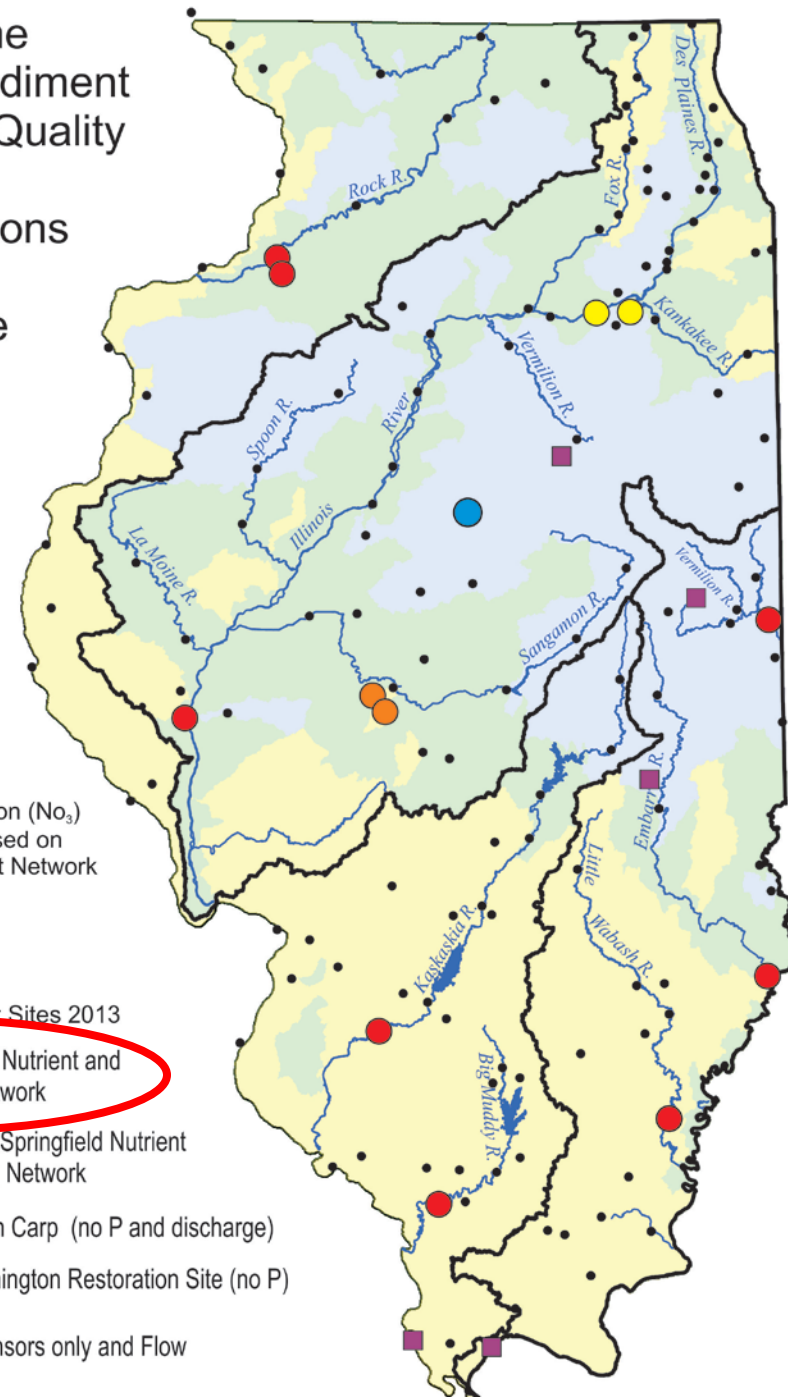
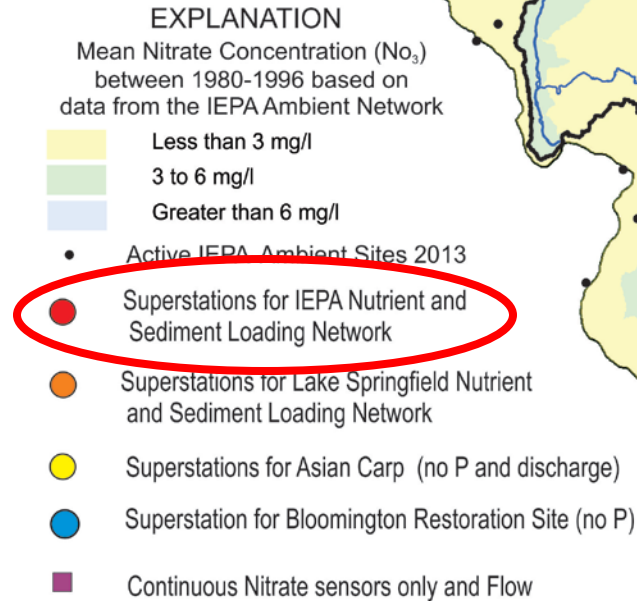
1. Coordinate the development and implementation of monitoring activities (e.g., collection, analysis, assessment) that provide the information necessary to:
 - a. Generate estimations of 5-year running average loads of Nitrate-Nitrogen and Total Phosphorus leaving the state of Illinois compared to 1980-1996 baseline conditions; and
 - b. Generate estimations of Nitrate-Nitrogen and Total Phosphorus loads leaving selected NLRS identified priority watersheds compared to 1997-2011 baseline conditions; and
 - c. Identify Statewide and NLRS priority watershed trends in loading over time using NMC developed evaluation criteria.
2. Document local water quality outcomes in selected NLRS identified priority watersheds, or smaller watersheds nested within, where future nutrient reduction efforts are being implemented (e.g., increase in fish or aquatic invertebrate population counts or diversity, fewer documented water quality standards violations, fewer algal blooms or offensive conditions, decline in nutrient concentrations in groundwater).
3. Develop a prioritized list of nutrient monitoring activities and associated funding needed to accomplish the charges/goals in (1) and (2) above.



The Plan

- › Rock River
- › Green River
- › Illinois River
- › Kaskaskia River
- › Big Muddy
- › Little Wabash
- › Embarras River
- › Vermilion River

Illinois Real-Time
Nutrient and Sediment
Surface-Water-Quality
and Discharge
Monitoring Stations
(Super Gages)
Operated by the
USGS



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



The cover of the Illinois Nutrient Loss Reduction Strategy report. It features the title "ILLINOIS NUTRIENT LOSS REDUCTION STRATEGY" at the top, a logo with a stylized city and green hills, and a photograph of a large brown building on a bridge over a river. At the bottom, there are logos for the Illinois Department of Agriculture and the Illinois Environmental Protection Agency.



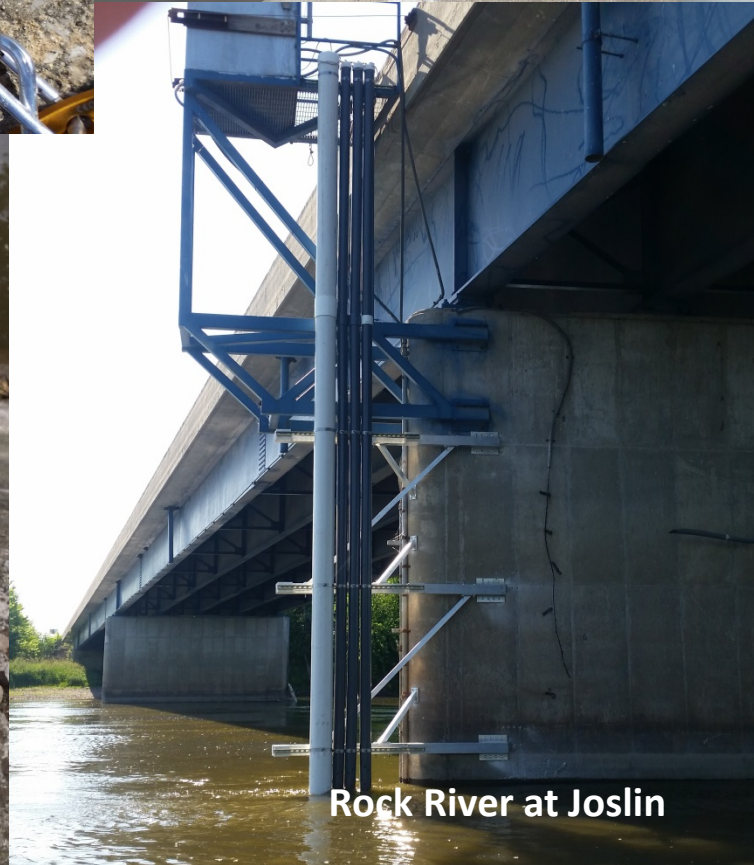
Kaskaskia at New Athens



Little Wabash
at Carmi



Green River at Geneseo



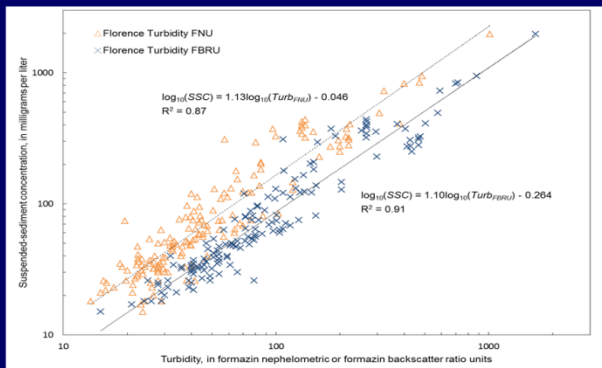
Rock River at Joslin

Future Plans

- Build record for surrogates (2015-2016)
- Report w/surrogate relationships (2016-2017)

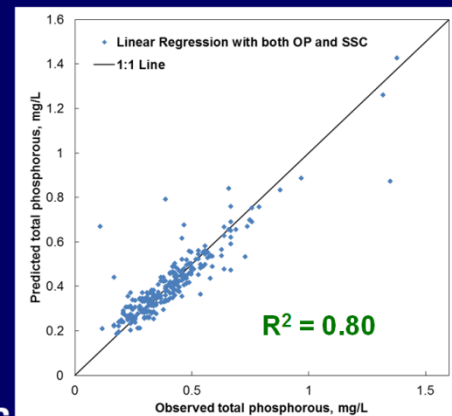
Turbidity and SSC at the Illinois River at Florence

To measure suspended sediment concentration, USGS uses Turbidity as a surrogate



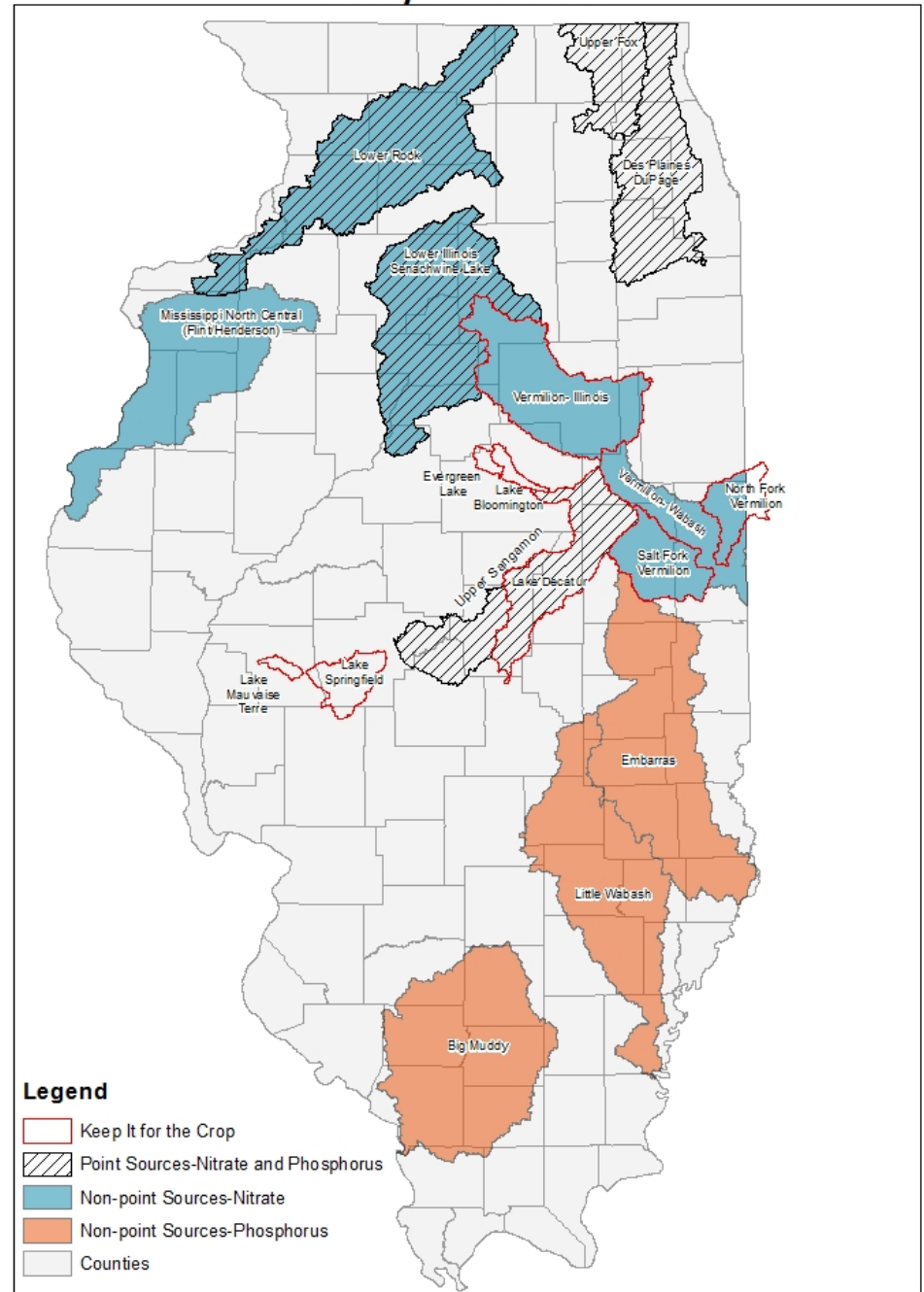
Total Phosphorus Predicted with Orthophosphorus and Suspended Sediment (IL River Valley City 1991 – 2013)

$$TP = 0.109 + 1.1 OP + 0.00063 SSC$$



But what about:

- generating loading estimates and loading trends for some or all 18 priority watersheds?
- trying to show local water quality improvements (outcomes)?



