Illinois Nutrient Loss Reduction Strategy

Nutrient Monitoring Council

2nd Meeting, 9/16/15, Springfield, IL

Introductions

Illinois EPA
Gregg Good, Rick Cobb

Illinois State Water Survey
Laura Keefer

Illinois State Geological Survey
Richard Berg

Illinois Natural History Survey
Andrew Casper

Illinois Dept. of Natural Resources
Ann Holtrop

University of Illinois
Mark David, Jong Lee ~~Michael Brennan~~

Sierra Club
Cindy Skrukrud

~~**The Wetlands Initiative**~~
~~Jill Kostel~~

MWRDGC
~~Thomas Granato~~
Justin Vick

Illinois Corn Growers Association
Laura Gentry

U.S. Army Corp of Engineers-Rock Island
Marvin Hubbell

U.S. Geological Survey
Doug Yeskis

Today's Guests???

Current Status

ILLINOIS
NUTRIENT LOSS
REDUCTION STRATEGY

Illinois Department of Agriculture

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

Standing up Committees Needed for Implementation

1) Policy Working Group
2) Nutrient Monitoring Council
3) Nutrient Science Advisory Committee
4) Urban Stormwater Working Group
5) Agriculture Water Quality Partnership Forum

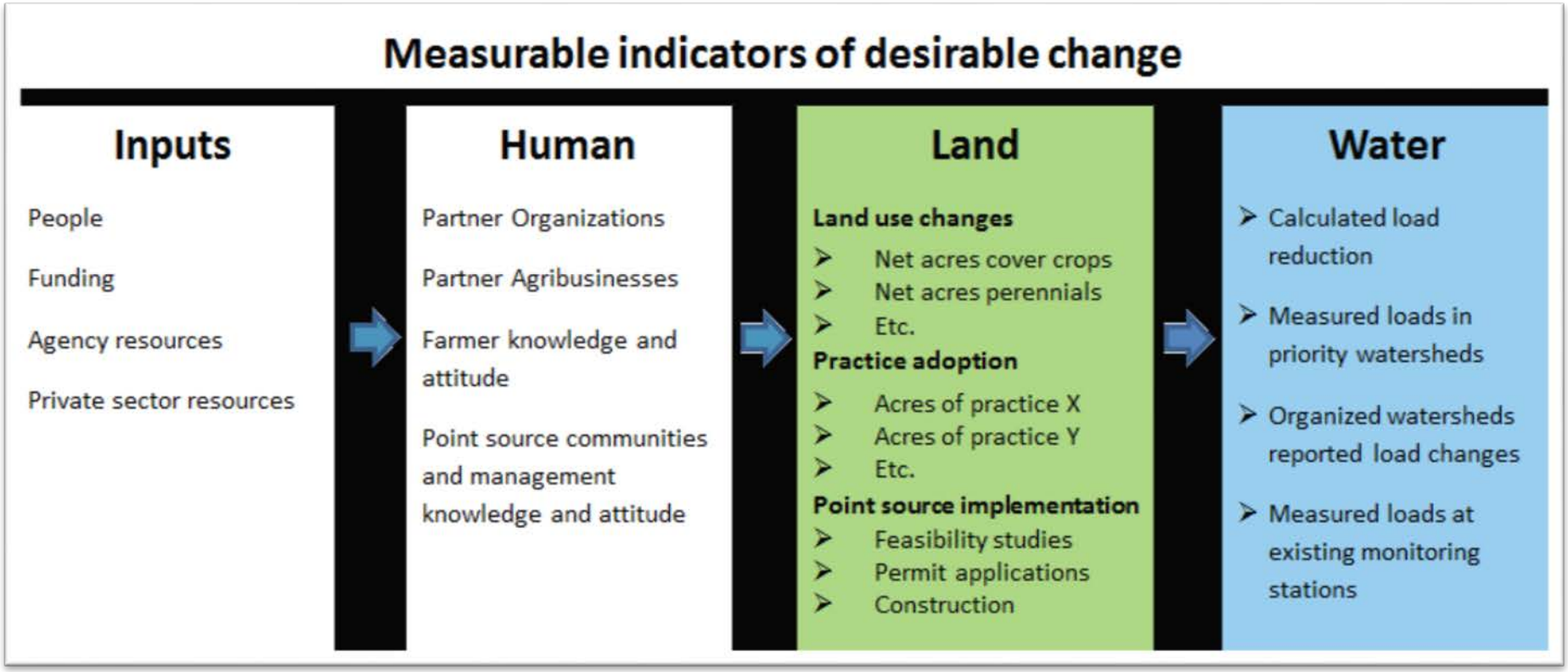
NLRS Implementation Workgroups, Forums, & Councils

1) Nutrient Monitoring Council (May 13 & Sept. 16)
2) Ag. Water Qual. Partnership Forum (May 22 & Sept. 22)
   - AWQPF Tech Committee (Aug. 26)
3) Urban Stormwater Working Group (July 20)
4) Policy Working Group (Aug. 4)
5) Nutrient Science Advisory Committee (selected Aug. 23)
6) Point Source Working Group
7) Performance Benchmarks Group

AWQPF Tech Subgroup Committee Charge

1. Determine the best way to share and aggregate BMP implementation data across agencies (so we can track our progress in accomplishing the Illinois Nutrient Loss Reduction Strategy).
2. Determine what BMP implementation parameters will be tracked (e.g., cover crops, wetlands, buffer strips) and how it will be aggregated (e.g., per watershed, statewide, lump practices into categories like edge of field). This includes identifying future data parameters required from producer surveys or transect surveys to track progress in accomplishing the NLRS.
3. Assess existing BMP implementation data availability over time to advise the Policy Work Group as they select a BMP implementation baseline year.

Tracking BMP Implementation – Iowa Example Recap



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

Metrics and what are we using to measure them

Land	FSA	USDA-NRCS	Illinois EPA	IDA	IDNR	NASS	Ag Partners
Red. N rate from backgrnd to MRTN 10%							
Nitrification inhibitor w/ all fall-applied fert on tile-drained corn							
Split appl. 50% fall + 50% sp on tiled corn							
Spring-only appl. on tile-drained corn							
Split appl. of 40% fall, 10% pre-plant, and 50% side dress							
Cover crops on all corn/soybean tile ac							
Cover crops corn/soybean non-tile ac							
Bioreactors on 50% of tile-drained land							
Wetlands on 25% of tile-drained land							
Buffers on all applicable crop land							
Perennial/energy = to pasture/hay ac							
Perennial/energy crops 10% tile-drained							
Water table management							

Metrics and what are we using to measure them

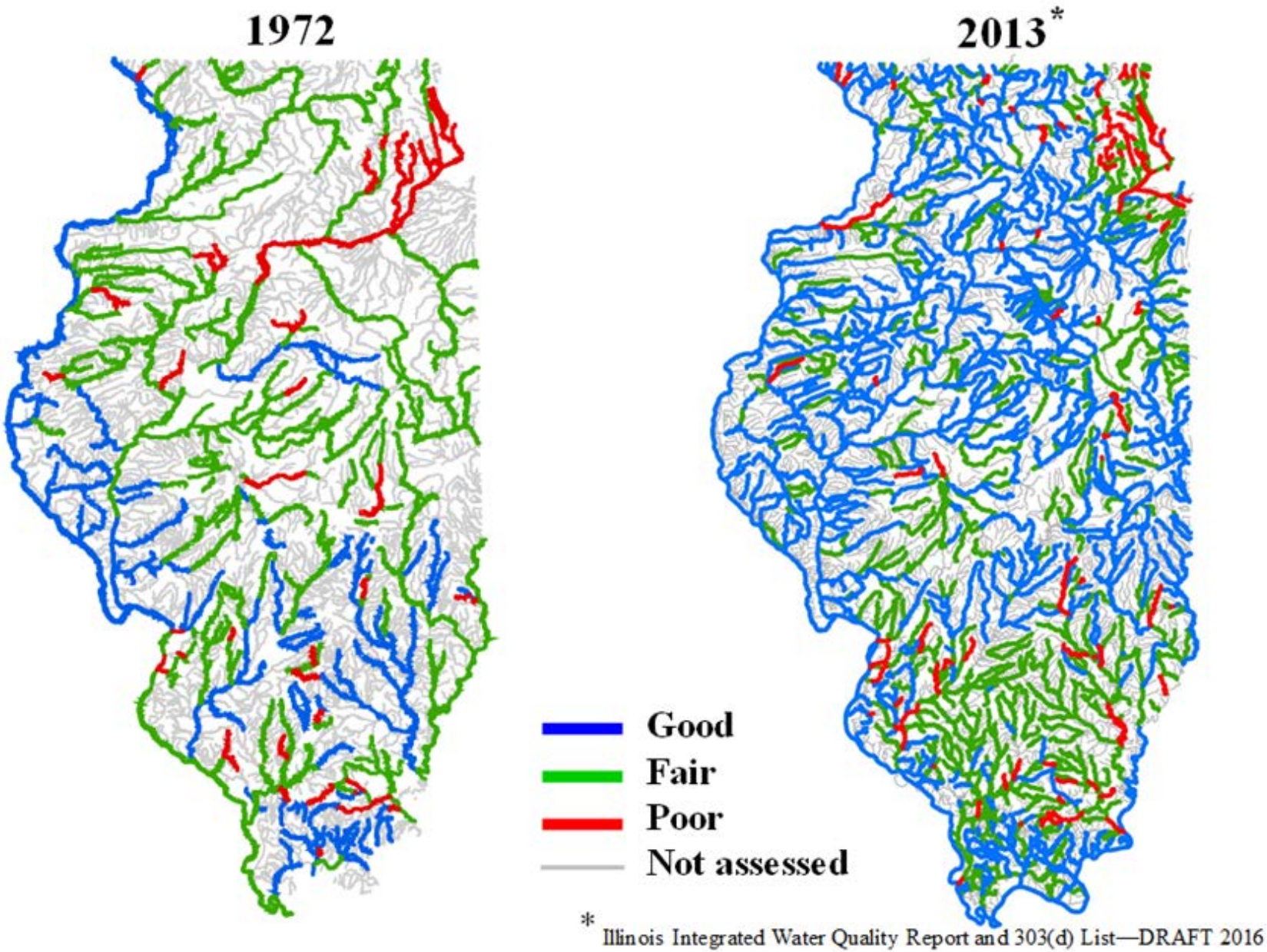
Water

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

What are we using to measure it?

