

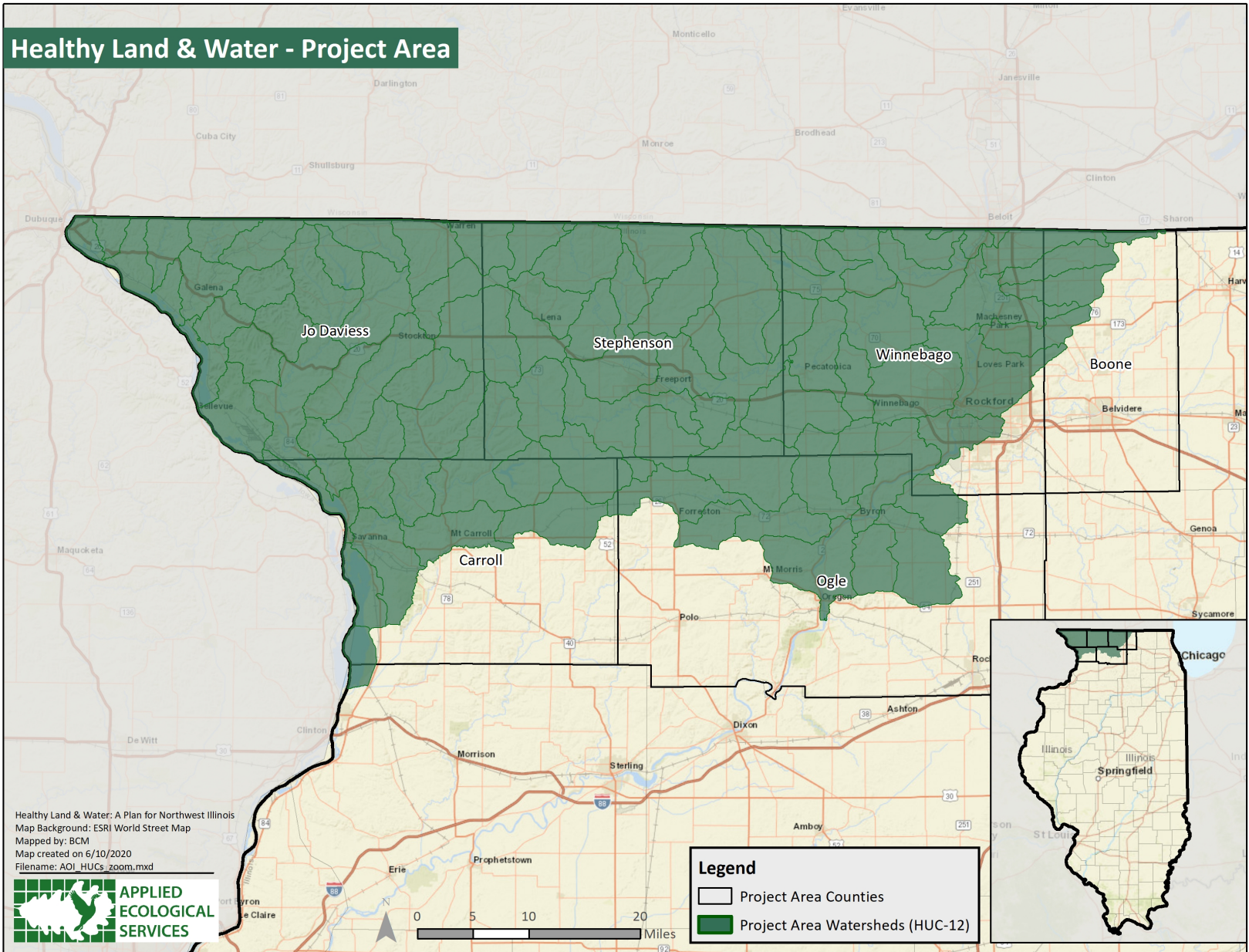
HEALTHY LAND & WATER

A PLAN FOR NORTHWEST ILLINOIS

Prairie State Conservation Coalition
March 2021

91 USGS HUC 12 Watersheds

Healthy Land & Water - Project Area



Protected Lands, Flood Zones, Wetlands and Hydric Soils



Tier I

Project Background: Tier I Partners and Process

Project Team

- Natural Land Institute
- Jo Daviess Conservation Foundation
- Bluestem Communications
- Applied Ecological Services

Steering Committee

Met five times to discuss project goals & scope, survey construction, finalize participants for the technical group.