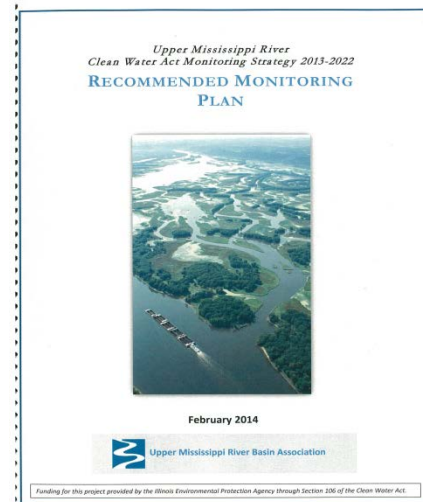
NEXT STEP: *Watershed Nutrient Monitoring Plan* development in NLRs High Priority Watersheds

- Goal would be to develop detailed *Watershed Nutrient Monitoring Plans and Associated Costs* for ALL NLRs high priority watersheds that:
 - Estimate N and P Loads
 - Trends
 - Water Resource Quality Outcomes

➤ **But where do we start?**

➤ In watersheds where a lot of work is already ongoing, that's where!

➤ So where are these top 5 or 6 watersheds?



“Top 10 6” NLRs Watersheds with Lots of Ongoing Monitoring

(NMC meeting 9/16/15)

- Lake Springfield
- Lake Decatur
- Rock River
- Chicago/Little Calumet
- Upper Salt Fork
- “Middle Fox” River



Are these the same watersheds where most implementation work is/will be targeted?

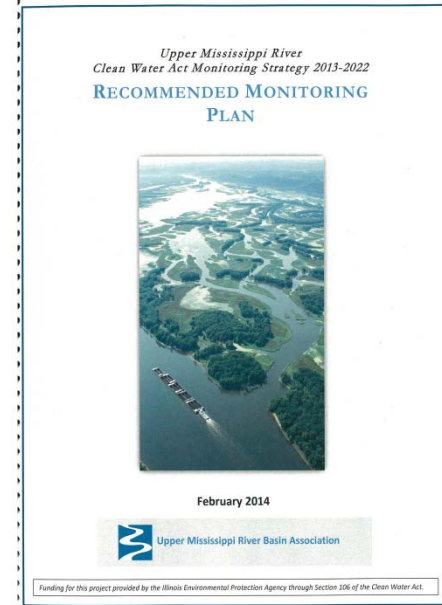
- Ag Water Quality Partnership Forum meeting (Sept. 22, 2015) notes:
 - *“Similar to what the Nutrient Monitoring Council (NMC) did, the group looked at the NLRs Fig. 4.2 Priority Watershed map to select watersheds that include existing and future BMPs. This will help the NMC determine where more monitoring is needed. The following watersheds were discussed:”*
 - Lake Springfield*
 - Lake Decatur*
 - Lake Bloomington
 - Vermilion River (Indian Creek + Vermilion Headwaters)
 - N. Fork Vermilion (L. Vermilion)**
 - L. Mauvaise Terre (Jacksonville)
 - Kaskaskia River
 - Lower Illinois River
- * also named by the NMC ** nearby a NMC-named watershed



What would a *Watershed Nutrient Monitoring Plan* look like?

- Background
- Overall Scope and Goals
- Monitoring Function (e.g., loads, trends, local WQ improvements)
- Monitoring Design (e.g., targeted, fixed, probabilistic, follow-up,chemical, physical, and biological indicators)
- Implementation (e.g., staffing-who?, timeline, costs, funding/in-kind resources, next steps)

Developed *NLRS Priority Watershed Nutrient Monitoring Plans* allow us to be ready to rock n' roll when resources become available!



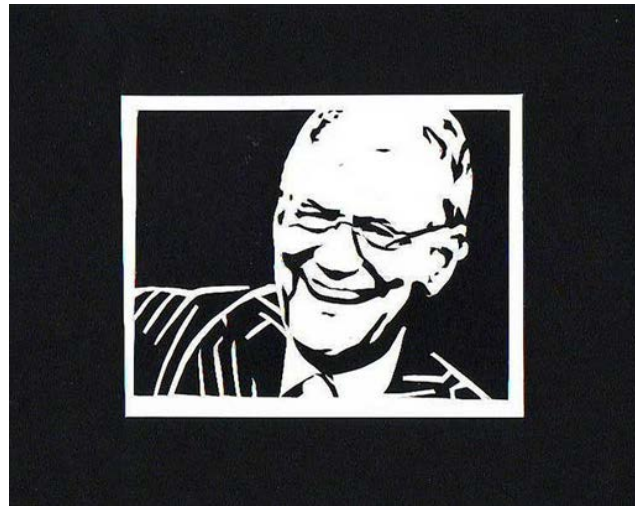
Watershed Nutrient Monitoring Plan

Questions for Future Discussion

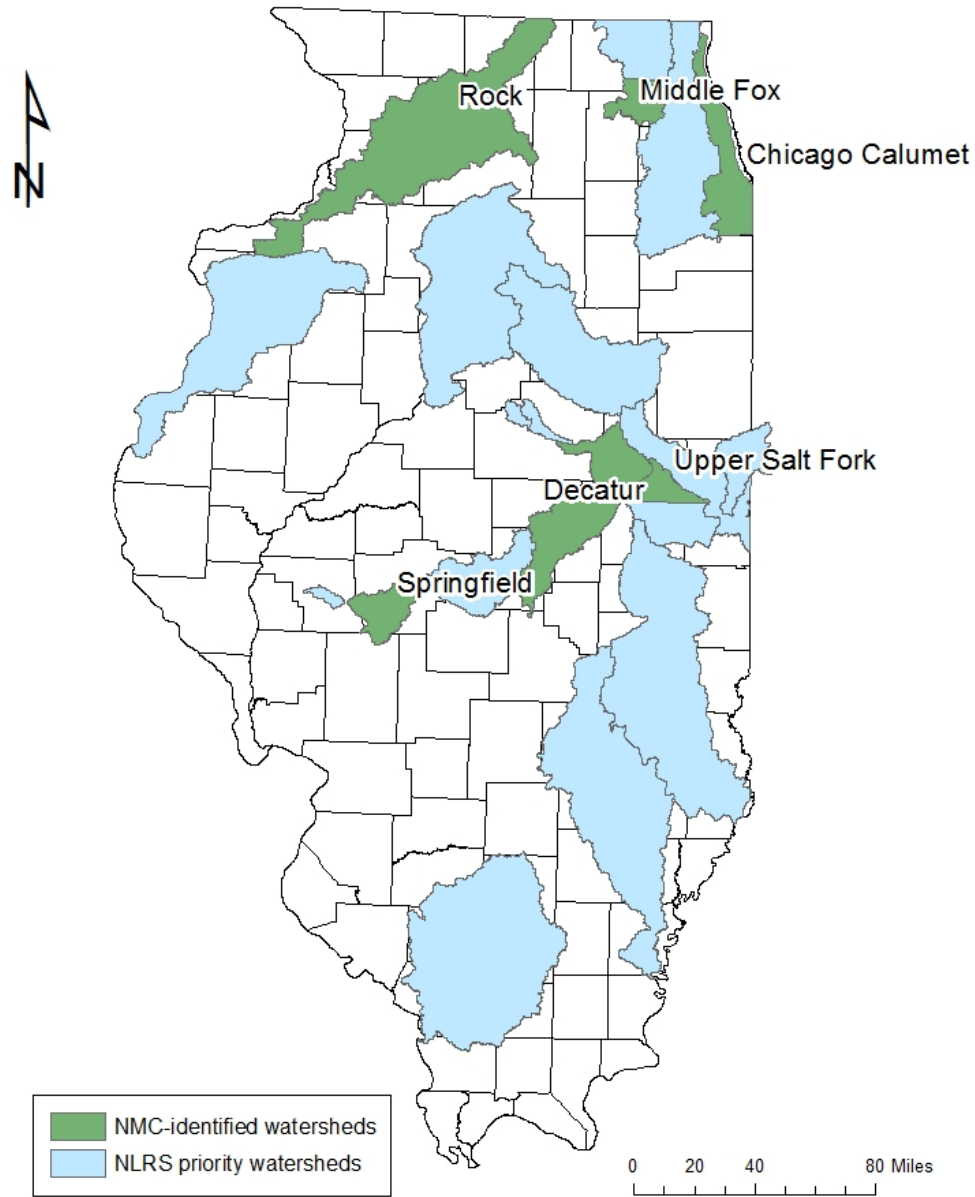


- Hoo Hoo develops each plan?
 - Are these “other duties as assigned?”
 - Will there be a budget for their development?
- How do we ultimately retrieve, aggregate, and display monitoring data collected by multiple organizations? (Jong Lee, Great Lakes to Gulf Virtual Observatory)
- How do we “assess” loadings, trends, and water resource quality improvements?
 - Assessment methodologies decided on will drive data needs.
 - Do we need a NMC-Assessment Methodologies Subcommittee?
- Lots of questions to explore. (Cindy Skrukrud, Fox River)

If so, lets look at the “Top 6” NLRS Watersheds with Lots of Ongoing Monitoring

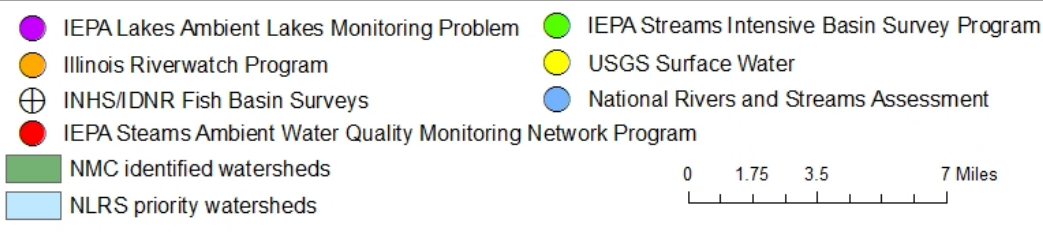
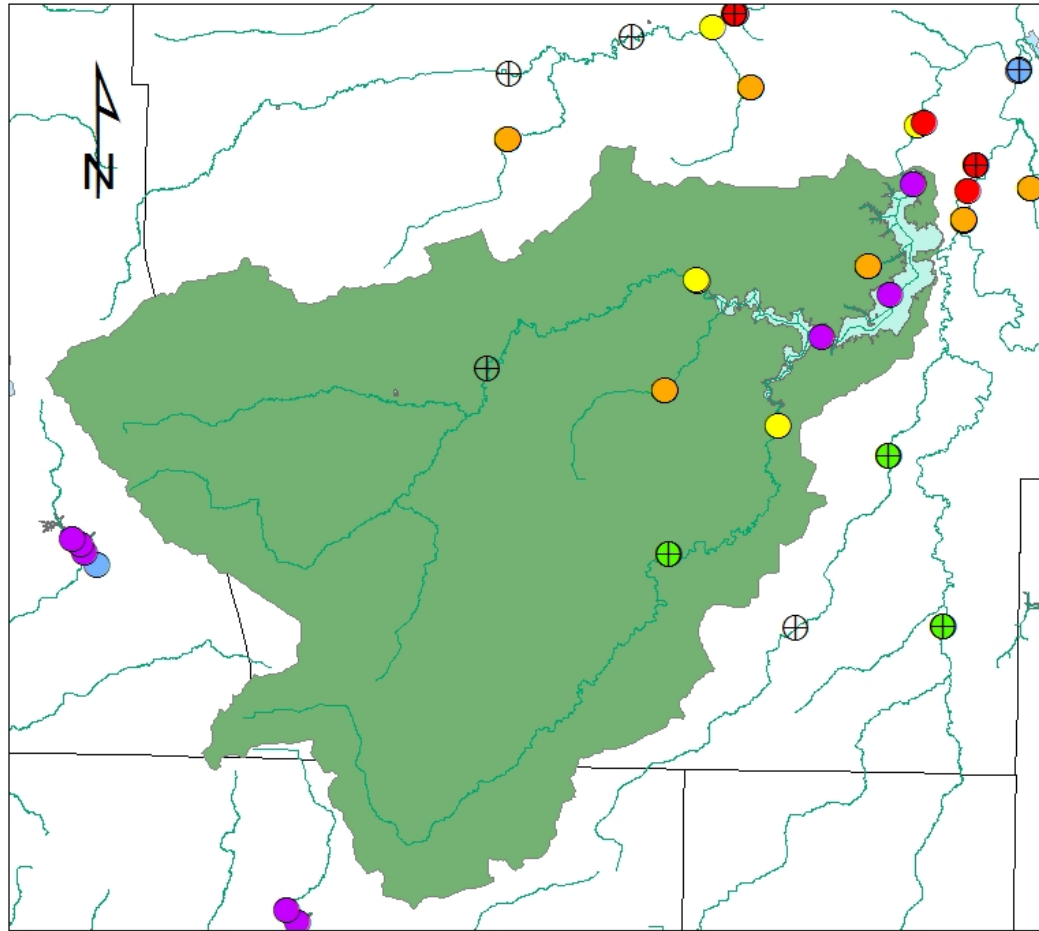