FSA	USDA-NRCS	Illinois EPA	IDA	IDNR	NASS	Ag Partners
Nutrient Monitoring Council will do these.						

Aquatic-Life Condition of Illinois Streams



* Illinois Integrated Water Quality Report and 303(d) List—DRAFT 2016

NUTRIENT MONITORING COUNCIL (NMC)

Co-Chairs: Gregg Good (Illinois EPA)
Mark David (U of I)

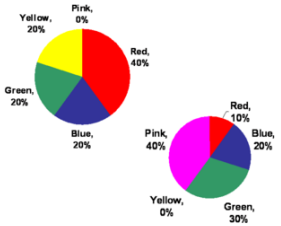
First Meeting: May 13, 2015
Champaign

NMC MEMBERS

- Gregg Good, Illinois EPA-Surface Water
- Mark David, University of Illinois
- Doug Yeskis, U.S. Geological Survey
- Ann Holtrop, Illinois DNR
- Laura Keefer, Illinois State Water Survey
- Marvin Hubbell, U.S. Army Corp of Engineers-Rock Island
- Richard Berg, Illinois State Geological Survey
- Rick Cobb, Illinois EPA-Groundwater
- ~~Jill Kostel, The Wetlands Initiative~~
- Justin Vick ~~Tom Granato~~, Metropolitan Water Reclamation District of Greater Chicago
- Cindy Skrukrud, Sierra Club
- Laura Gentry, Illinois Corn Growers Association
- Andrew Casper, Illinois Natural History Survey
- Jong Lee ~~Michael Brennan~~, University of Illinois

NMC Charges

1. Develop a *nutrient monitoring program* (e.g., program design, data collection and methods, data analysis and assessment, QA, reporting, evaluation) that, *if implemented:*
   a. Collects the necessary information to generate estimations of *5-yr running avg.* loads of *Nitrate-Nitrogen and Total Phosphorus* leaving the state of IL **and** selected high priority watersheds (e.g., 8-digit HUC basins).
   b. Identifies *trends in loading over time* as compared to 1980-1996 baseline conditions.
2. Develop a *prioritized list of nutrient monitoring program activities and associated funding needed* to accomplish the charges/goals listed in a. and b.
3. Document *"local water quality outcomes"* (good or bad….hopefully good) on a *smaller priority watershed scale* where future nutrient reduction efforts are being implemented (e.g., bugs and fish got happier now than before; fewer documented WQ standards violations; fewer algal blooms or offensive conditions; decline in nutrient, chloride, or bromide concentrations in groundwater).



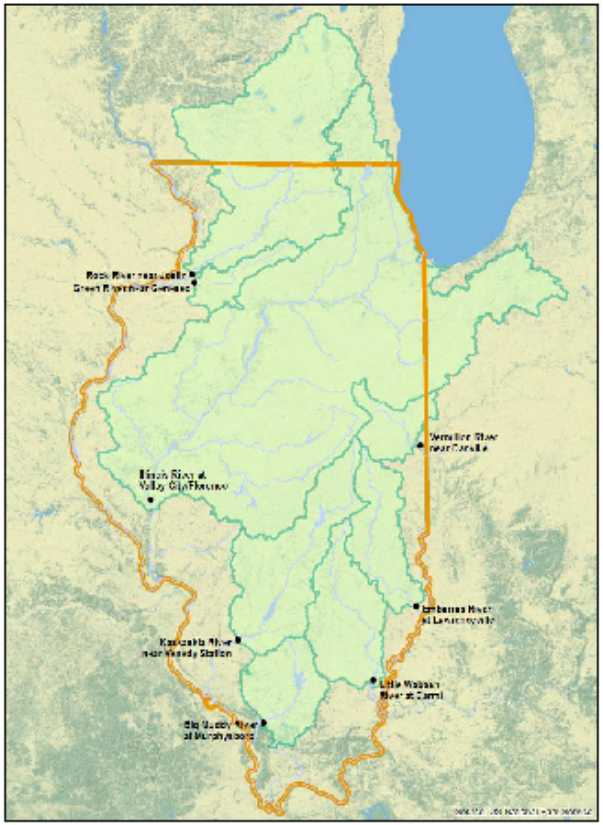
8-Super Station Network

(NMC Charges 1a and 1b)

- *Illinois Nutrient Loss Reduction Strategy* need for "accountability"
- Continuously Recorded Parameters
  - Nitrate, Phosphate, Turbidity, D.O., Temp, pH, Spec. Cond.
- Stations (~75% of IL land area)
  - Rock, Green, Illinois, Vermillion (Danville), Embarras, Kaskaskia, Little Wabash, Big Muddy
- Annual Nutrient Load Exports
- Agreement 4/1/15 – 3/31/21

USGS
science for a changing world

Nutrient and Sediment Export from Illinois–Quantification through a Continuous Loadings Network to Support the Illinois Statewide Nutrient Loss Reduction Strategy



Prepared for
Illinois Environmental Protection Agency

by
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U.S. Geological Survey
Illinois Water Science Center
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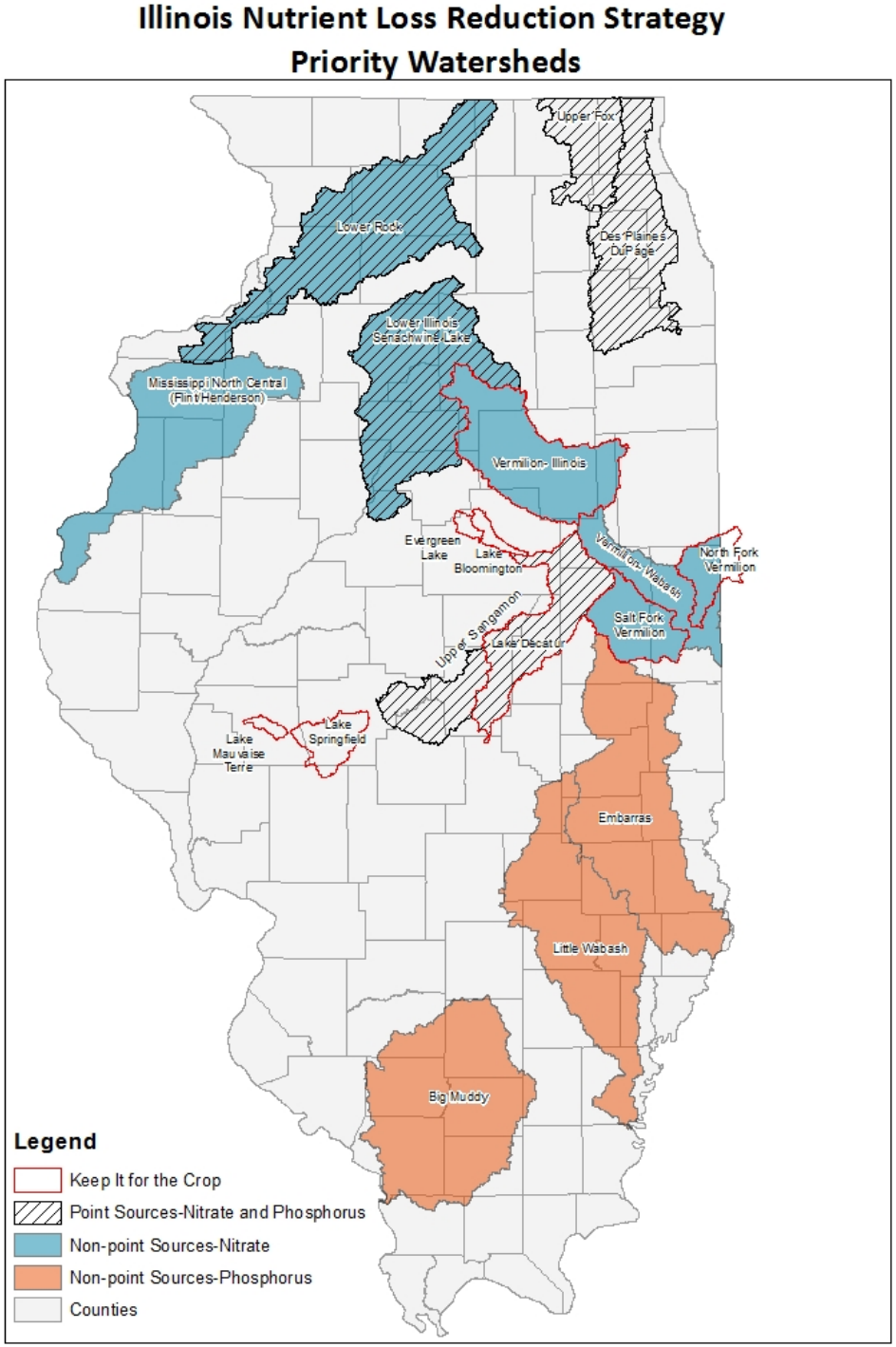
Urbana, Illinois 61801
(217) 328-8747

Doug Yeskis, Director

USGS Illinois Water Science Center

But what about:

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



NMC Next Steps

- Next Meeting September 16, 2015.
- In preparation, we've asked NMC members for information and GIS coverages of the who's, what's, and where's of Illinois nutrient monitoring:
  - Ongoing/routine sampling
  - Length of record
  - Collection frequency
  - Information on all forms of P and N, chlorophyll *a*, DO, sediment, fish, bugs, mussels, habitat, chloride, bromide, others
  - Large networks, 8-digit HUC, or smaller NLRS priority watersheds
  - Surface and Ground water

- IWRC is in the process of generating maps and summarizing findings to visualize where monitoring is occurring throughout the state, to identify gaps, and to facilitate data aggregation.
- This will help in the creation of a prioritized list of nutrient monitoring program activities and associated funding needed to accomplish the charges of the NMC (Charge #2).