Technical Advisory Group (TAG)

Met twice to develop project purpose, vision goals & objectives; develop criteria for prioritization process

Large Stakeholder Meeting

Provided feedback on purpose, vision & goals; input on possible work and structure of Tier II

Tier I Deliverables

- Large stakeholder meeting in August 2018
- Develop Purpose, Vision & Goals with input from TAG and regional stakeholders
- Survey to identify the environmental values and concerns of the region. Segmented into farmers and residents.
- Explore various GIS prioritization models with feedback from TAG group. Select one to pursue.

Purpose:

Diverse constituents and communities from across the region work together to bridge conservation interests and needs, and to leverage multiple resources including funding for the prevention of land and water resource degradation and continued improvement of our water quality for recreation, health and the regional economy.

Vision:

We acknowledge that many people are engaged in wide variety of conservation practices. We envision a future where together, we work collectively with shared expertise and funding to improve, conserve, and protect the shared soil, water, and biological resources that are fundamental to the region's future economic prosperity, health, and well-being.

Public Survey

	Residents	Farmers
Key Values	Rural way of life	Rural way of life
	Community	Farm as a family heritage
	Open spaces	Family-oriented life
Most pressing environmental concern	Poor drinking water	Urban / suburban sprawl

A Spatial Framework
For Prioritization:
A Watershed Approach

STEP ONE



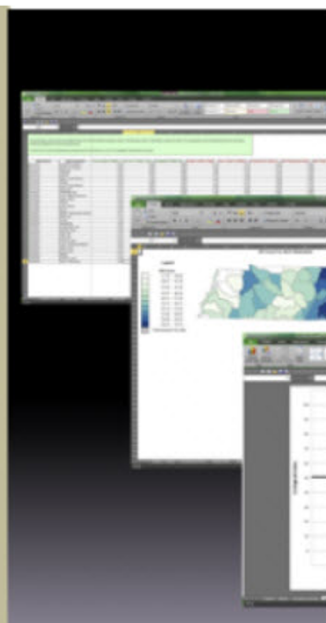
Recovery Potential Screening: Tools for Comparing Impaired Waters Restorability

CONTACT US

SHARE



User-friendly tools with
tabular, map and graph
outputs



Featured Resources

- [Methods for Comparing Watersheds](#)
- [Downloadable RPS Tools for Anywhere in the Continental US](#)
- [Ecological, Stressor and Social Indicators of Watershed Condition](#)

1

2

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4



What is Watershed Index Online (WSIO)

<https://www.epa.gov/wsio>

- The EPA Watershed Index Online (WSIO) project was initiated in 2008 to improve ways to compare, prioritize and target watersheds for a broad range of watershed management purposes on local, state, regional, and national scales.
- Developed to assist federal, state, and local partners in prioritizing activities based on watershed condition and suitability or need for protection, restoration, improved monitoring, and other management activities.
- The goal of the WSIO is to increase the capacity for states and others to perform comparative watershed analysis

Indicators: *measurable* attributes of ecological and social conditions

+

Ecological Indicators

Measure the capacity to maintain or re-establish natural structure and processes

-

Stressor Indicators

Measure the extent of man-caused sources of impaired water quality

+

Social Indicators

Measure relevant community, regulatory, economic or behavioral factors



Examples of Potential Indicators

+

Ecological Indicators

Amount of green
infrastructure in
a watershed

-

Stressor Indicators

Amount of
impaired water
resources in a
watershed

+

Social Indicators

Watersheds with
TMDLs,
watershed plans,
or associations



HL&W WSIO Tool Ecological Indicators

Ecological Indicator Name
% Open Water in WS (2016)
% N-Index1 (Natural land cover) in WS (2016)
% National Ecological Framework (NEF) Auxiliary Areas (areas with natural land cover that are contiguous to Hubs & Corridors) in WS (2001)
Preliminary Healthy Watersheds Assessment (PHWA) Watershed Health Index, State (2016)
Headwater HUC12 Flag
% Protected Rare Ecosystems
% of HUC12 Containing TNC Resilient & Connected Network*
% of HUC 12 Containing Endangered and Threatened Species*
% of HUC 12 Containing IL Natural Area Inventory (INAI)*