Most Monitored Watersheds



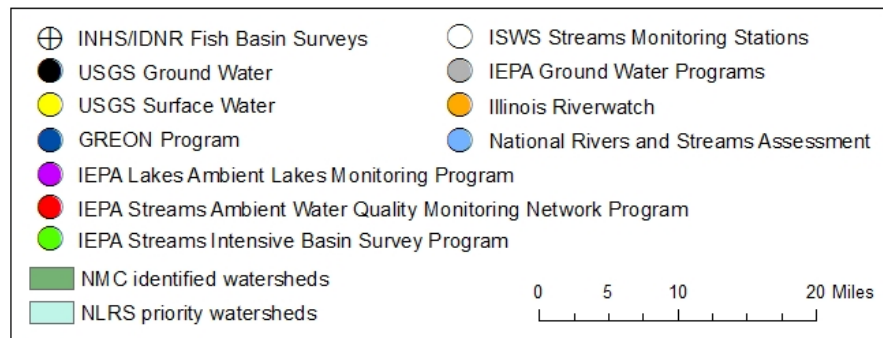
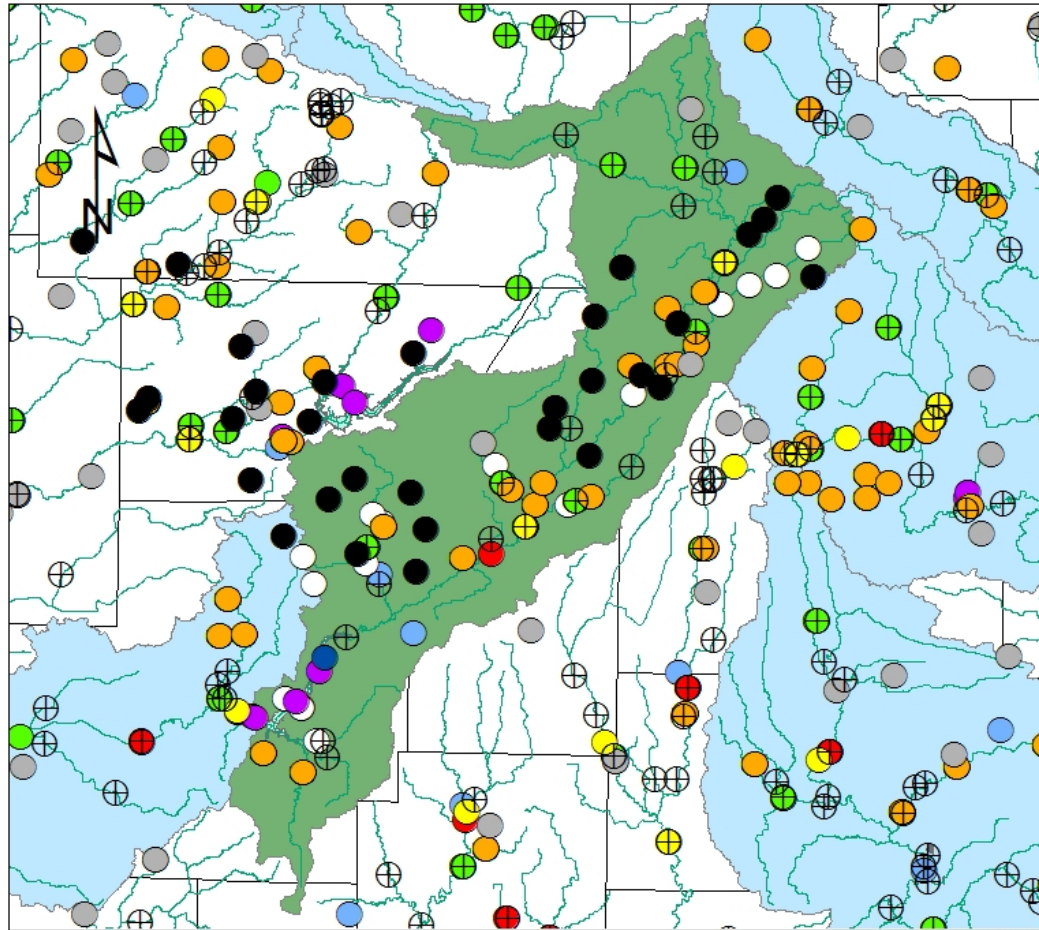
*As identified by the Illinois Nutrient Monitoring Council

Aggregated Lake Springfield Watershed*



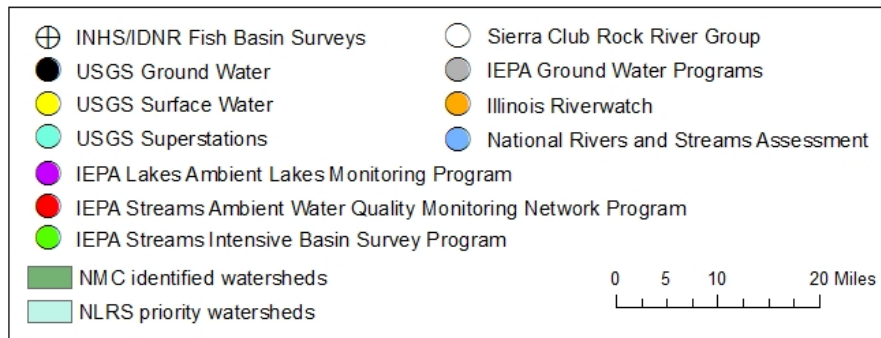
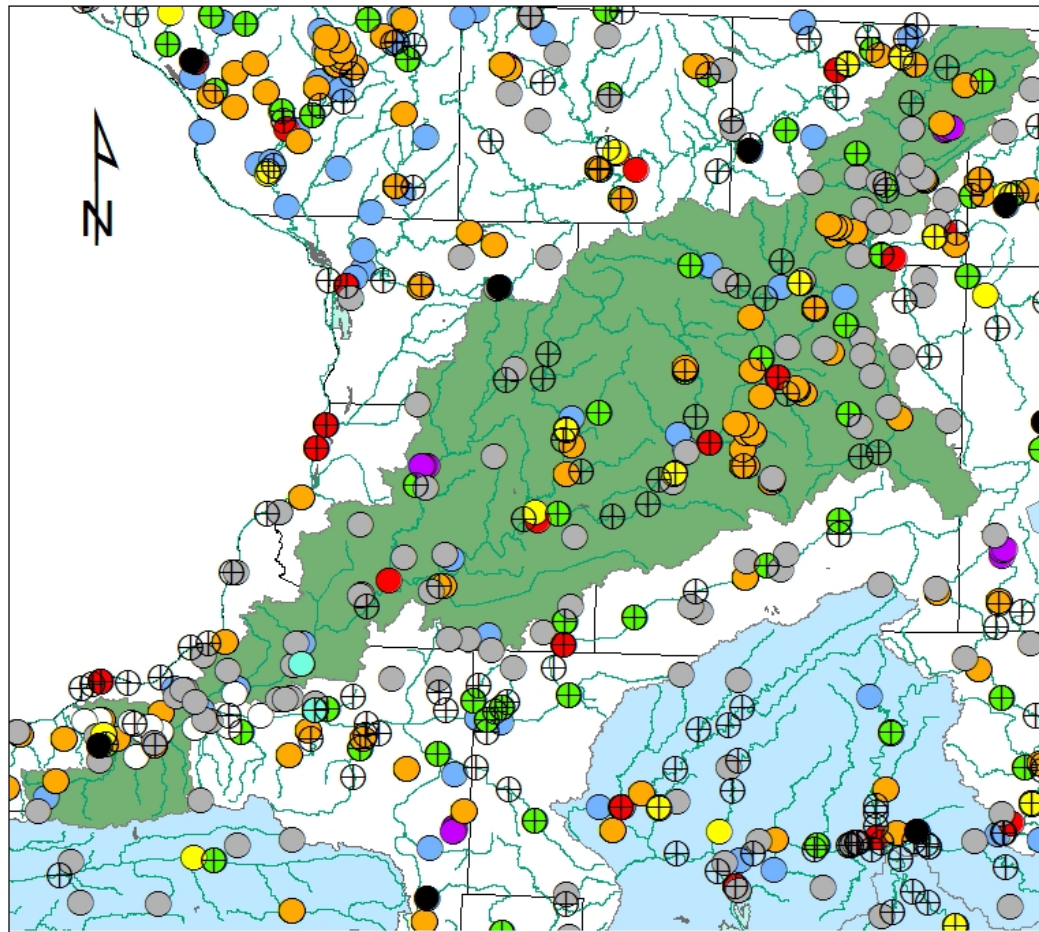
*As identified by the Illinois Nutrient Monitoring Council

Aggregated Lake Decatur Watershed*



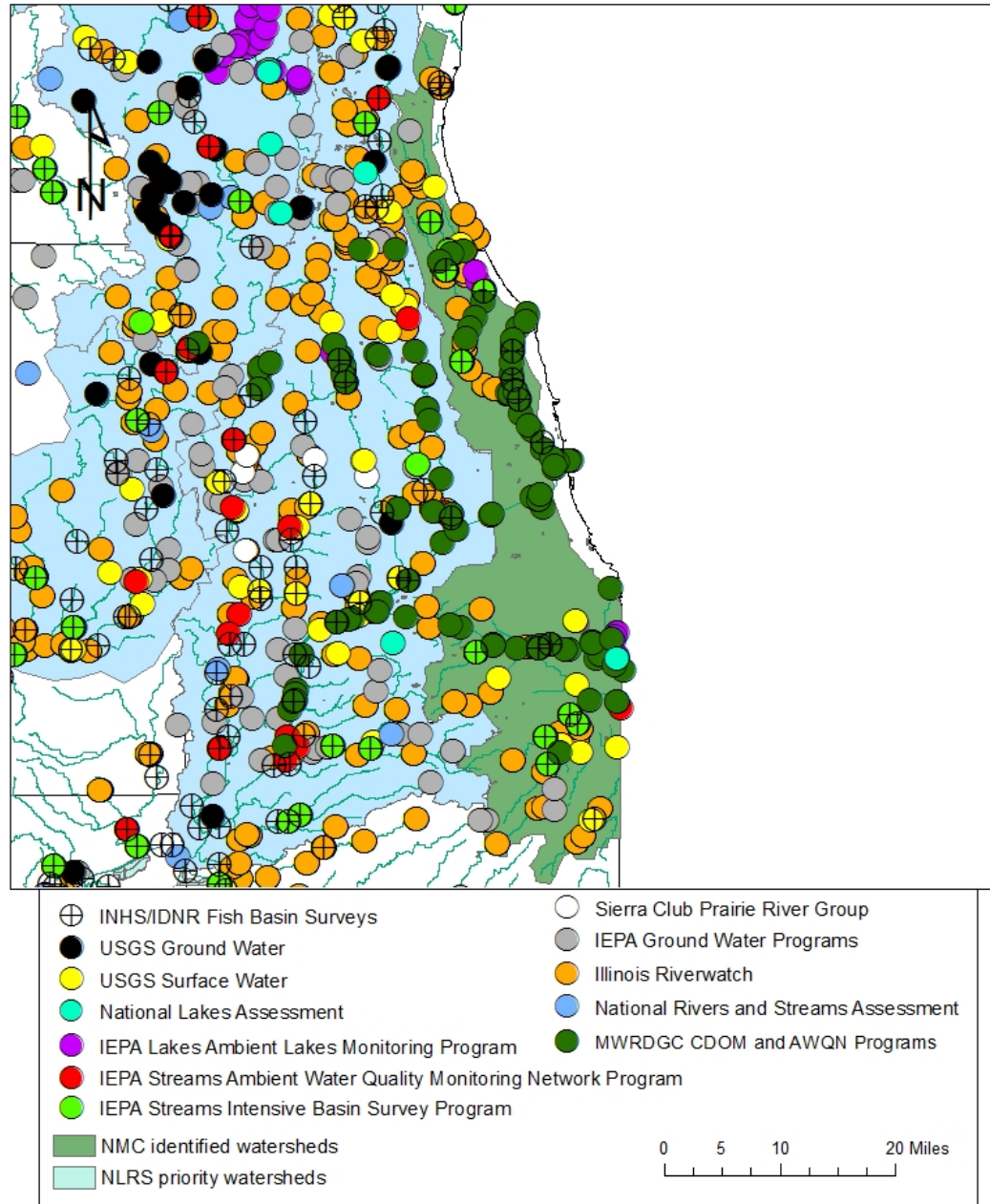
*As identified by the Illinois Nutrient Monitoring Council

Aggregated Rock River Watershed*



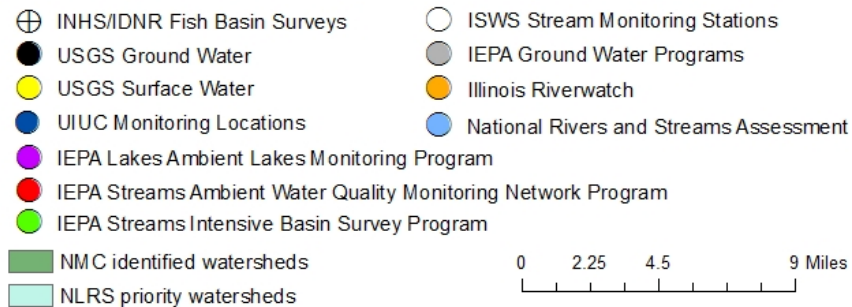
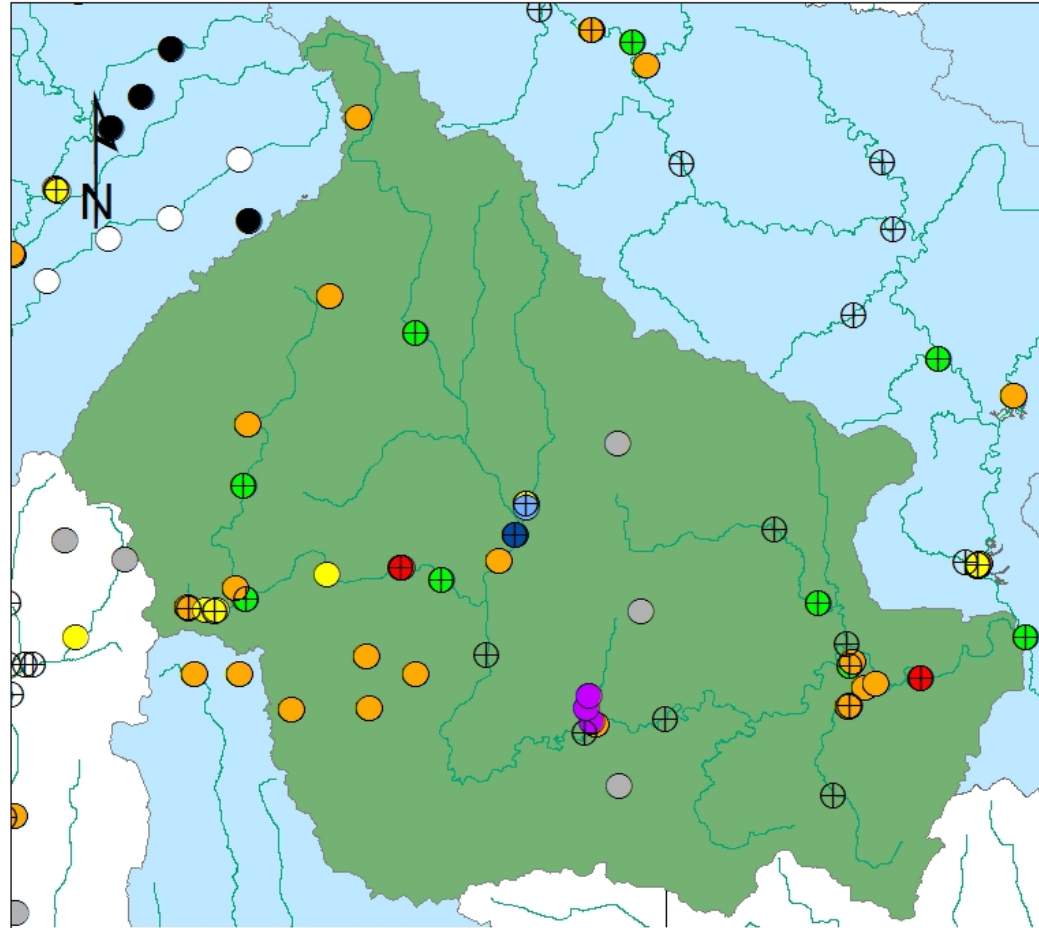
*As identified by the Illinois Nutrient Monitoring Council