Katie Hollenbeck

Individual Organization Monitoring Site Maps

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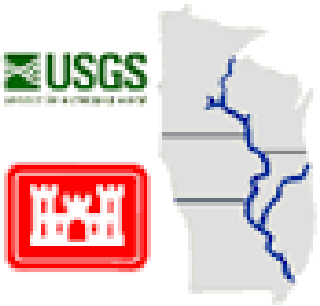
science for a changing world

ILLINOIS
DEPARTMENT OF
NATURAL
RESOURCES

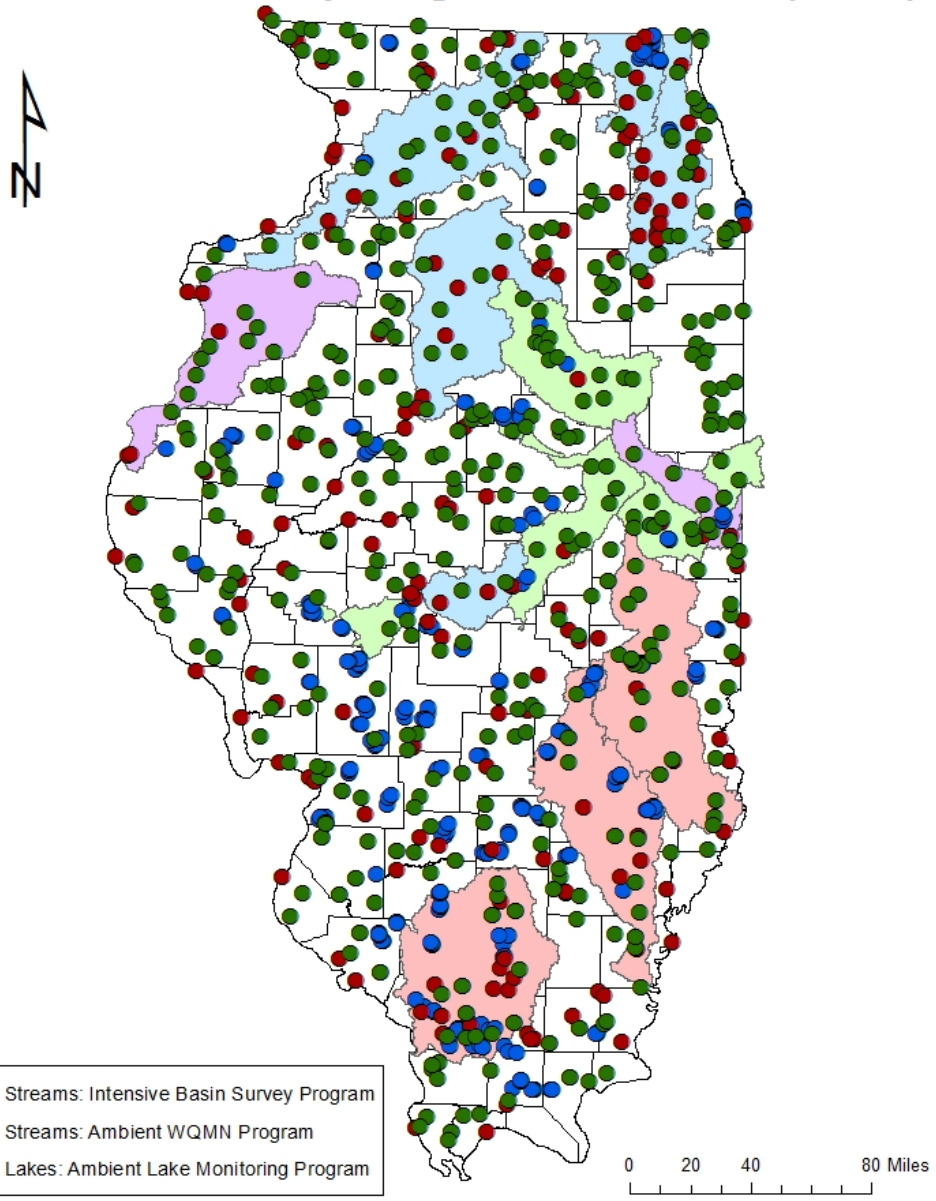


ILLINOIS STATE
WATER SURVEY
PRAIRIE RESEARCH INSTITU

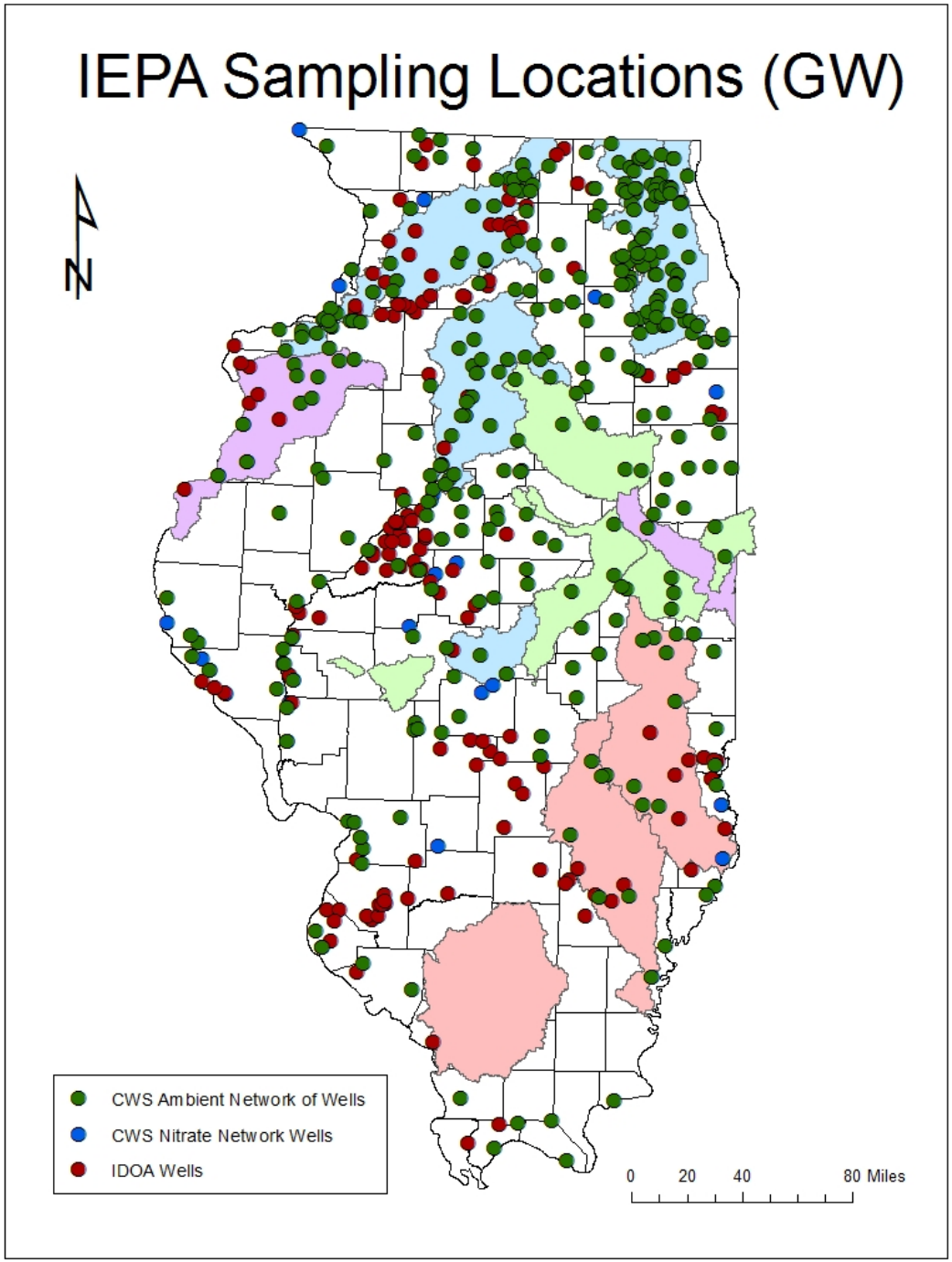
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

.....and others!