** External data the HL&W team incorporated into the WSIO Tool*

HL&W WSIO Tool Stressor Indicators

Stressor Indicator Name	
% Urban in WS (2016)	% Waters Near \geq 5% Impervious Cover (2016)
% Developed, Low Intensity in WS (2016)	Soil Erodibility, Mean in WS
% Cultivated Crops in WS (2016)	Agricultural Water Demand in WS
Density Roads & Rails in WS (2015)	Manure Application in WS
Density Road-Stream Crossing in WS (2015)	Synthetic N Fertilizer Application in WS
% Urban Contiguous to Water in WS (2016)	Inorganic P Fertilizer Application in WS
% Agriculture Contiguous to Water in WS (2016)	Manure P Application in WS
% Agriculture on Hydric Soil in WS	Livestock Density (AEU) in WS
% Cropland on $>$ 10% Slope in WS (2016)	Septic System Count in WS
% Nonbuffered Agriculture in WS	% Tile or Ditch Drained in WS
PHWA Watershed Vulnerability Index, State (2016)	American Farmland Trust Farms Under Threat*
% Imperviousness, Mean in WS (2016)	% of Watershed Containing FEMA 100-Year Floodplain*

** External data the HL&W team incorporated into the WSIO Tool*

HL&W WSIO Tool Social Indicators

Social Indicator Name
% Protected Land, All Types; PSCC I-View*
USDA Conservation Reserve Program Area in WS
% Drinking Water Source Protection Area, Ground
% Potentially Restorable Wetlands
303d Vision Priority Flag
Nonpoint Control Projects Count
NPDES Permit Count (2019)
Has a Watershed-Based Plan*
Has a TMDL*
% of Watershed in a Conservation Opportunity Area (COA)*
Land Trust Service Area Count*

** External data the HL&W team incorporated into the WSIO Tool*

- Making Individual Indicators Comparable – ***Normalization***
- Adding Opinion and Flexibility – ***Weighting***

Manure Application in WS	1
Synthetic N Fertilizer Application in WS	1
Total Nitrogen Deposition in WS (2011)	1
% Tile or Ditch Drained in WS	2
% Streamlength Impaired 303d-Listed	5
% Streamlength 303d-Listed Nutrients (2015)	3
% Waterbody Area 303d-Listed Nutrients (2015)	3

Example
Weights

Final Recovery Potential Integrated (RPI) Score

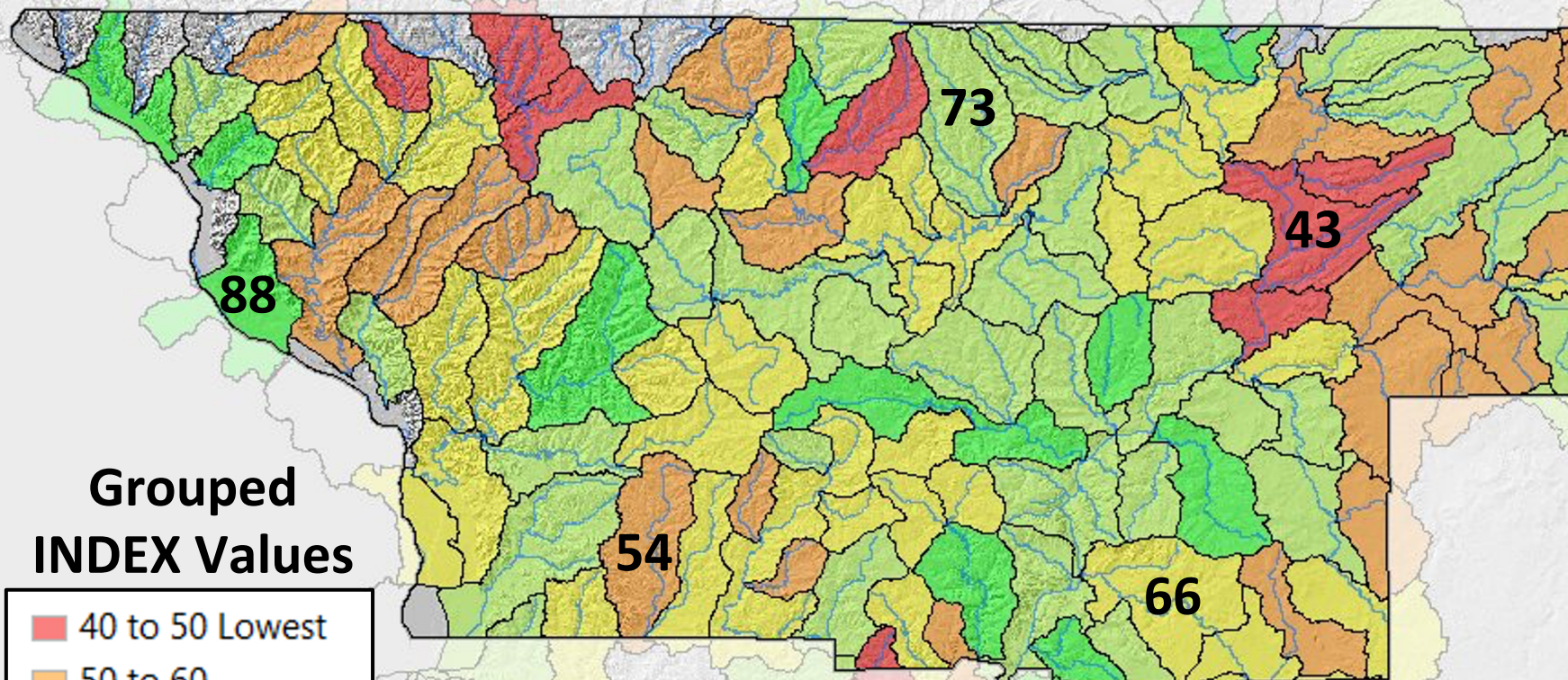
is calculated as the average of the three Indexes to reflect the overall condition of the watershed

