

Upper South Branch Kishwaukee

Watershed Overview & Goals Workshop

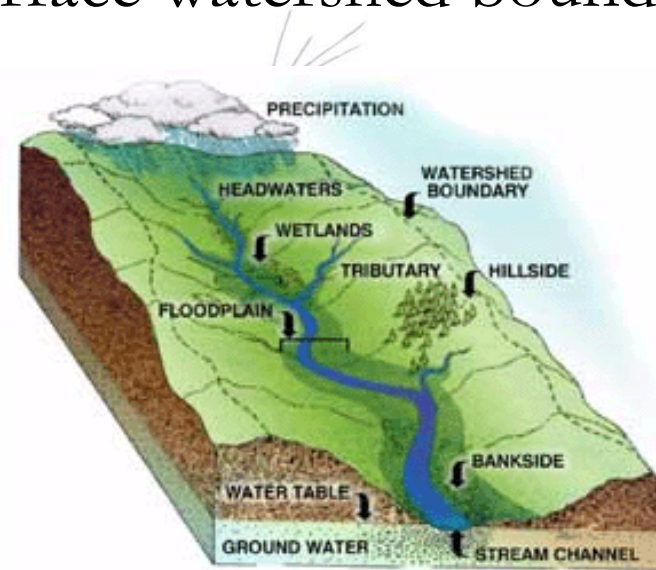
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What is a Watershed?

- A watershed is best described as an area of land where surface water drains to a common location such as a stream, river, or lake.
- Watersheds do not follow political boundaries.
- Groundwater not linked to surface watershed boundaries.



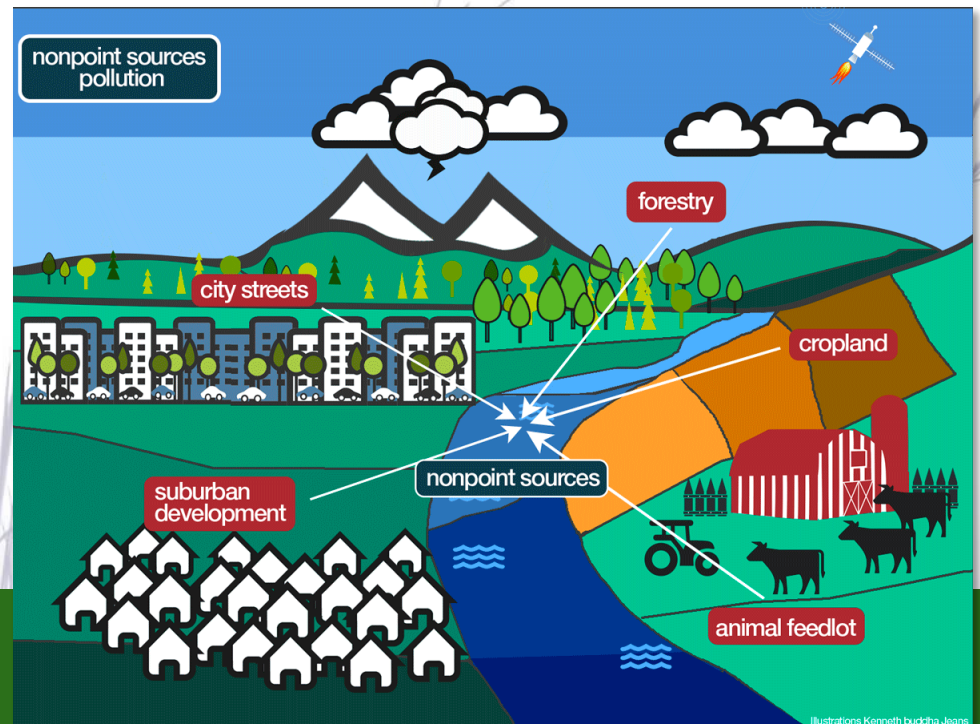
What is Watershed Planning?