Aggregated Chicago/Little Calumet Watershed*



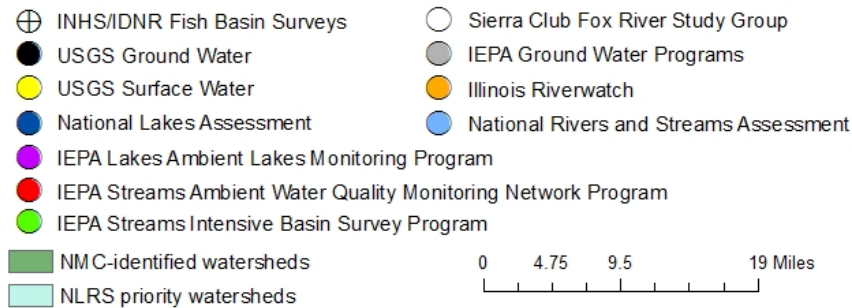
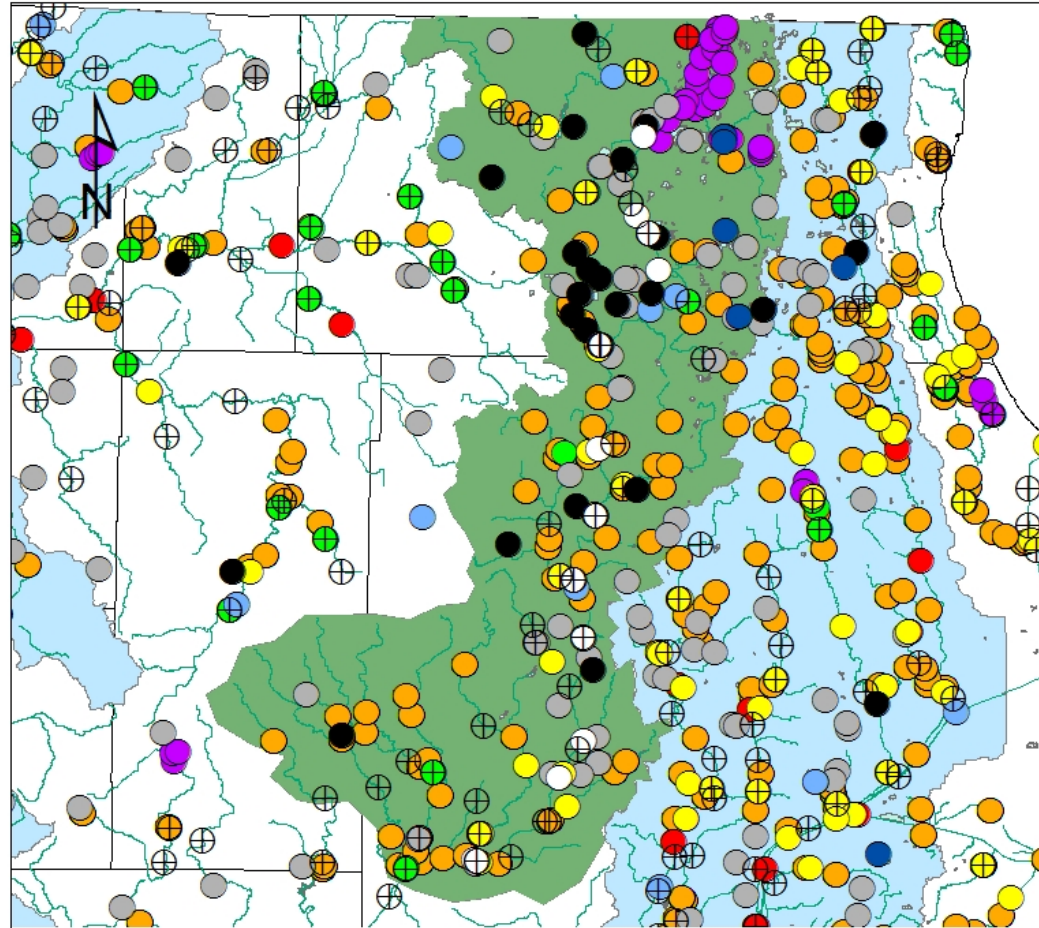
*As identified by the Illinois Nutrient Monitoring Council

Aggregated Salt Fork Watershed*



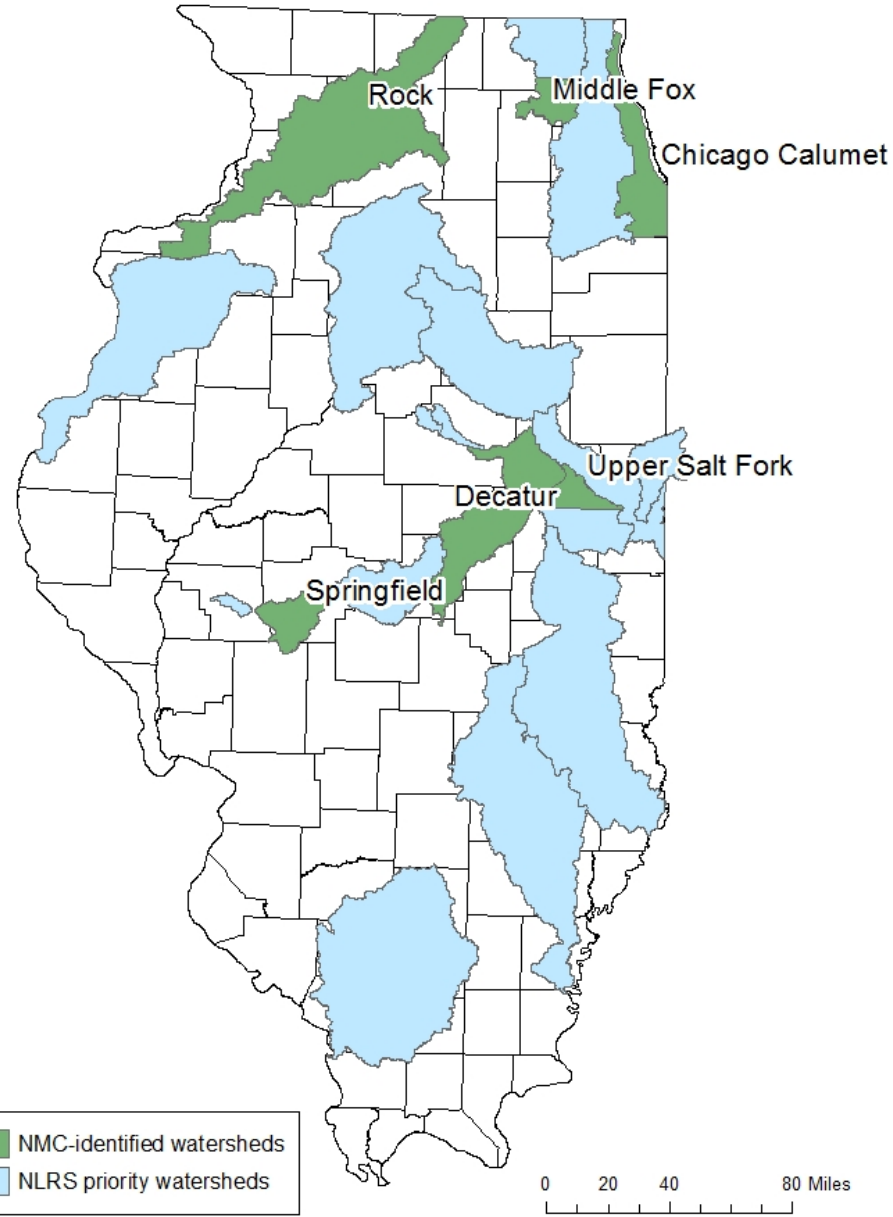
*As identified by the Illinois Nutrient Monitoring Council

Aggregated Upper Fox/Northern Lower Fox ??? Watershed*



*As identified by the Illinois Nutrient Monitoring Council

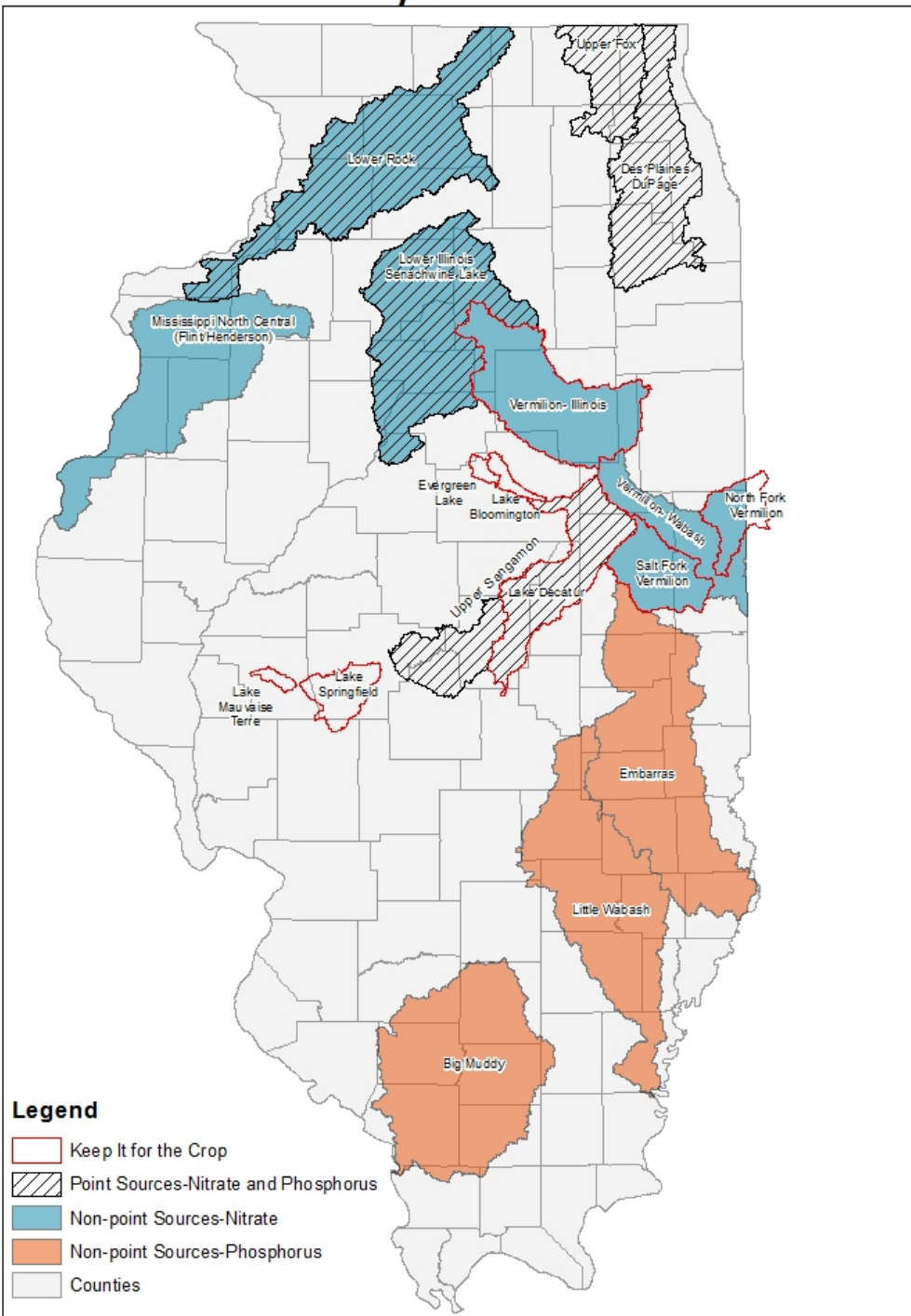
Most Monitored Watersheds



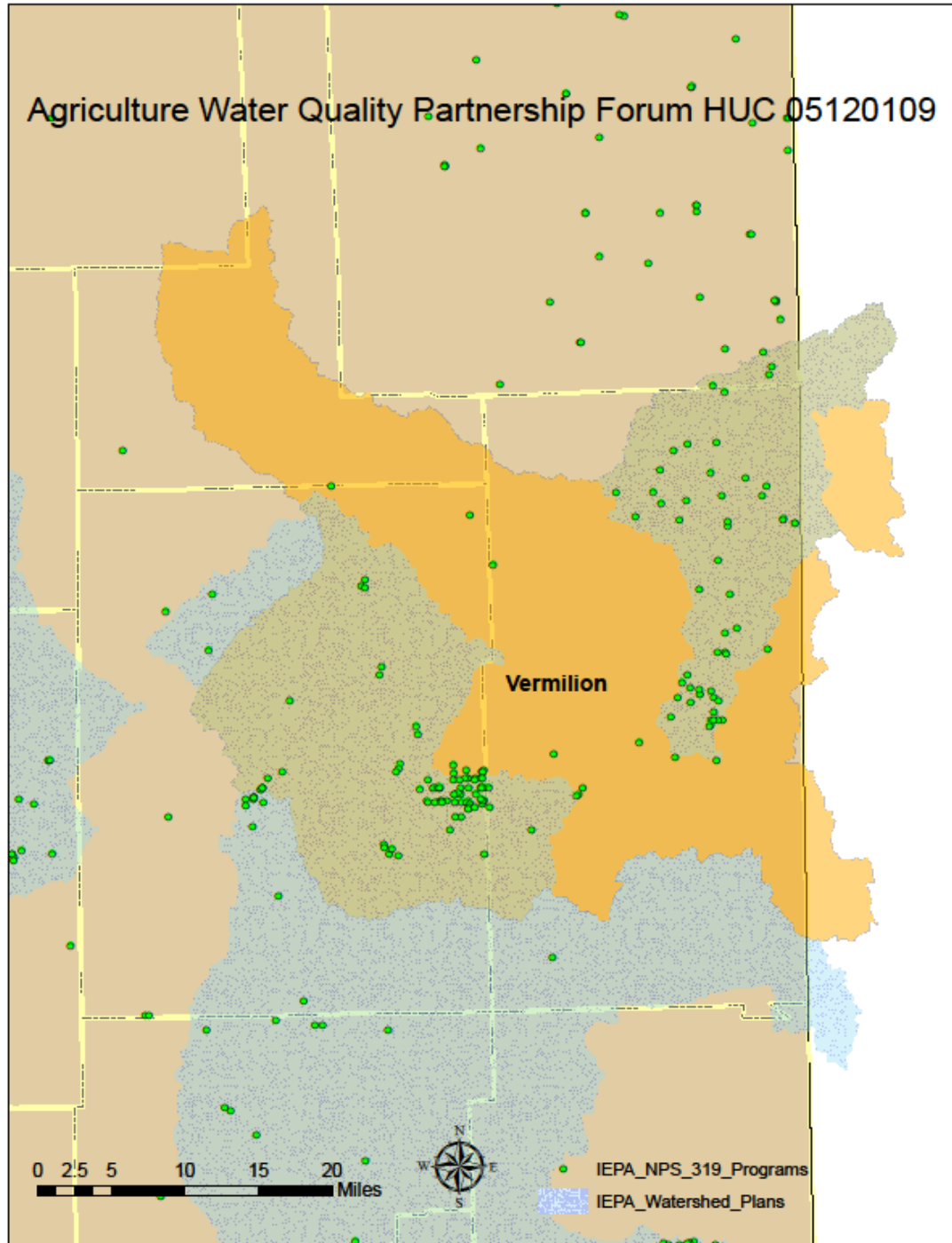
*As identified by the Illinois Nutrient Monitoring Council