$$\text{RPI Score} = \frac{\text{Ecological Index} + \text{Social Index} + (100 - \text{Stressor Index})}{3}$$

Higher RPI Score means Higher Recovery Potential



Example Results - INDEX of Recovery Potential



Grouped INDEX Values

- 40 to 50 Lowest
- 50 to 60
- 60 to 70
- 70 to 80
- 80 to 90 Highest

Map-Color Coded by Watershed



Tier (Phase) II

Project Background:

Tier II Partners and Process

Steering Committee

- Natural Land Institute
- Jo Daviess Conservation Foundation
- IDNR (Illinois Wildlife Action Plan)
- American Farmland Trust
- Jo Daviess County League of Women Voters
- Soil Health Partnership
- Olson Ecological Solutions
- Jo Daviess Farm Bureau
- Blackhawk Hills Regional Council
- Trout Unlimited
- IEPA
- Farm Bureau

Working Groups

- Urban and Developed Lands
- GIS Technical Group

Tier II Deliverables

- Develop a Communications and Outreach Strategy for all constituents (ESRI StoryMap)
- Create a high level of collaboration between non-profit conservation land trusts, local government, agricultural agencies, and non-profit farm groups
- ID and prioritize, within two pilot project areas, strategies to reduce and/or capture nutrient runoff including permanent land retirement
- ID areas suitable as large ecological complexes with a climate resiliency component

HEALTHY LAND & WATER

A PLAN FOR NORTHWEST ILLINOIS

Name

- We chose a name that was easy to say and understand
- Evokes familiar terms like “soil health” “healthy watersheds” “ecosystem health”
- We have the domain www.healthylandandwater.org

HEALTHY LAND & WATER

A PLAN FOR NORTHWEST ILLINOIS

OUR APPROACH

OUR REGION

OUR PLAN

GET INVOLVED

CONTACT

No matter where you live and work, land and water matter. We bring people together from agricultural, urban and rural areas across Northwest Illinois to chart the course for improving water quality, soil health and habitat connectivity.

www.healthylandandwater.org

GIS Technical Group

The charge of the GTG is to develop a watershed prioritization tool and an analyses process for evaluating optimal locations in order to create large contiguous ecological complexes and identify climate resilient areas that integrate developed, working and natural lands, for improved watershed health and ecosystem functioning.

Urban & Developed Lands Working Group

The charge of the Urban and Developed Lands Working Group is to identify plans, policies and practices that improve land, soil and water health; enhance ecosystem functioning in the built environment; and contribute to the creation of large ecological complexes that integrate developed, working and natural lands. The group further works to promote the adoption of these measures by municipalities, large urban entities, developers, and land and home owners through outreach and engagement.