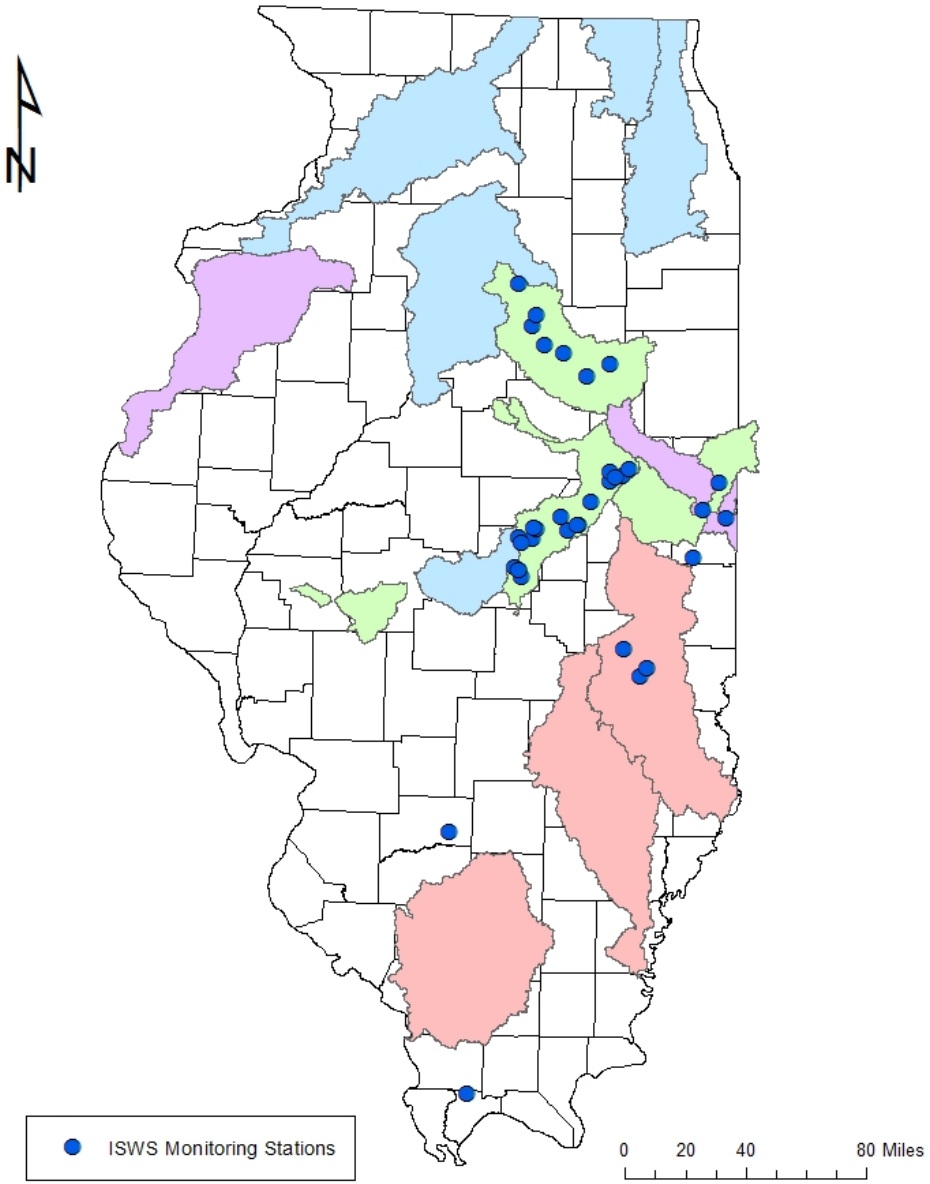
IEPA Sampling Locations (SW)



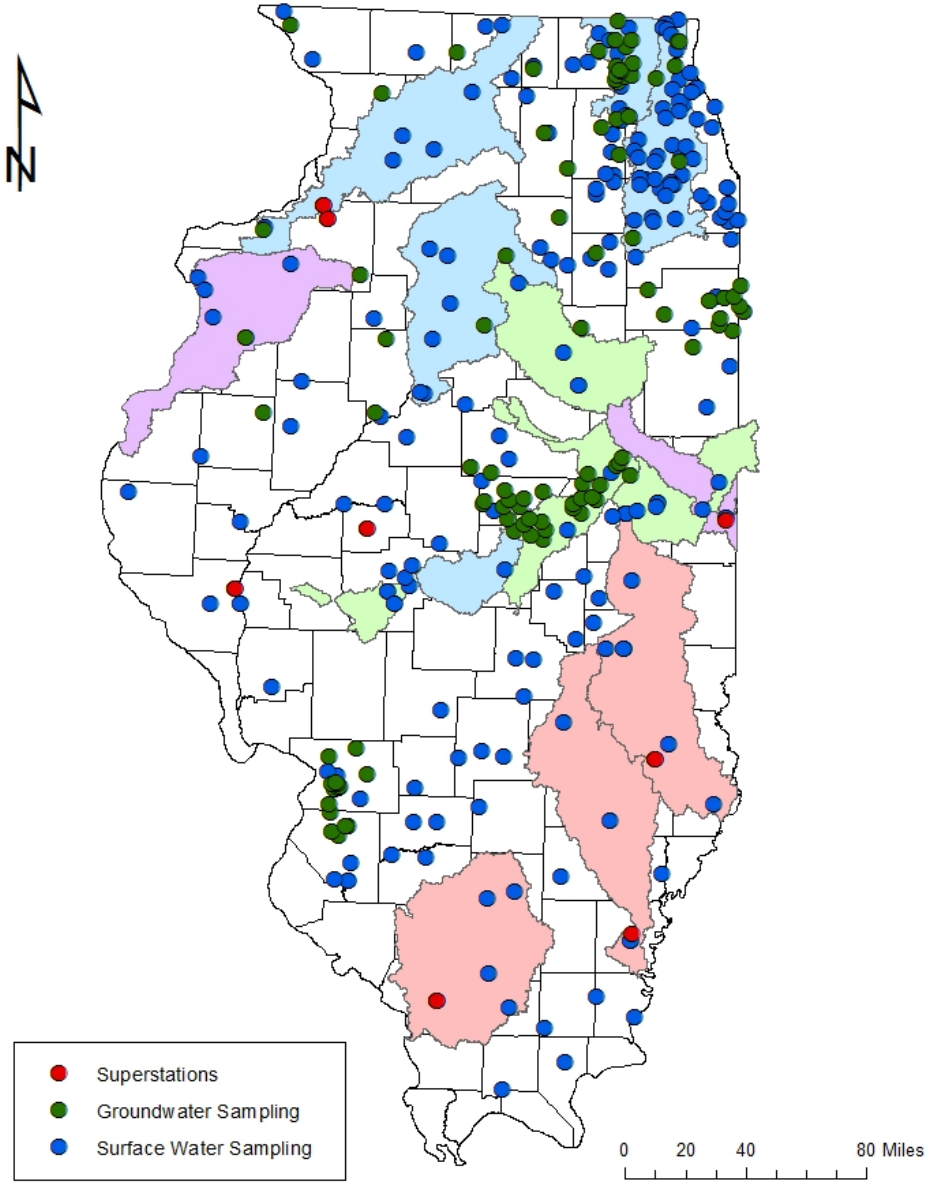
IEPA Sampling Locations (GW)