Voluntary, community supported approach to protecting and improving water quality in streams, lakes, and wetlands, protecting groundwater resources, restoring habitat, reducing flood damage, providing recreational & educational opportunities, and improving quality of life for people.



Nonpoint Source (NPS) Pollution

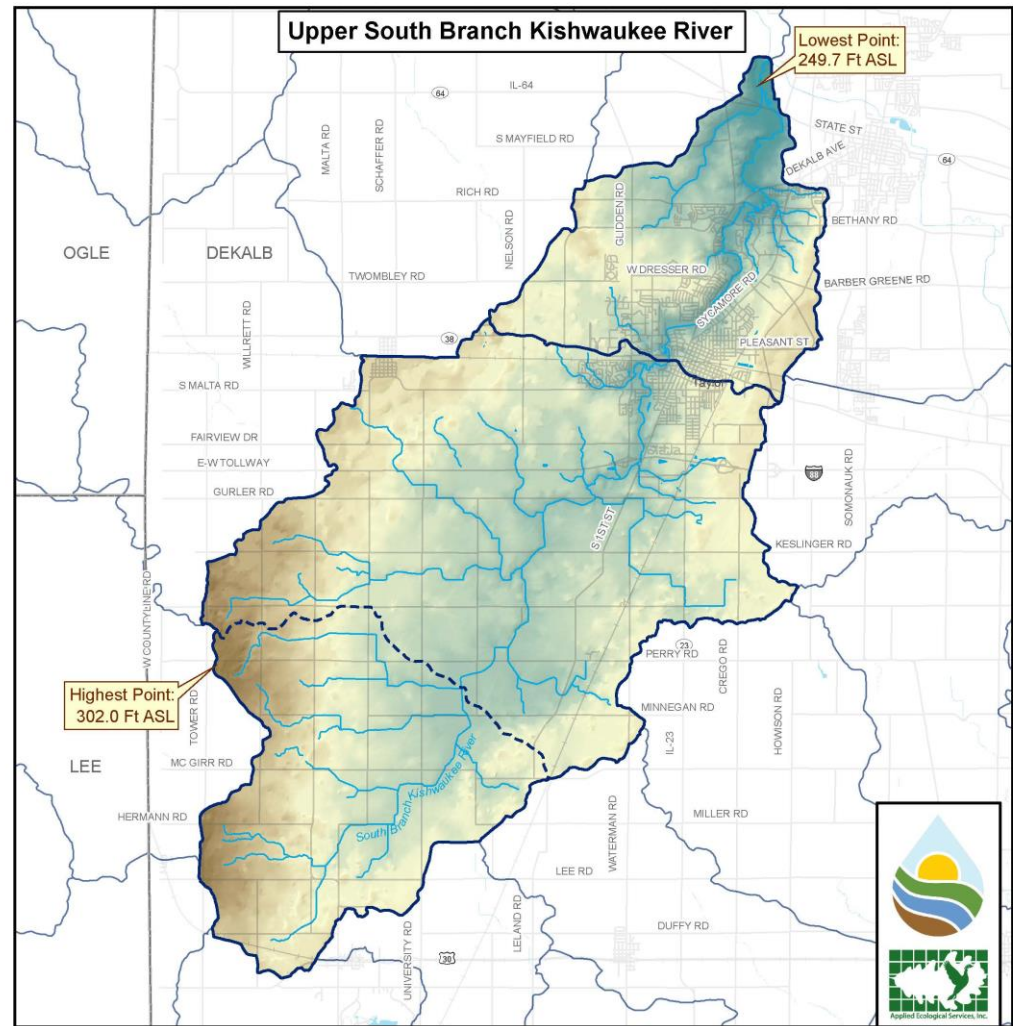
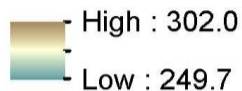
- Caused by rainfall/snowmelt moving over and through the ground. As runoff moves, it picks up and carries away natural and human-made pollutants, depositing them into lakes, rivers, wetlands, coastal waters and ground waters.
- Any pollution that does NOT come from a pipe or discreet source (facility)
- Many diffuse sources
- Addressed via an EPA Nine Element Watershed Plan