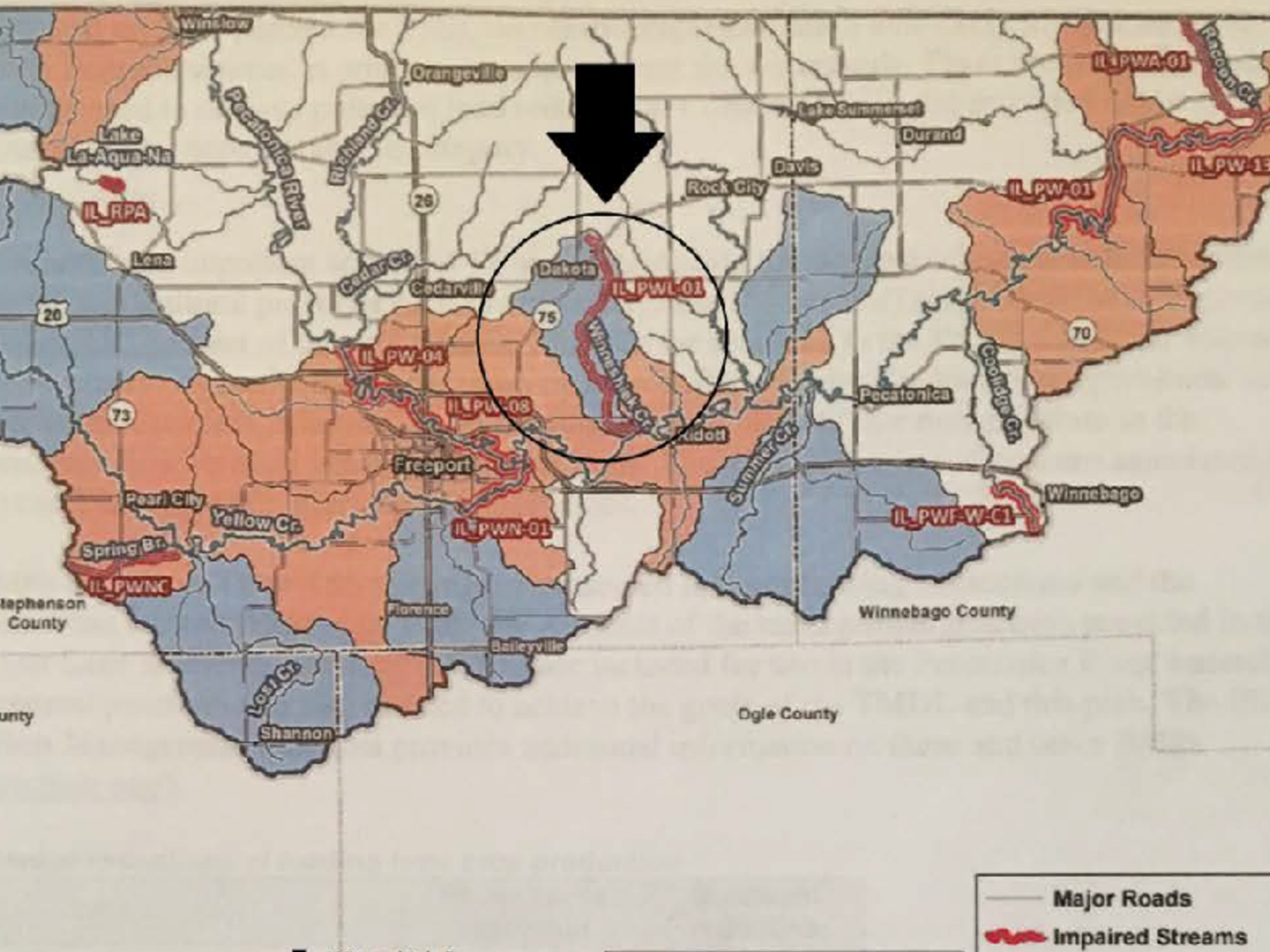
Pilot Areas for Implementation

Winneshiek Creek Watershed

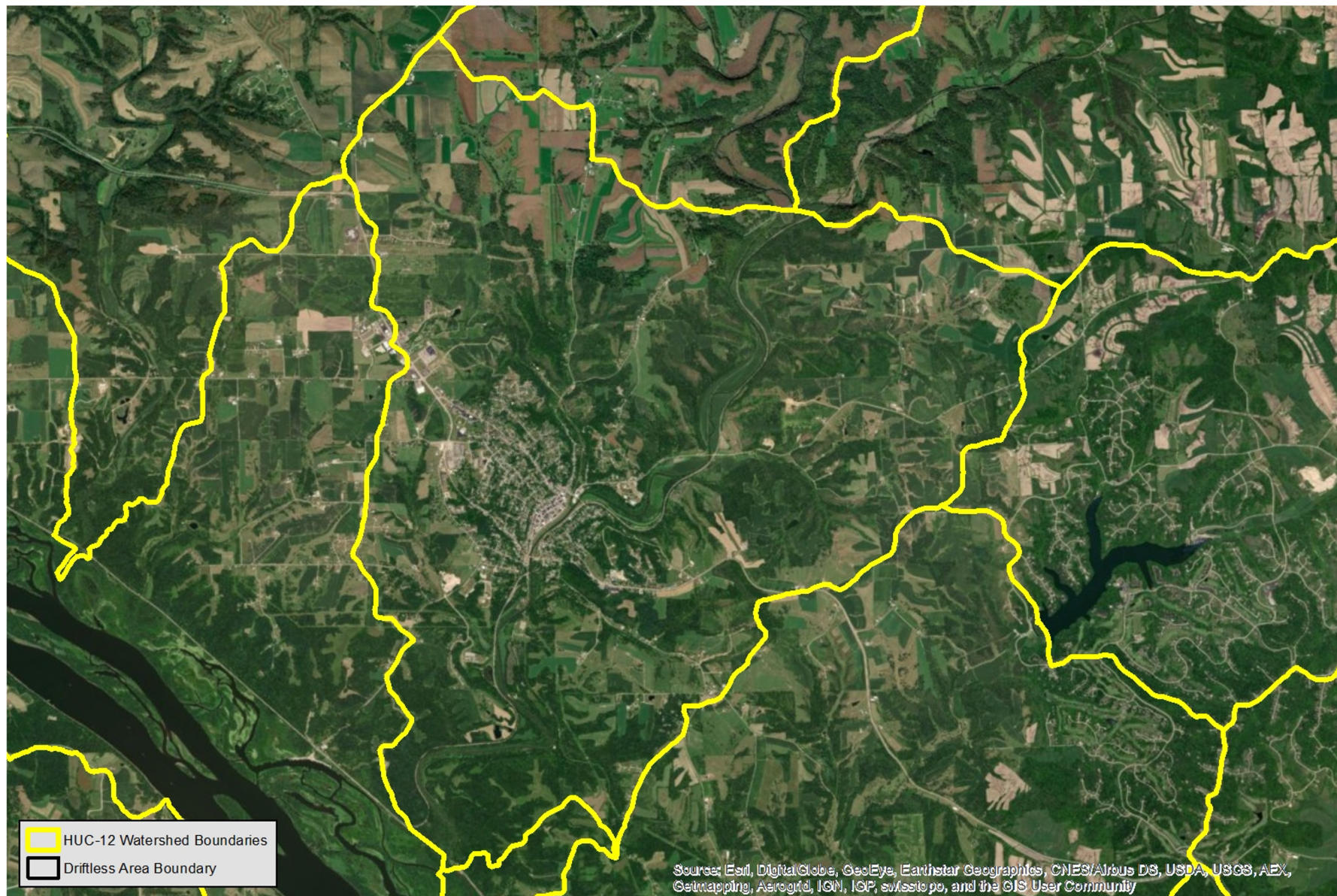
- A grant to pilot implementation practices to address water quality impairments has been awarded from the Illinois EPA ("IEPA") Section 319 for watershed planning for Winneshiek Creek.
- This creek is an IEPA targeted subwatershed of the Pecatonica River due to impairments for aquatic life.
- The Pecatonica is currently the subject of a Stage 3 Report by the IEPA for a TMDL and Load Reduction Strategies (draft January 2018)
- Identified sources of impairment include both sediment and phosphorus from agricultural land uses, streambank erosion, and livestock.