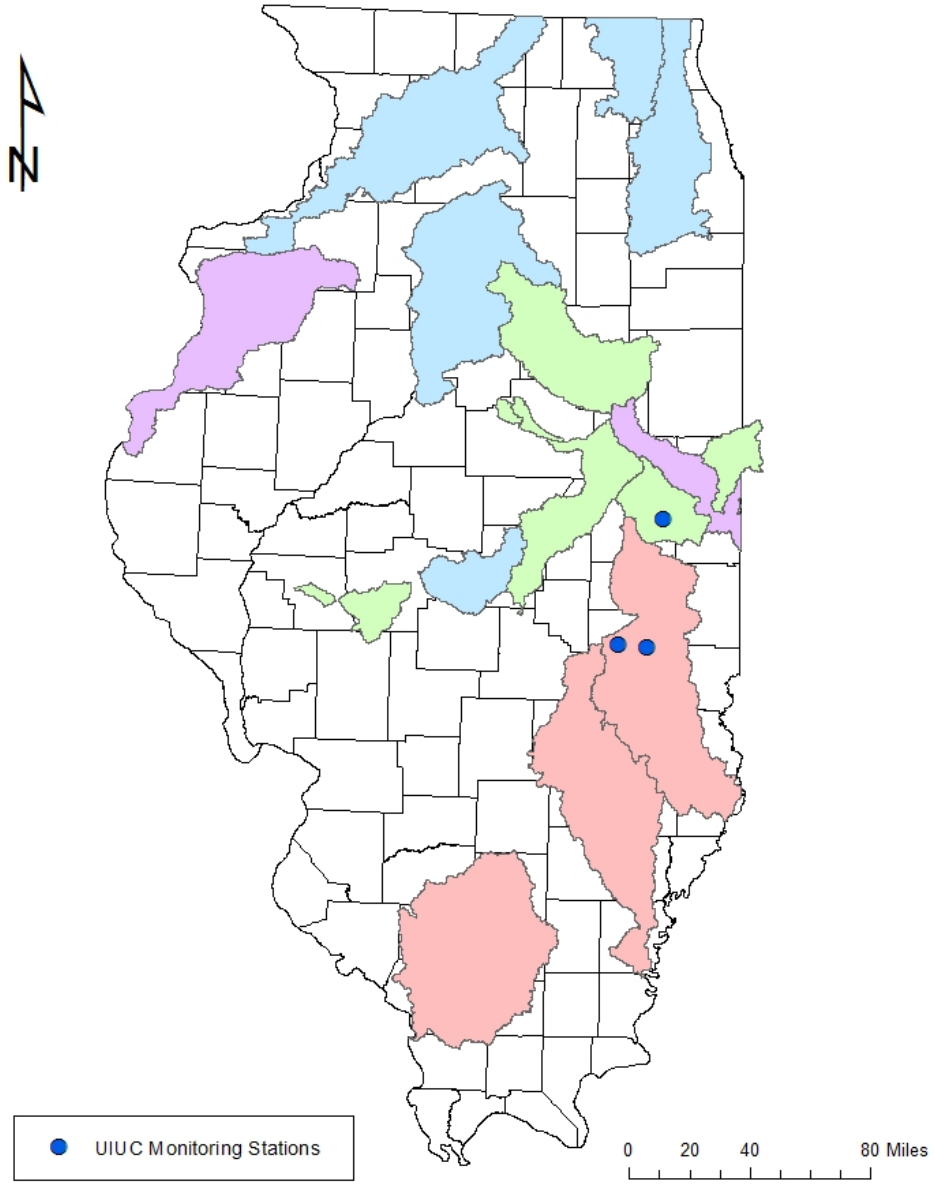
ISWS Sampling Locations



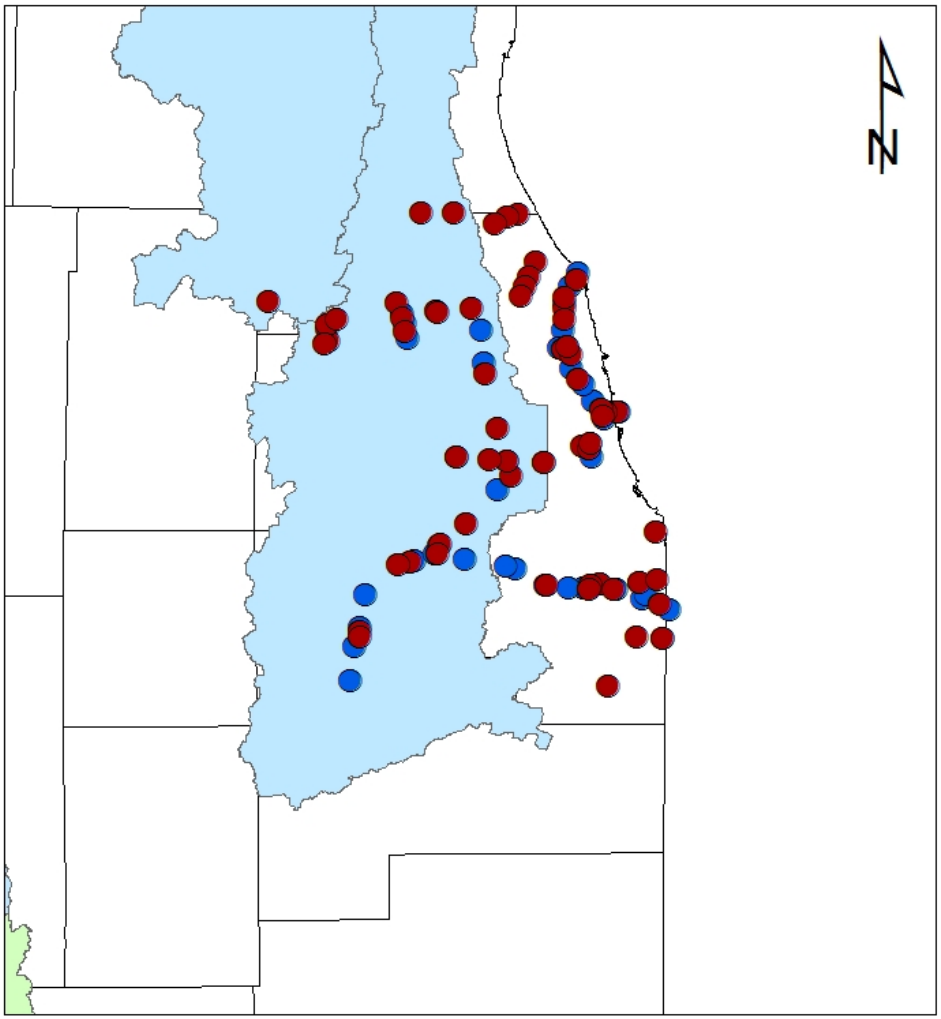
USGS Sampling Locations



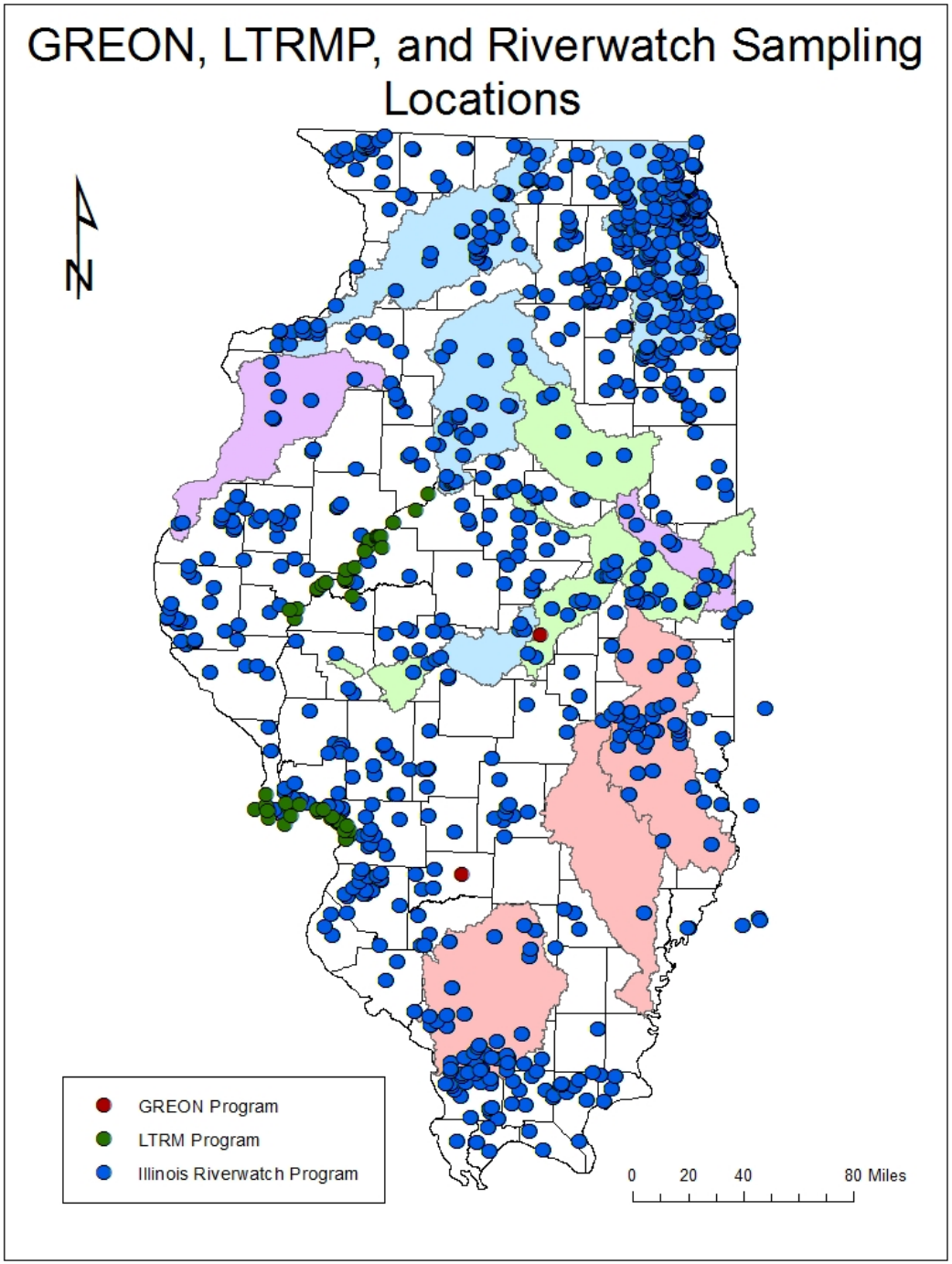