Summary Thoughts

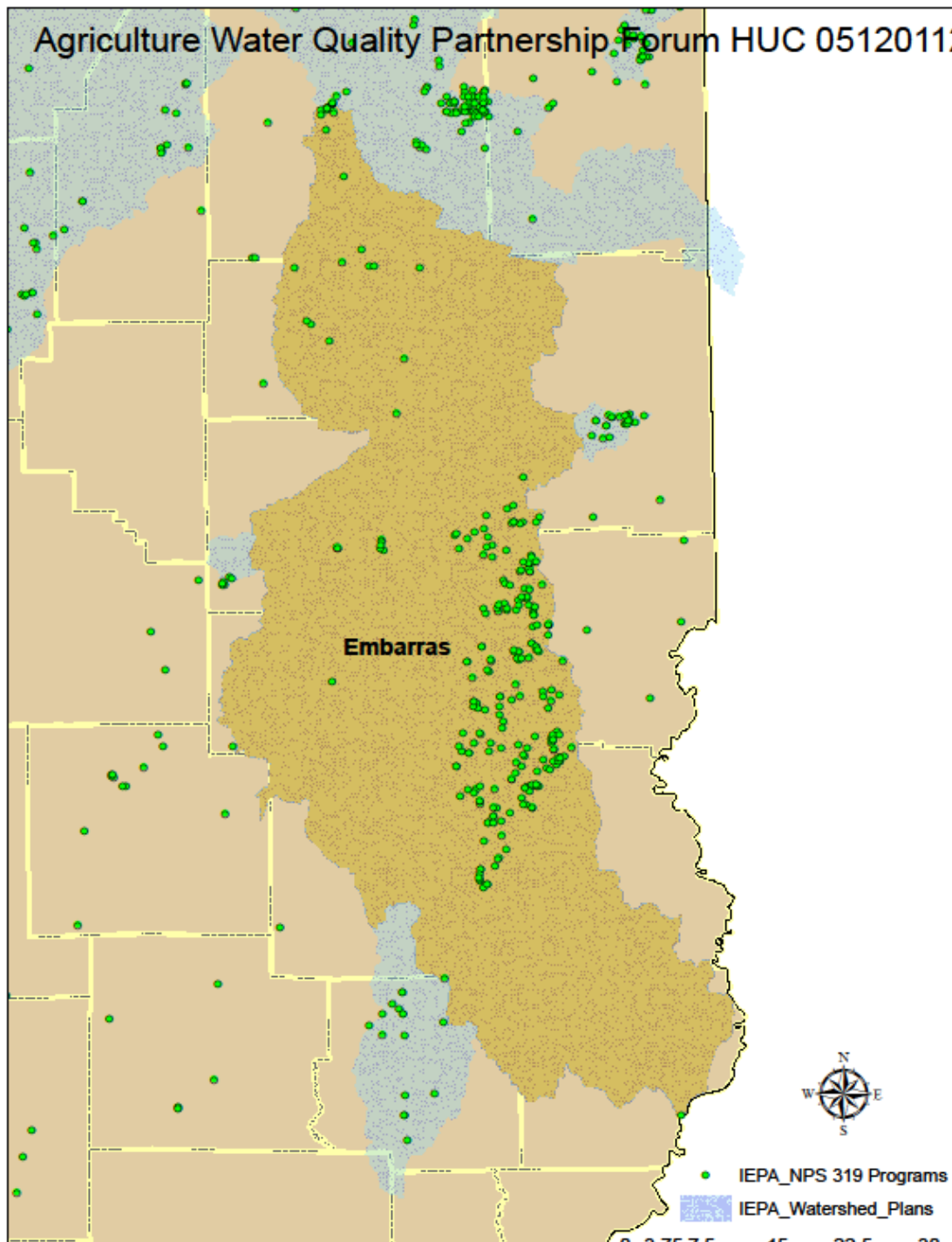
- *There was no magic in selecting these 6 watersheds!* They were only selected based on where NMC members thought the most ongoing monitoring was happening in NLRs-identified priority watersheds.
- *The NMC is not “wed” to these 6 watersheds!* Prioritizing the development of Watershed Nutrient Monitoring Plans needs to be a joint decision, not just the NMC’s.
- *The GOAL: To show nutrient reduction progress through monitoring!* Therefore, NMC activity needs to be in those NLRs priority watersheds (or other identified critical watersheds) where the most money, and education, outreach, and BMP implementation activity is occurring.

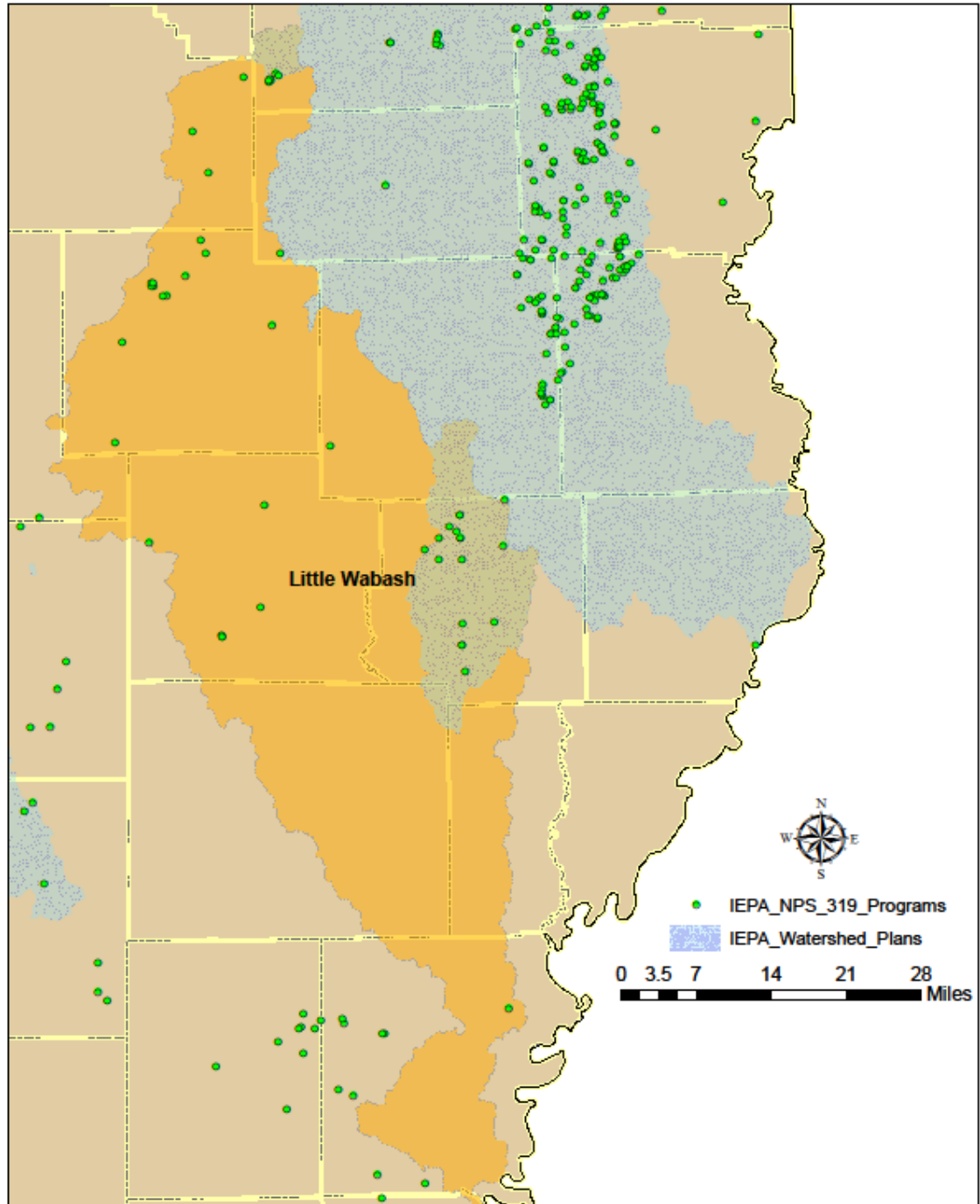


Agriculture Water Quality Partnership Forum HUC 05120109

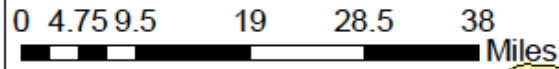


Agriculture Water Quality Partnership Forum HUC 05120112

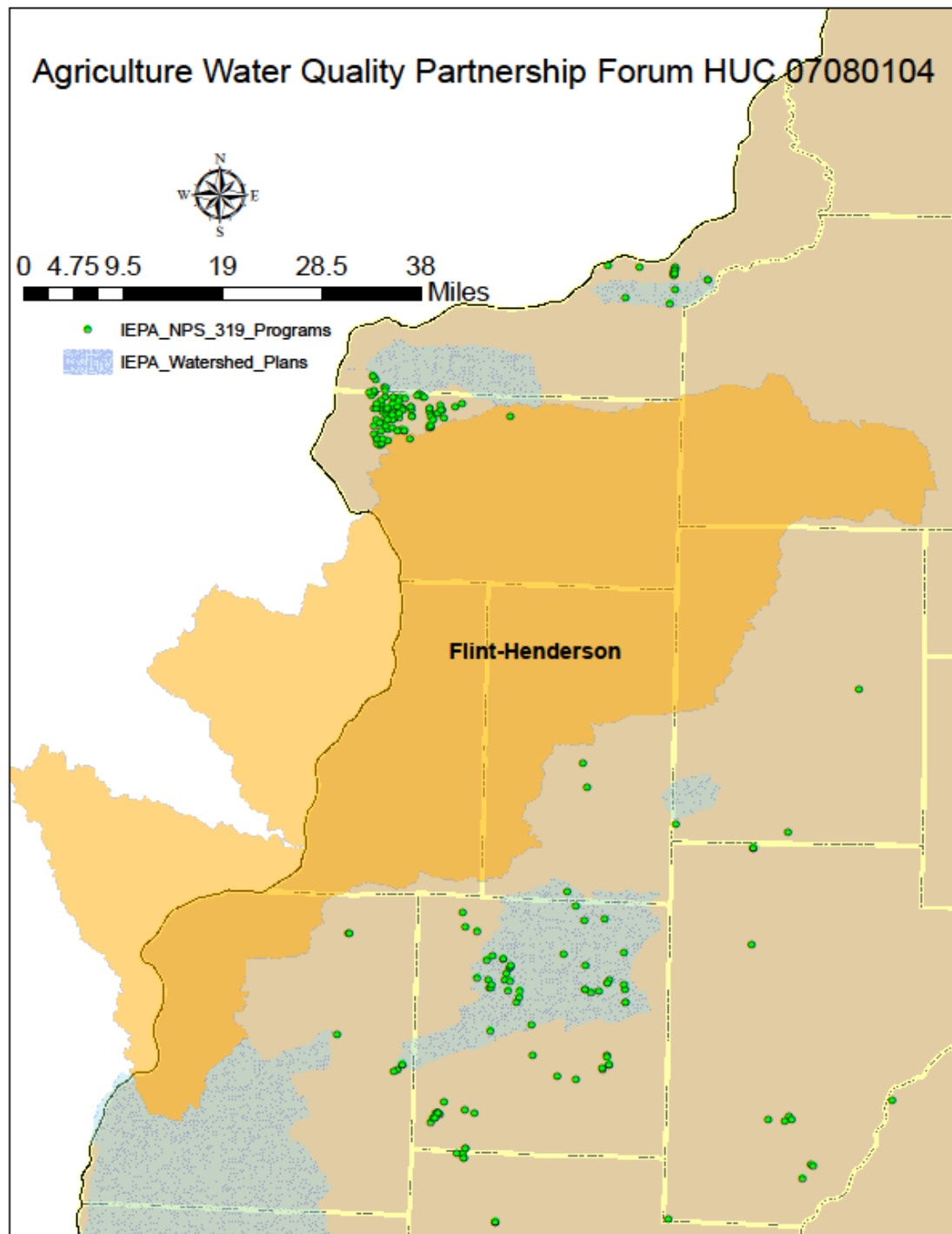




Agriculture Water Quality Partnership Forum HUC 07080104



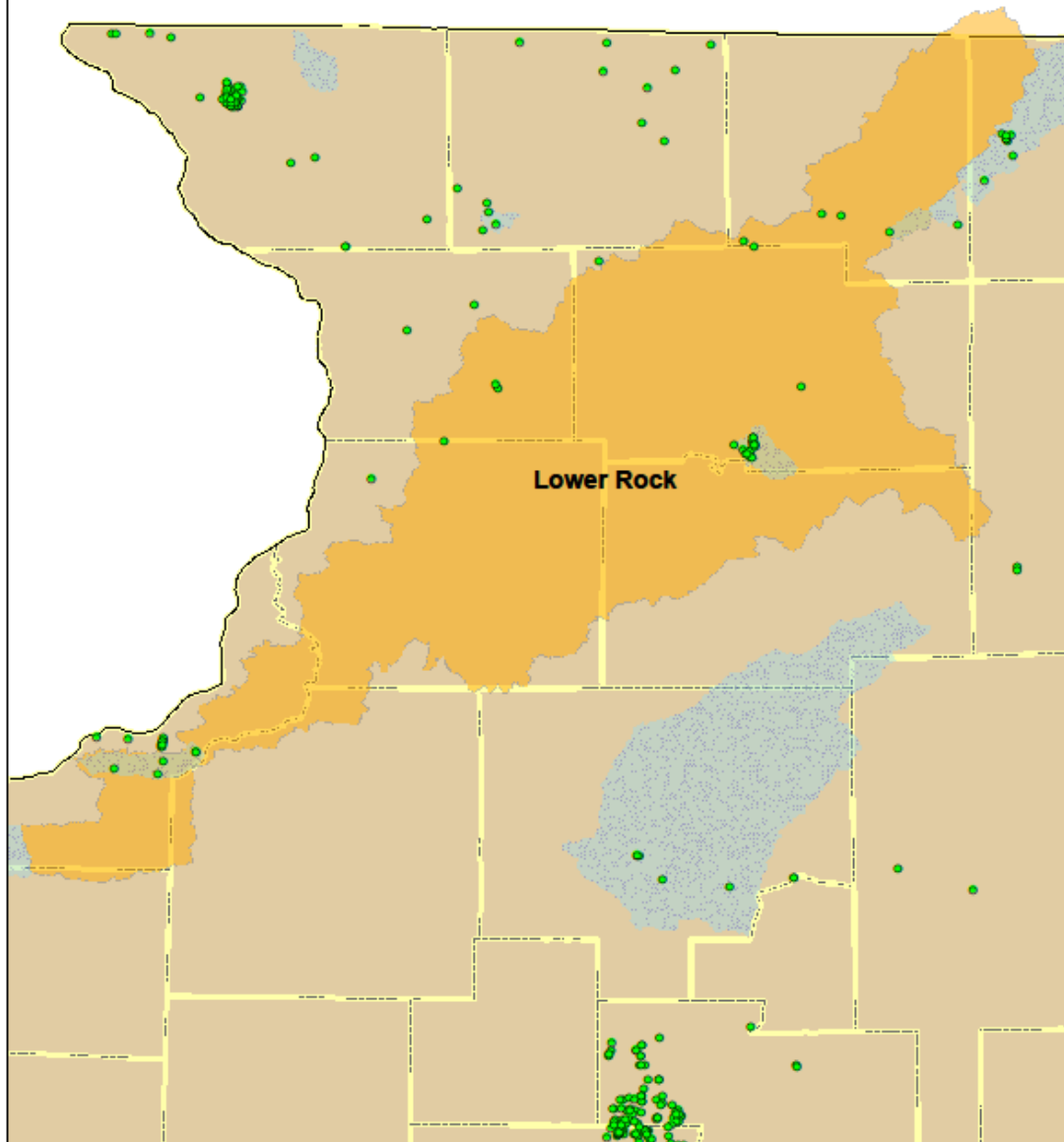
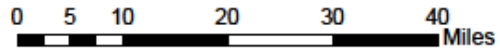
- IEPA_NPS_319_Programs
- IEPA_Watershed_Plans