Lower Galena River Watershed

- The Lower Galena River has been designated by the Illinois EPA as impaired by fecal coliform, PCBs (Polychlorinated Biphenyls), sedimentation/siltation, Total Suspended Solids, zinc, and bottom deposits.
- These issues affect the aesthetics of the river, aquatic life, fish consumption, and recreational use.
- The Galena River Watershed-based Planning Committee was convened at the end of 2016 to study water resource management issues and opportunities and to produce a plan meeting the requirements of the Illinois Environmental Protection Agency 319 Grant obtained for the planning process.
- <https://sites.google.com/site/jodaviesscountywatershedplan/home/galena-river-water-based-plan>



Lower Galena River Watershed Aerial Map



Note: INAI Sites in Boone County are not displayed.

Map created by JDCF, 03-15-17

Implementation Funding



Illinois Working Lands, Water and Wildlife
Regional Conservation Partnership

— THE —
CONSERVATION FUND

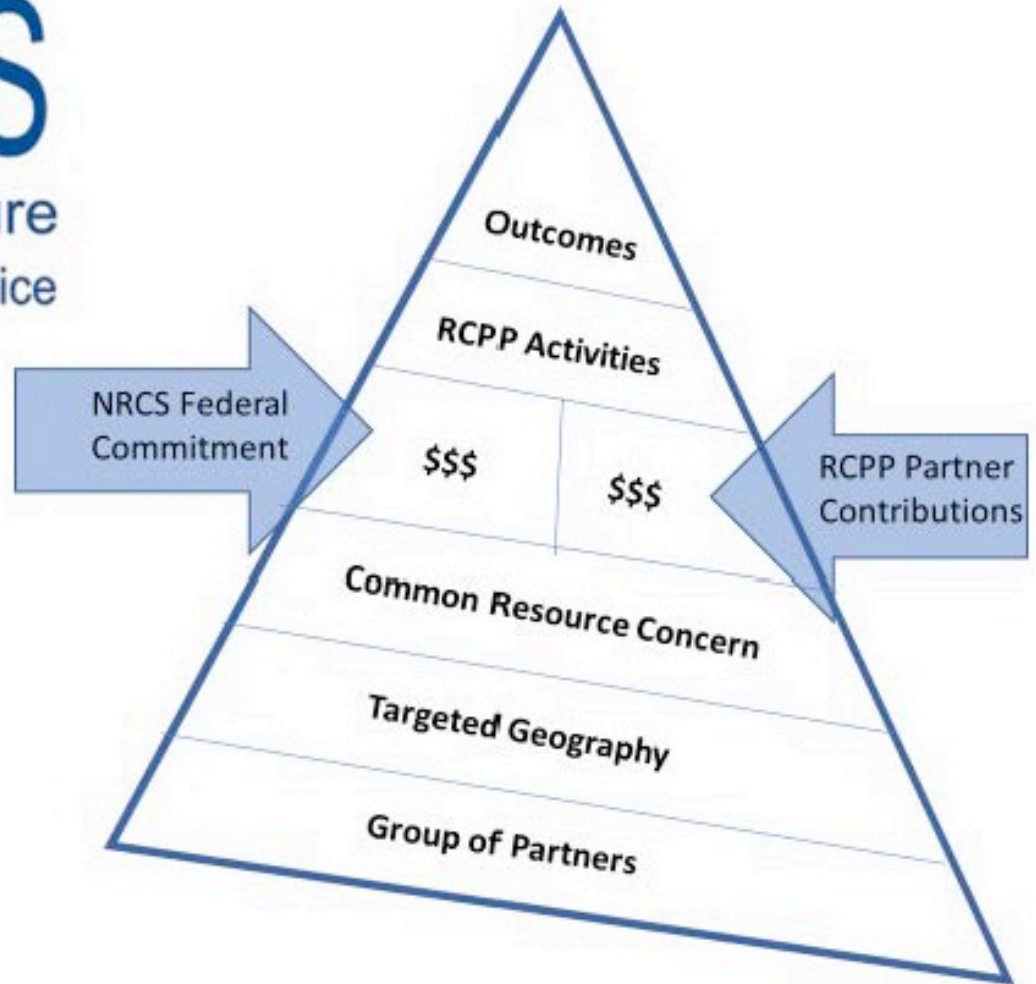
Illinois Working Lands Water and Wildlife RCPP



U.S. Department of Agriculture
Natural Resources Conservation Service



THE
CONSERVATION FUND



Illinois Working Lands Water and Wildlife RCPP

THE
CONSERVATION FUND

RCPP Activities Funded by NRCS:

- Permanent Farmland Easements
- Land Management
- Land Rental

Photo by Ivan LaBianca