UIUC Sampling Locations



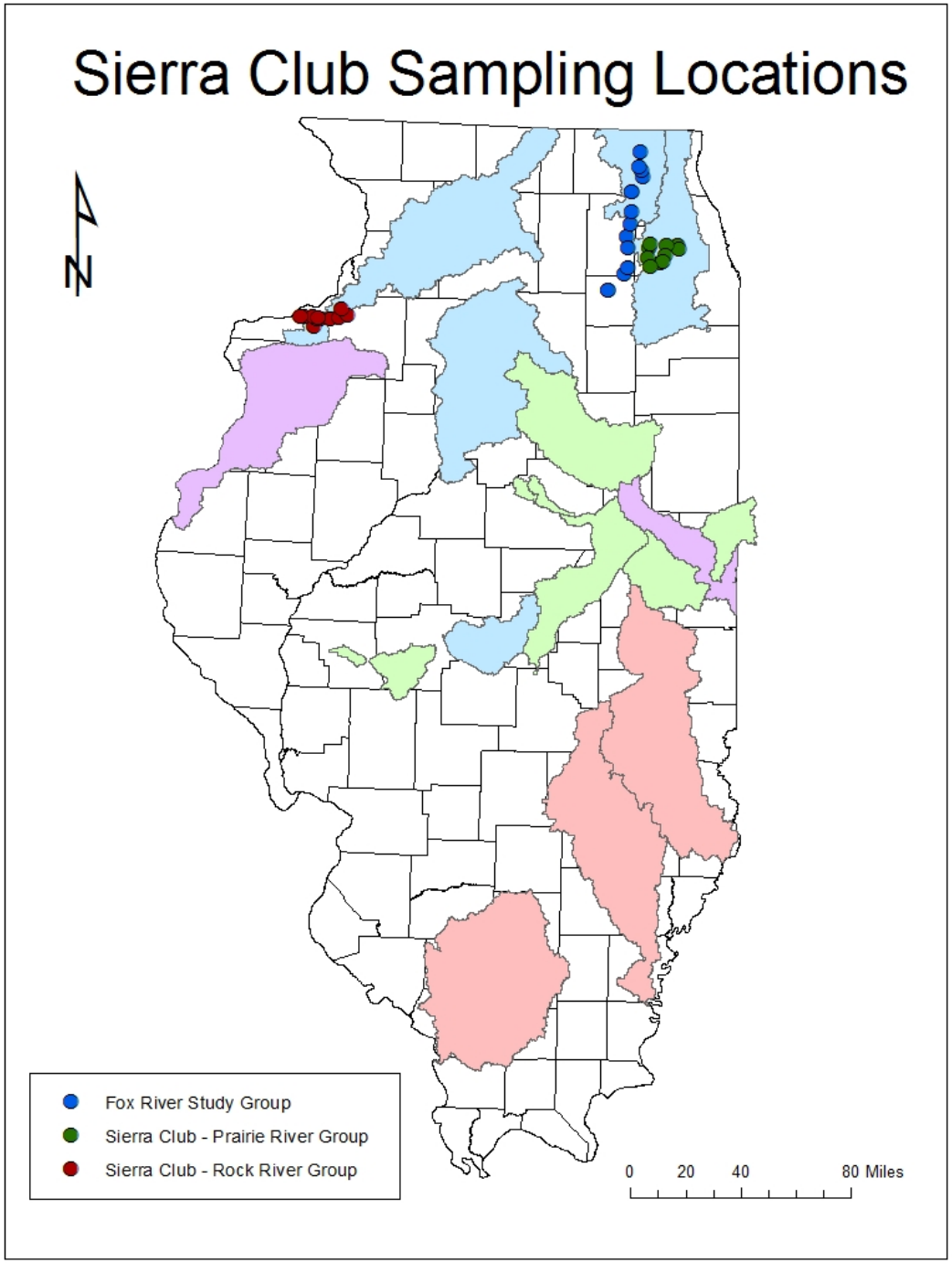
MWRDGC Sampling Locations



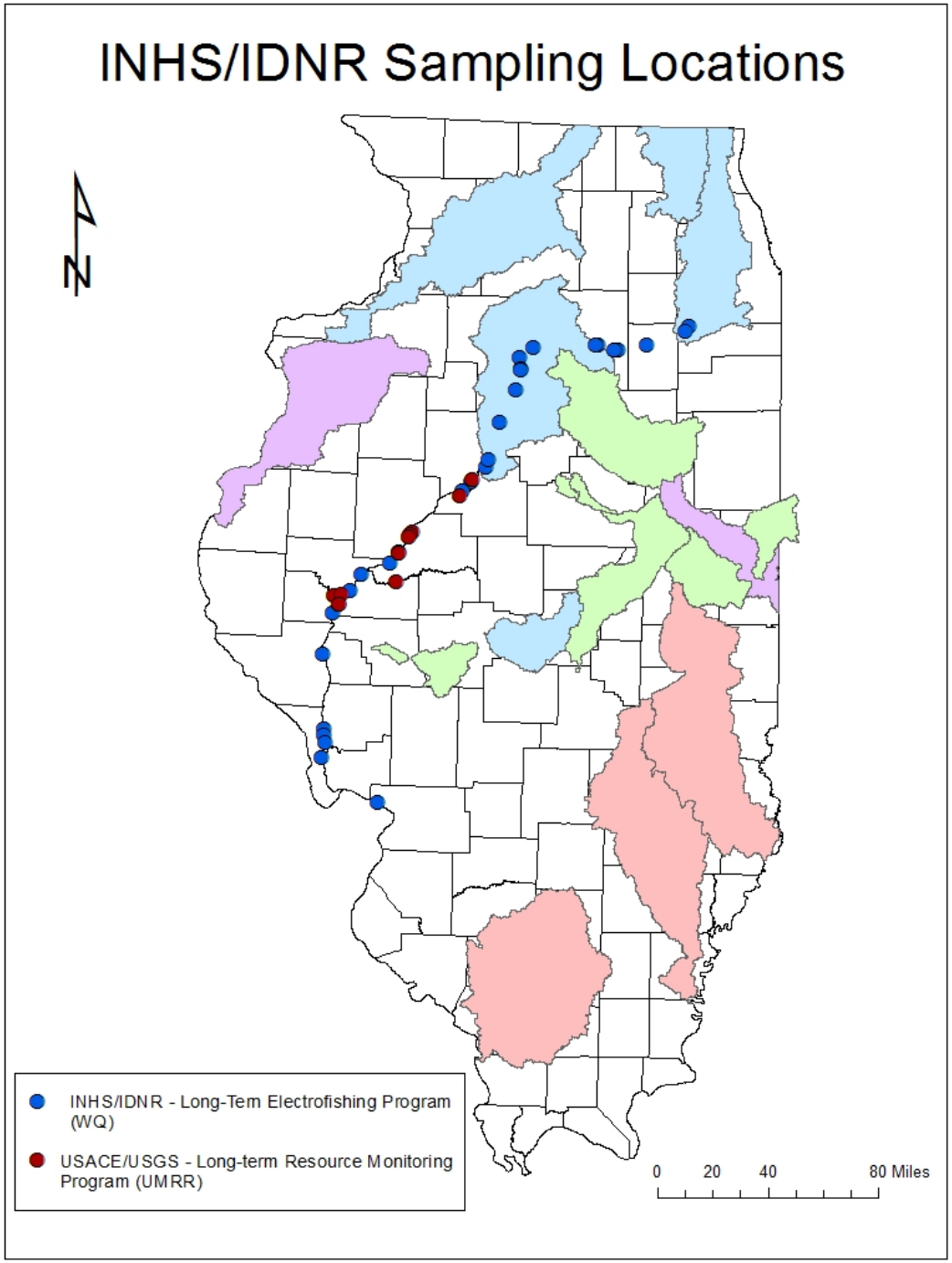
GREON, LTRMP, and Riverwatch Sampling Locations