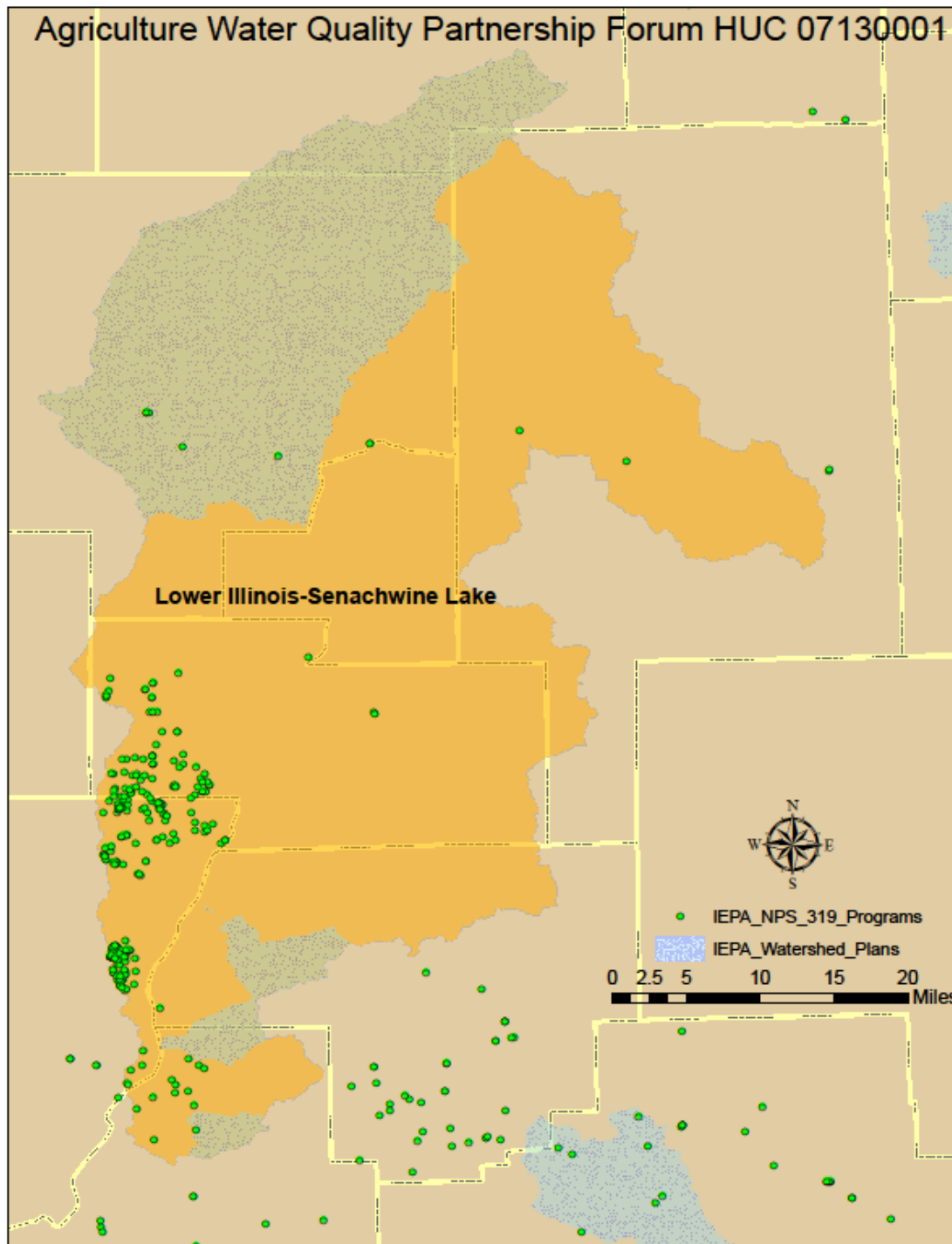
Agriculture Water Quality Partnership Forum HUC 07090005



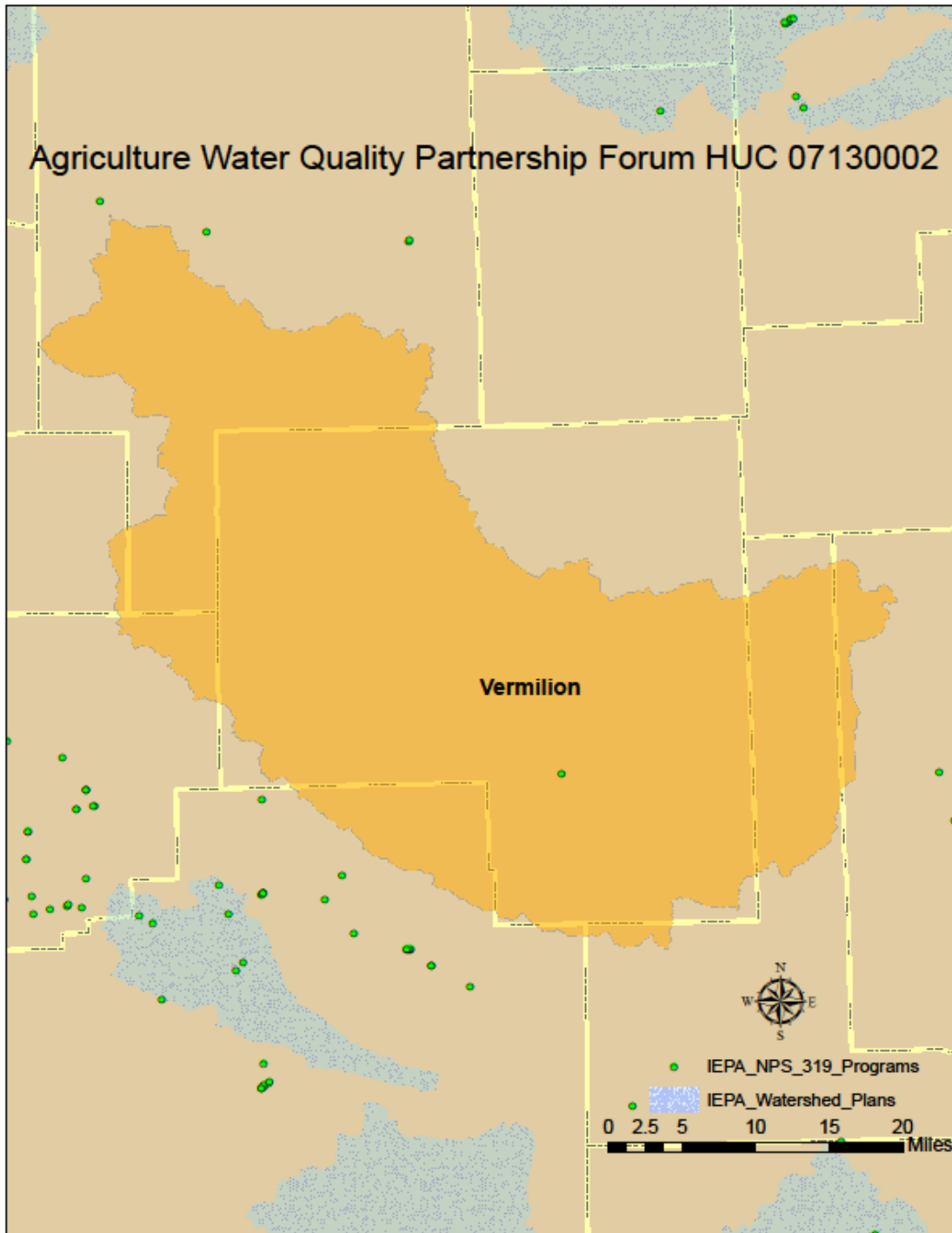
- IEPA_NPS_319_Programs
- IEPA_Watershed_Plans