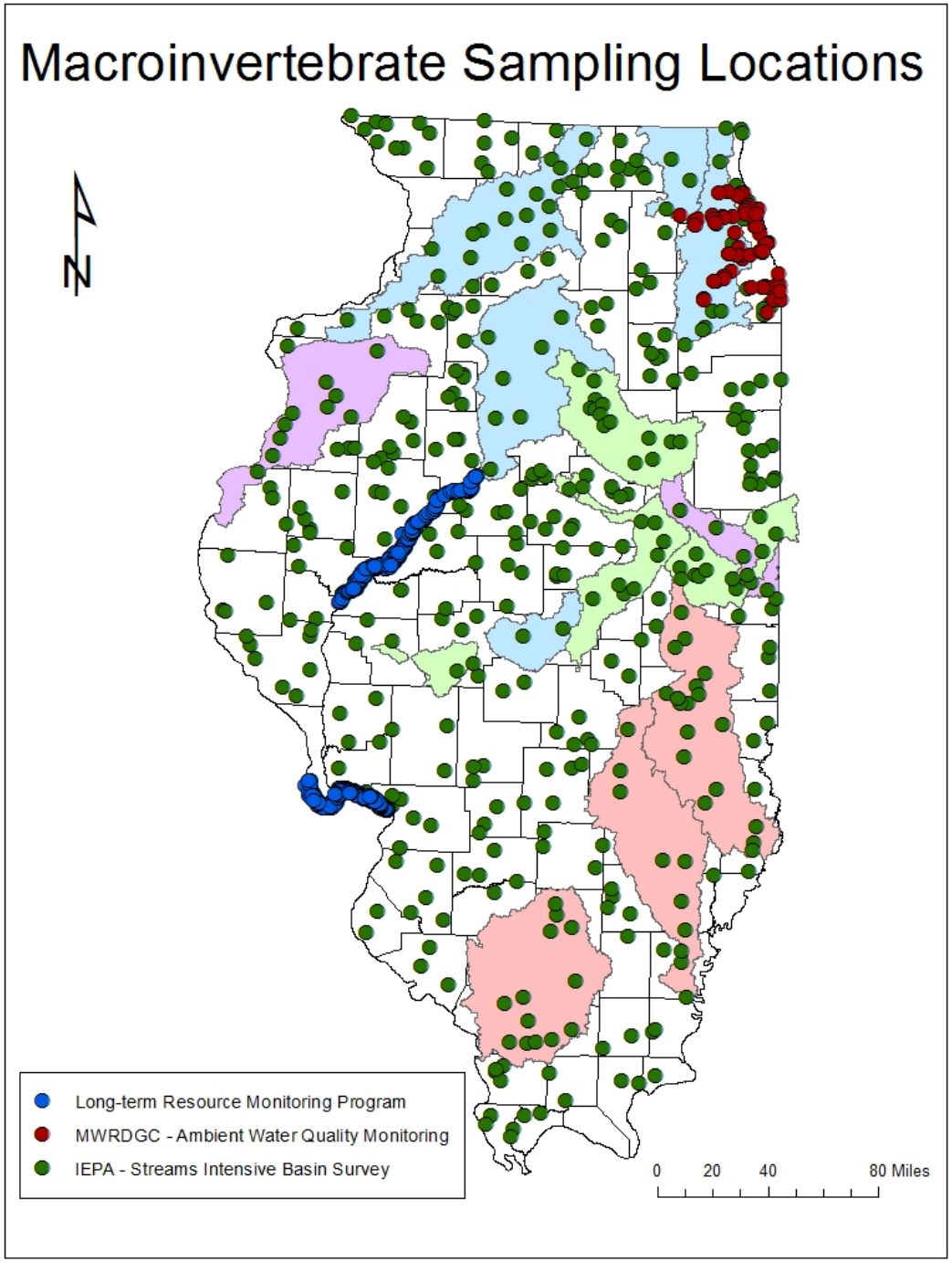
Sierra Club Sampling Locations



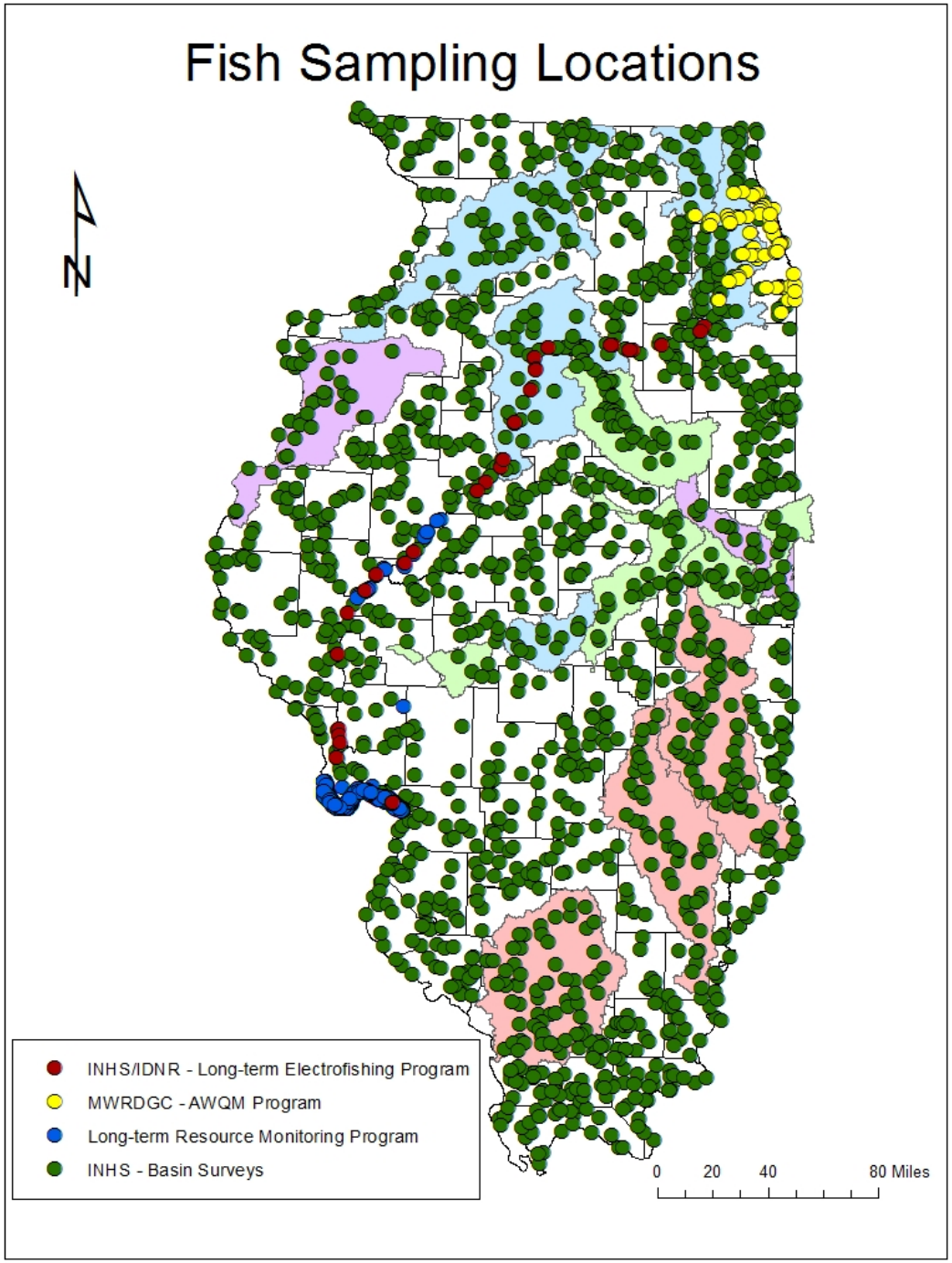
INHS/IDNR Sampling Locations



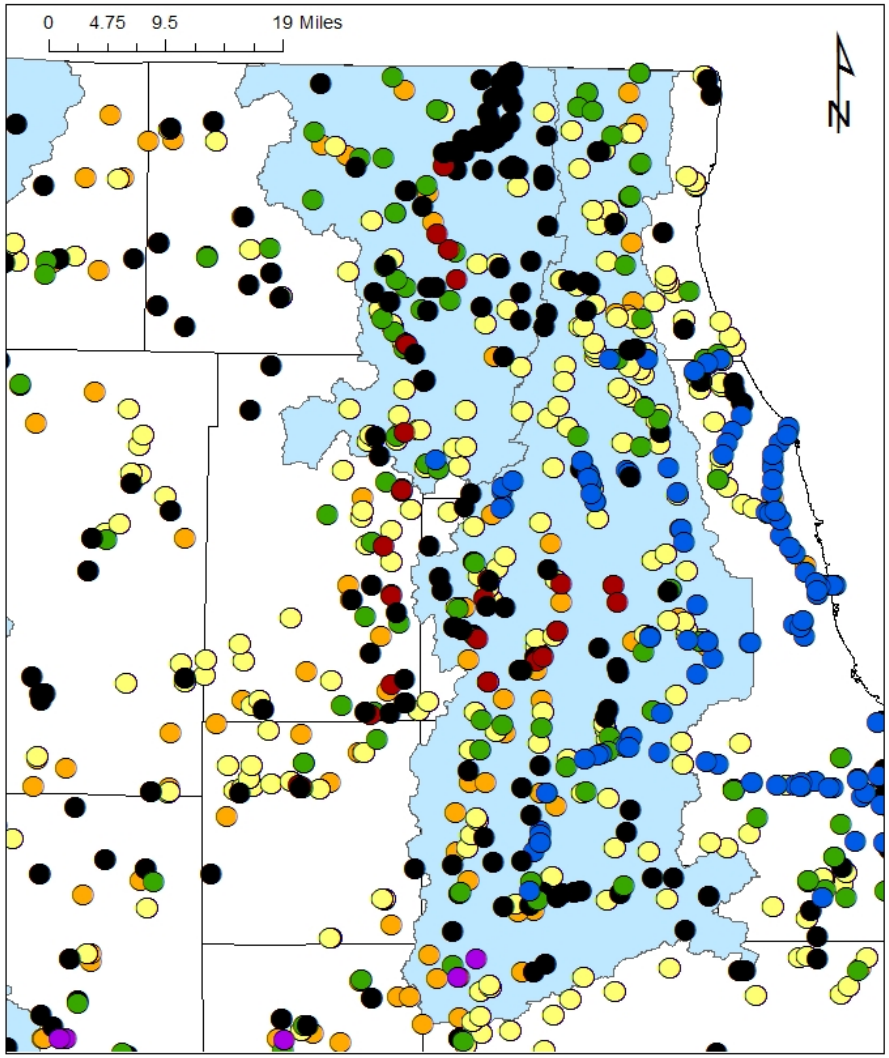
Macroinvertebrate Sampling Locations



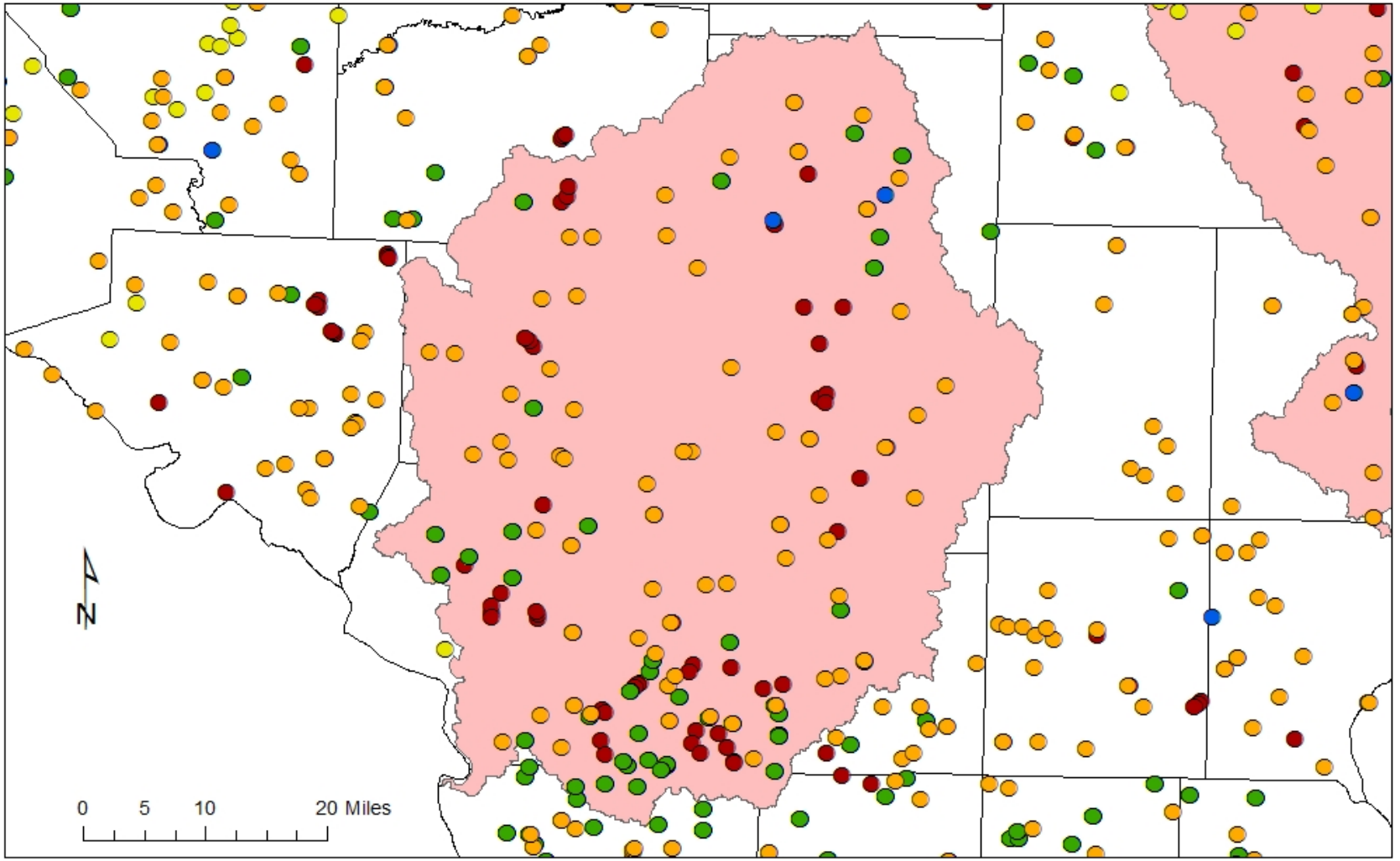
Fish Sampling Locations



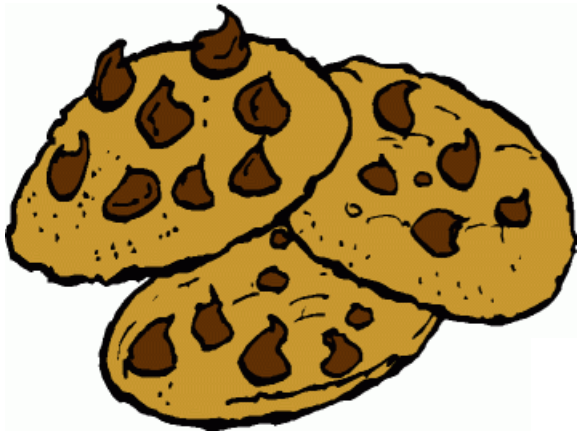
Aggregated Organization Monitoring (Upper Fox/Des Plaines/DuPage)



Aggregated Organization Monitoring (Big Muddy)



Break Time



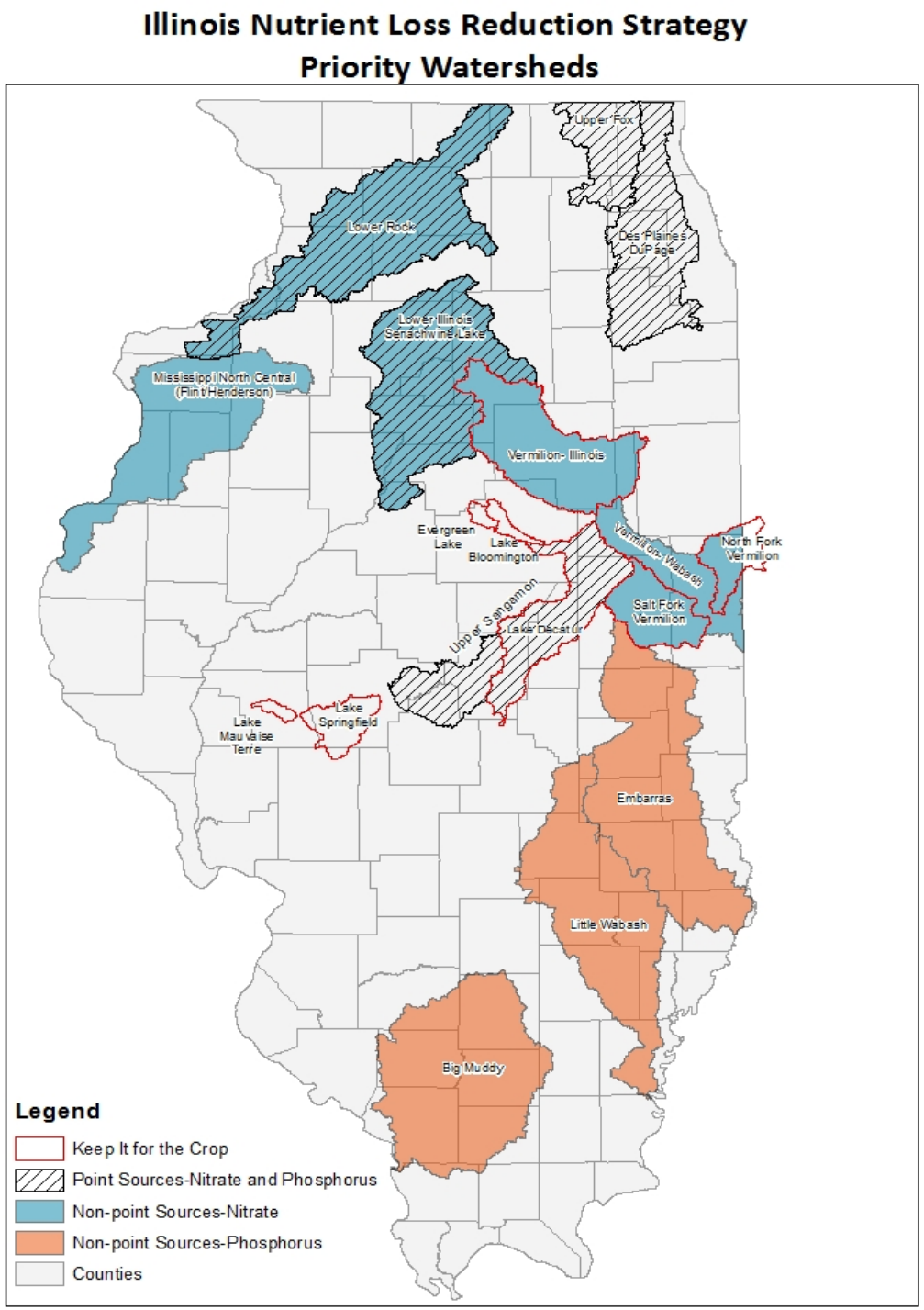
FREE
TUMS
8ct Roll
TUMS EXTRA 750
ASSORTED FRUIT
Goes to Work in Seconds!
CALCIUM RICH
TUMS
ULTRA 1000
STRENGTH
ASSORTED BERRIES
72ct Bottle - Ultra Assorted Berries
8ct Roll - EX Assorted Fruit

Discussion: Next Mapping Steps

- What additional maps or mapping details are needed?
- What are the "Top 5" of the 18 Priority Watersheds to concentrate on first regarding *development of monitoring plans and associated costs*?
  - Load Reductions
  - Trends
  - Water Resource Quality Improvements

What about:

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



http://www.umrba.org/wq/cwa-monitoring-plan-2-14.pdf
umrba.org
McAfee

Upper Mississippi River
Clean Water Act Monitoring Strategy 2013-2022

RECOMMENDED MONITORING PLAN

February 2014

Upper Mississippi River Basin Association

Funding for this project provided by the Illinois Environmental Protection Agency through Section 106 of the Clean Water Act.

UMR Recommended Monitoring Plan

- 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 Monitoring Plans* allow us to be ready to rock n' roll when resources become available!

NMC Work Plan Development and Other Questions

- Work Plan purpose? To guide NMC activities over then next 1.5-2.5 years.
- Do we need a NMC Work Plan? Or just fly by the seat of our pants from meeting to meeting?
- What are major interim steps and completion dates for such a Work Plan?
- Who develops each NLRS Priority Watershed Monitoring Plan? We in this room, or is there a budget)?
- How do we ultimately retrieve, aggregate, and display monitoring data collected by multiple organizations?
- Other questions?

Open Discussion

Next Meeting Dates?

CYA