Agriculture Water Quality Partnership Forum HUC 07130001



Agriculture Water Quality Partnership Forum HUC 07130002



Vermilion

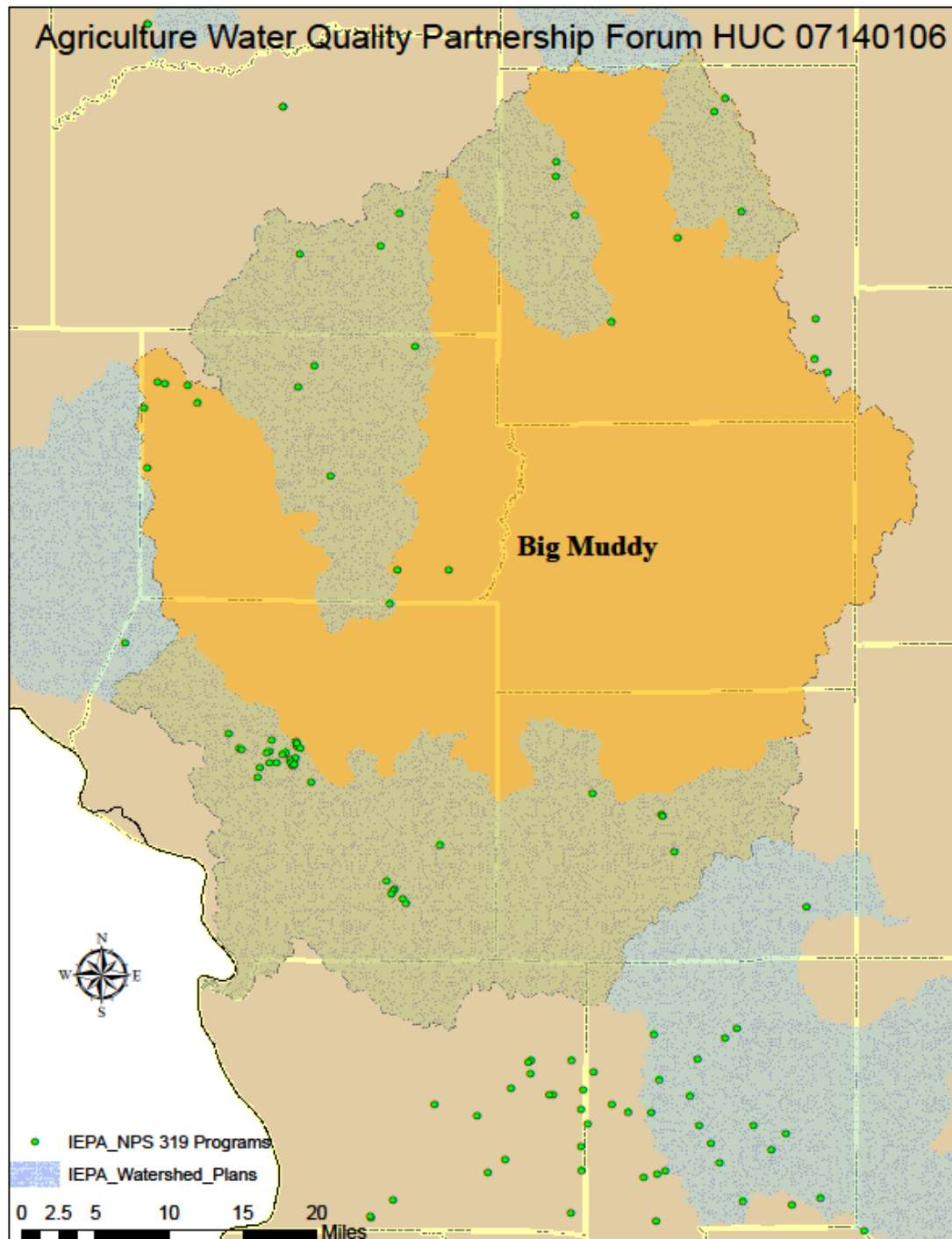


● IEPA_NPS_319_Programs

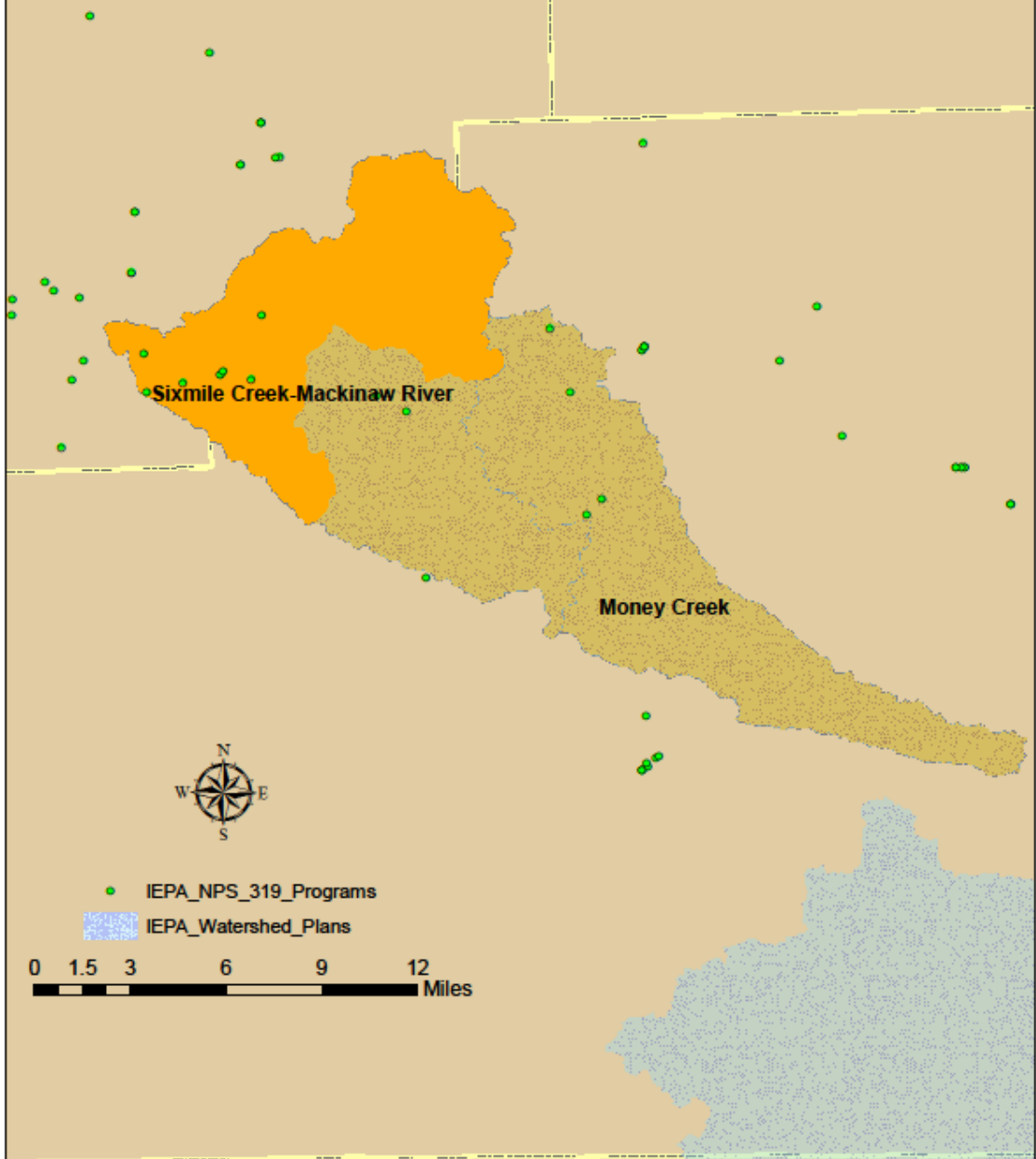
■ IEPA_Watershed_Plans

0 2.5 5 10 15 20 Miles

Agriculture Water Quality Partnership Forum HUC 07140106



Agriculture Water Quality Partnership Forum
HUC's 0713000402 & 0713000405



Sixmile Creek-Mackinaw River

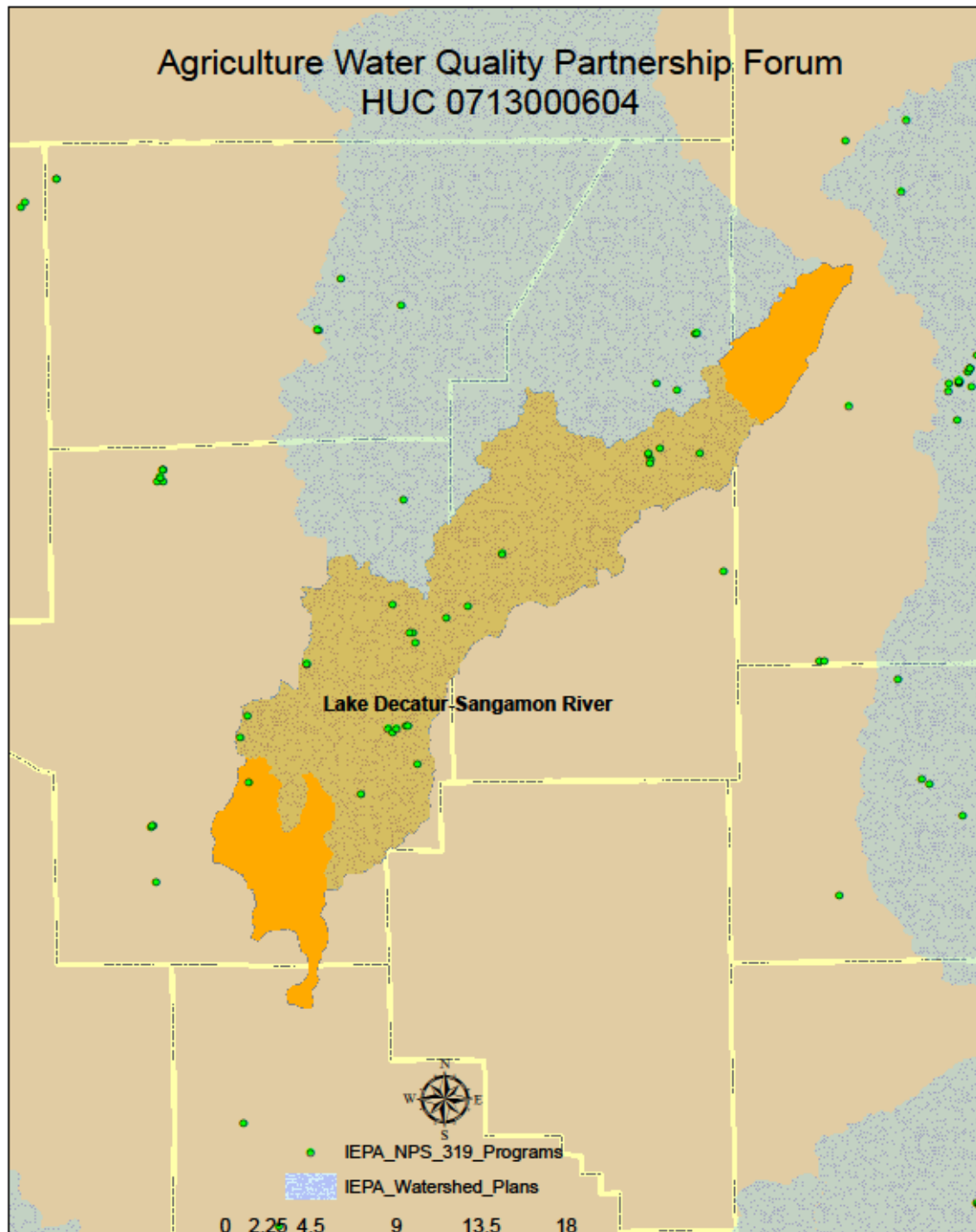
Money Creek

● IEPA_NPS_319_Programs

▨ IEPA_Watershed_Plans

0 1.5 3 6 9 12 Miles

Agriculture Water Quality Partnership Forum
HUC 0713000604



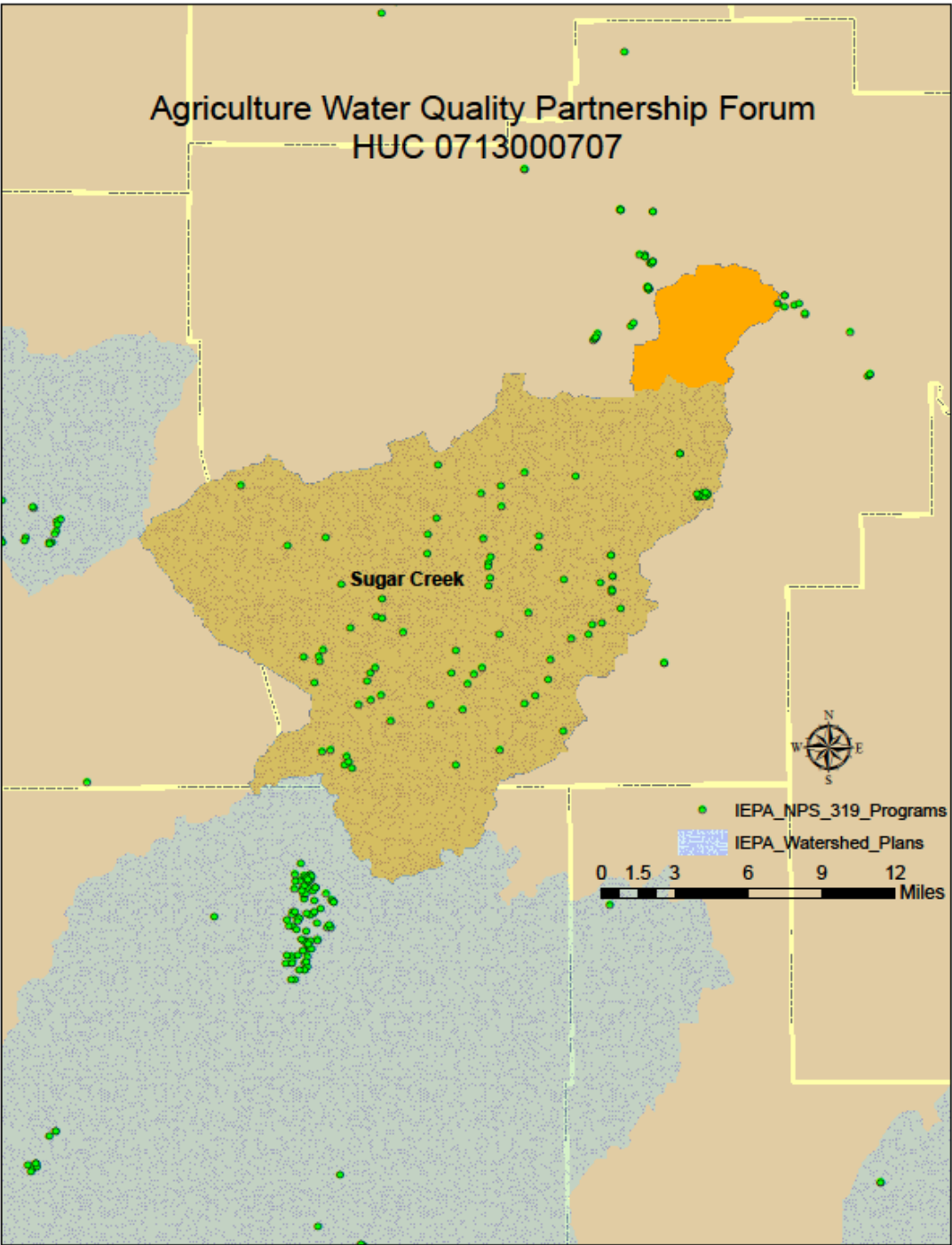
Lake Decatur-Sangamon River



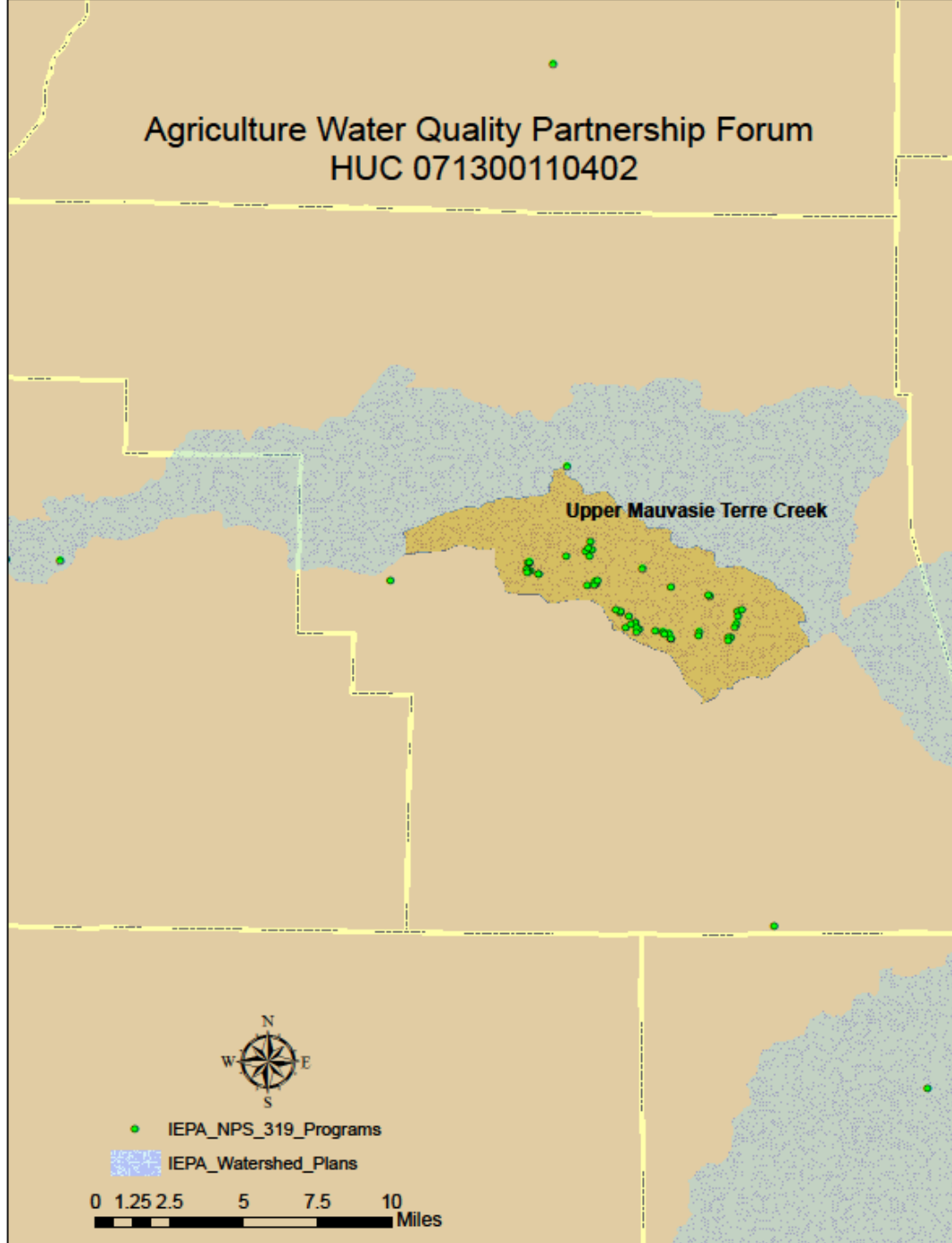
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0 2.25 4.5 9 13.5 18

Agriculture Water Quality Partnership Forum
HUC 0713000707



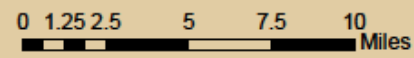
Agriculture Water Quality Partnership Forum
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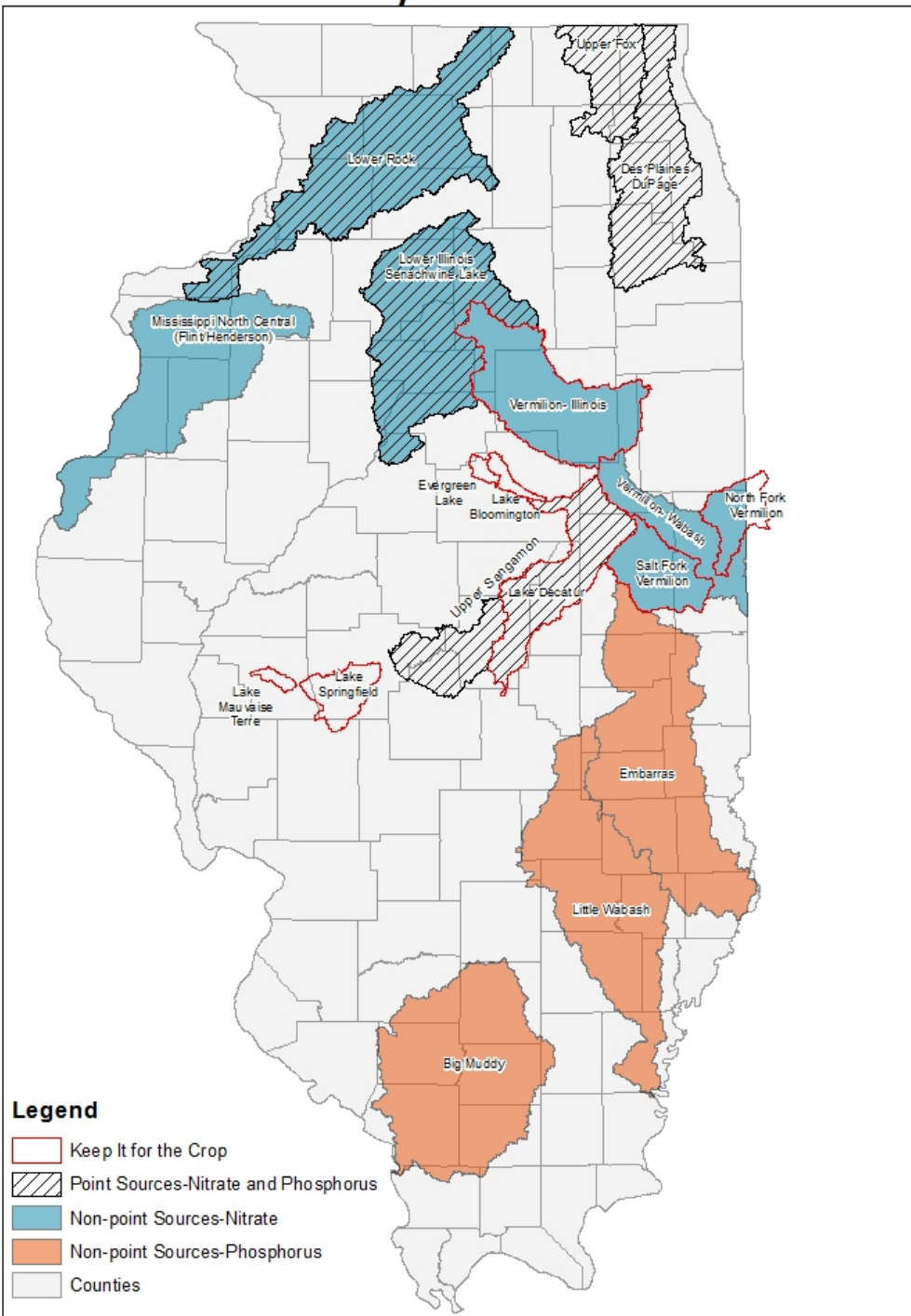


Upper Mauvasie Terre Creek



- IEPA_NPS_319_Programs
- IEPA_Watershed_Plans

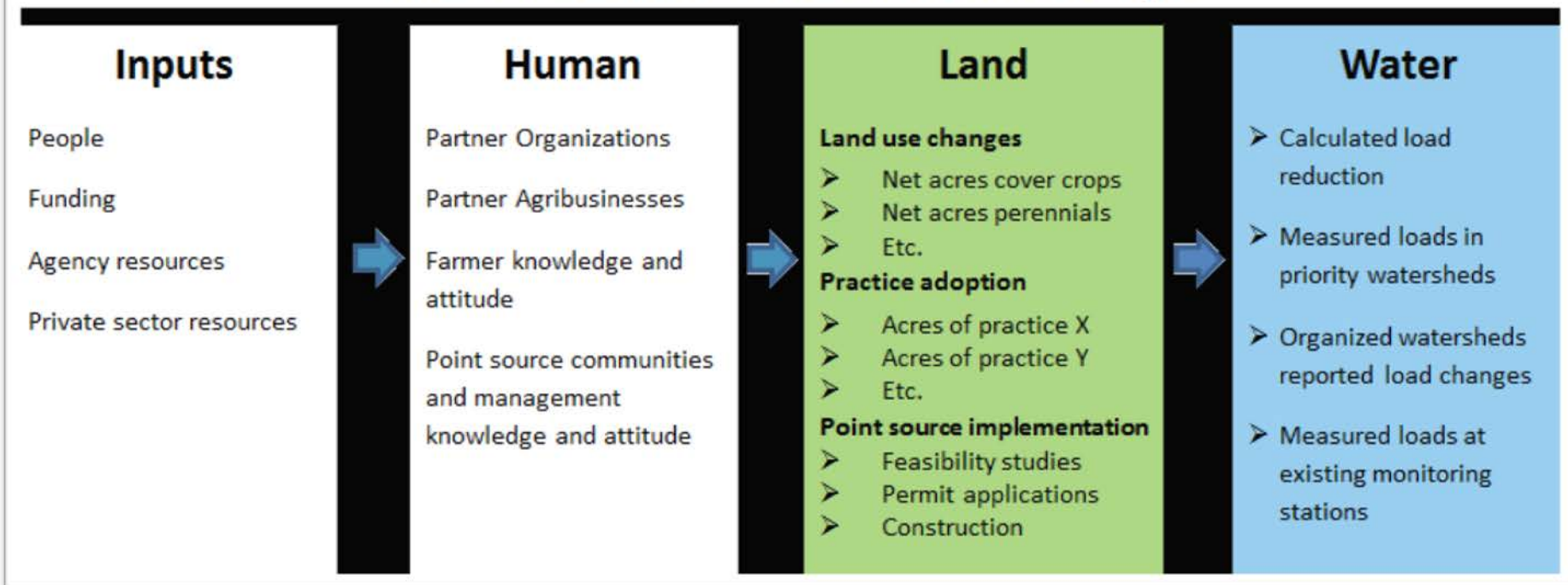




LOGIC MODEL

Tracking BMP Implementation – Iowa Logic Model

Measurable indicators of desirable change



Source: Iowa State University, Extension and Outreach, Measures of Success Committee

Tracking BMP Implementation – Iowa Logic Model



Tracking BMP Implementation – Iowa Logic Model

Land

Land use changes

- Net acres cover crops
- Net acres perennials
- Etc.

Practice adoption

- Acres of practice X
- Acres of practice Y
- Etc.

Point source implementation

- Feasibility studies
- Permit applications
- Construction

Land	Units	Measurement Provider	Action
Reducing N rate from <u>backgrnd</u> to MRTN on 10% acres	Cropland acres	NASS survey	Check with IFCA about similar questions on industry survey.
Nitrification inhibitor with all fall-applied fertilizer on tile-drained corn acres	Cropland acres	Add 2 questions to NASS survey: inhibitor & drain	
2 Split application of 50% fall & 50% spring on tile-drained corn acres	Cropland acres	NASS survey	
1 Spring-only application on tile-drained corn	Cropland acres	NASS survey	
3 Split application of 40% fall, 10% pre-plant, and 50% side dress	Cropland acres	NASS survey	
Cover crops on all corn/soybean tile-drained acres	Cropland acres	Two sources: FSA (need to link soil data and/or HUC8) and NASS will add this question and tile drain ac to survey	Determine list of cover crops: Natalie to provide list of FSA crops and send it to Mark, Warren and Eric. Then, Mark and NRCS state agronomist review list to determine what is a cover crop. FSA will report on Mar 29.
Cover crops corn/soybean non-tiled acres	Cropland acres	2 sources: FSA (need to link soil data and/or HUC8) and NASS (add this question and tile drain ac to survey)	
Bioreactors on 50% of tile-drained land	Number of acres treated	EQIP (NRCS) & 319 have useable data. Add NASS survey question. Check with LICA about question on industry survey.	Illinois EPA and NRCS to bring report on Mar 29. Number of bioreactors and acres treated. If possible, provide watershed.
Wetlands on 35% of tile-drained land	Acres of wetland/ Numbers of acres treated (NASS)	FSA and IDNR will coordinate data. 319 also has usable data. NASS acts for acres of acres treated.	FSA (Kim M) and IDNR (Lisa B and Mike C) will combine acreage by buffer and wetland practice and (hopefully will) pull out info by watershed. Report on Mar 29.
Buffers on all applicable crop land (reduction only for water that interacts with active area)	Acres of buffers	FSA and IDNR will coordinate data. 319 also has usable data.	
Perennial/energy equal to pasture/hay acreage from 1987	<u>Perennial</u> /energy ac	FSA has usable data. Will ask question on NASS survey.	Determine list of perennial/energy crop per method above for cover crop. FSA will report on Mar 29.
Perennial/energy crops on 10% of tile-drained land	Perennial / energy acres	FSA has usable data. Will ask question on NASS survey.	FSA will report on Mar 29.
Drainage water management* *being considered	Acres effected	EQIP & 319 have usable data. Add NASS survey question. Check with LICA about question on industry survey.	Query the science assessment group whether this practice should be included.

Tracking BMP Implementation – Iowa Logic Model

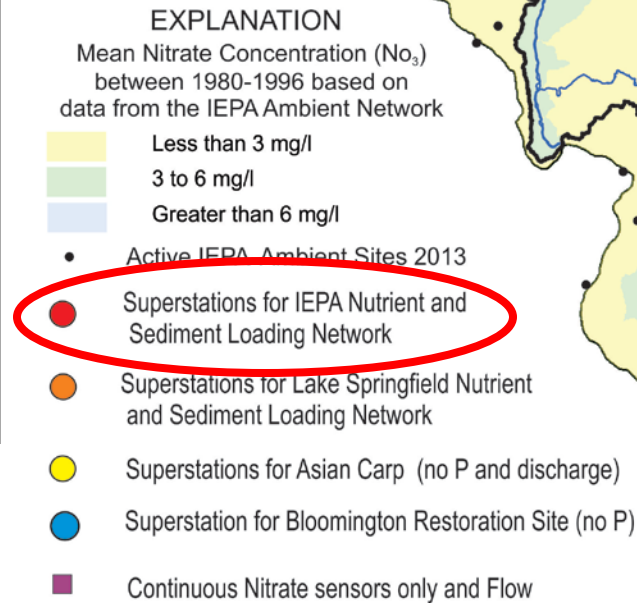
Water

- Calculated load reduction
- Measured loads in priority watersheds
- Organized watersheds reported load changes
- Measured loads at existing monitoring stations

The Plan

- Basins covering almost 75% of area of the State
 - Rock River
 - Green River
 - Illinois River
 - Kaskaskia River
 - Big Muddy
 - Little Wabash
 - Embarras River
 - Vermilion River
- Current USGS gaging station (flow)
- Current IEPA Ambient site/Historical Data

Illinois Real-Time Nutrient and Sediment Surface-Water-Quality and Discharge Monitoring Stations (Super Gages) Operated by the USGS





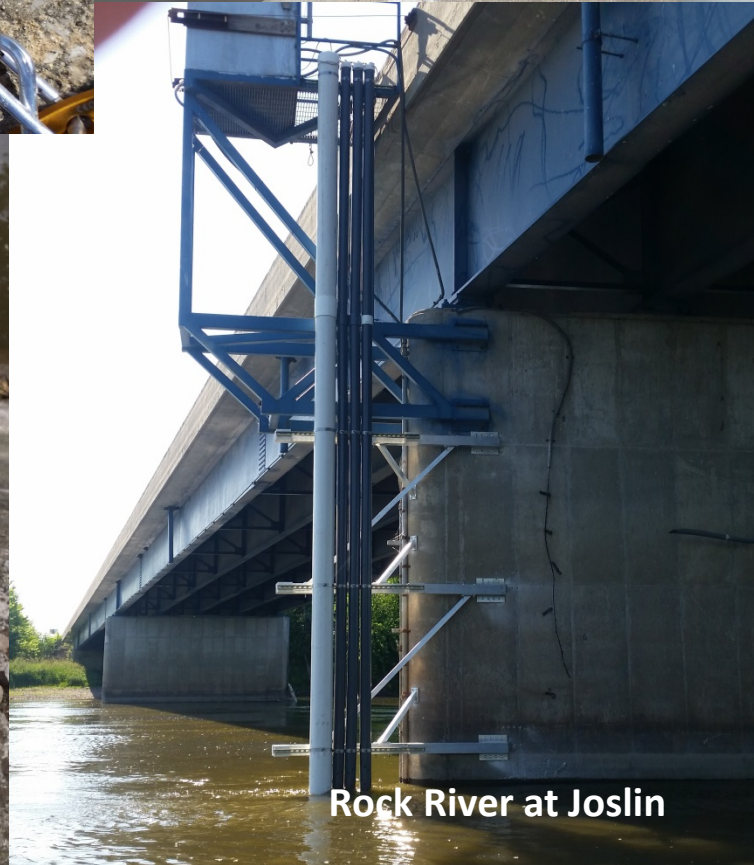
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Rock River at Joslin

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Agriculture Water Quality Partnership Forum

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 - Identify needed education initiatives or training requirements for farmer and technical advisors.
 - Strengthen connections between industry initiatives, certified crop advisor continuing education requirements, state initiatives, and other technical services.
- Track BMP implementation
- **Coordinate cost sharing and targeting**
- Develop other tools as needed
 - Consider an agriculture water quality certification program.

NRCS AND STATE TECH SUBCOMM UPDATE – *ERIC GERTH*

Next Steps

Schedule of future AWQPF meetings

Mar 29, 2016 (Tech Subgroup)

May 17, 2016

Jun 14, 2016 (Tech Subgroup)

Sep 27, 2016

Oct 11, 2016 (Tech Subgroup)

Comments from the Floor (time permitting)