Digital Elevation Model

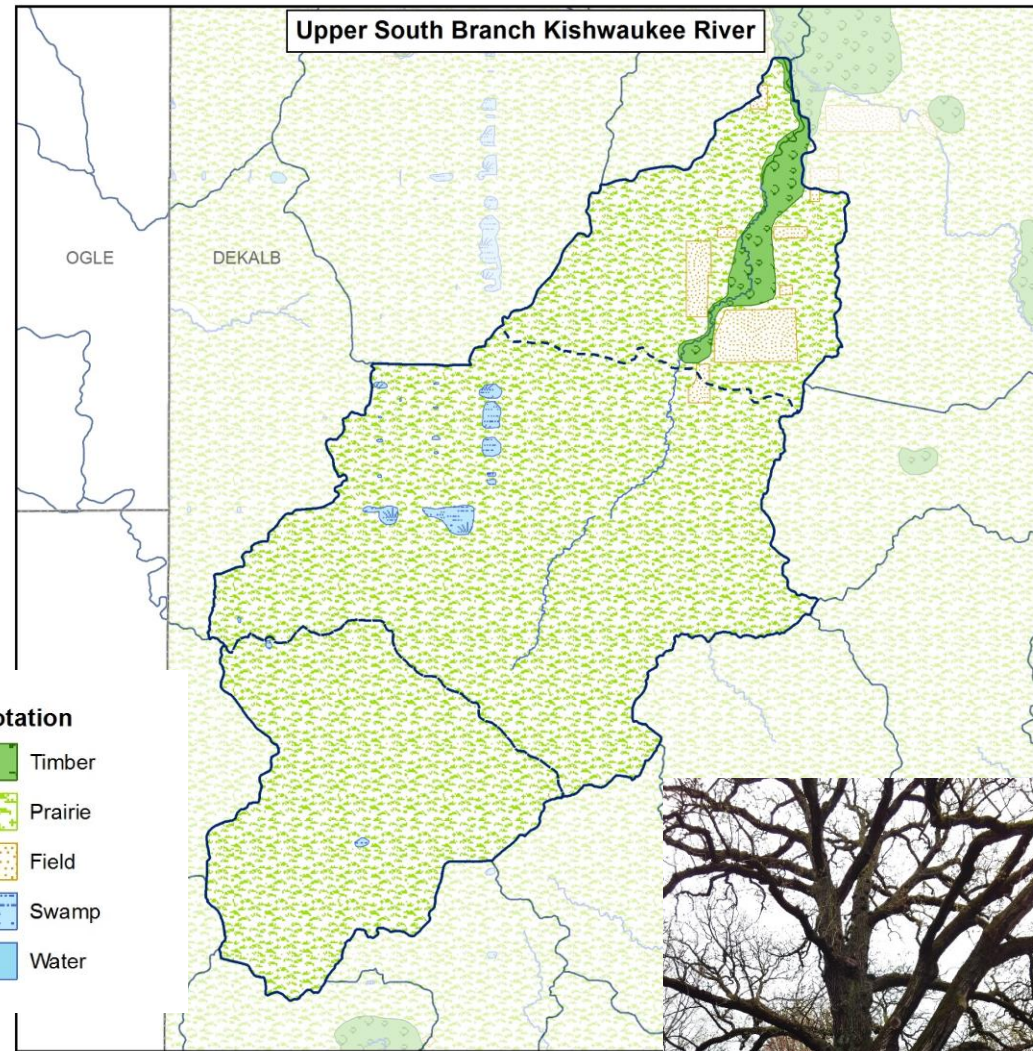
- Water flows north and east from south and western edges to outlet north of DeKalb
- 63,219 acres or 99 square miles
- Very flat! Only 52 feet of relief

Elevation Feet Above Sea Level (ASL)



Pre-Settlement Landscape (1842)

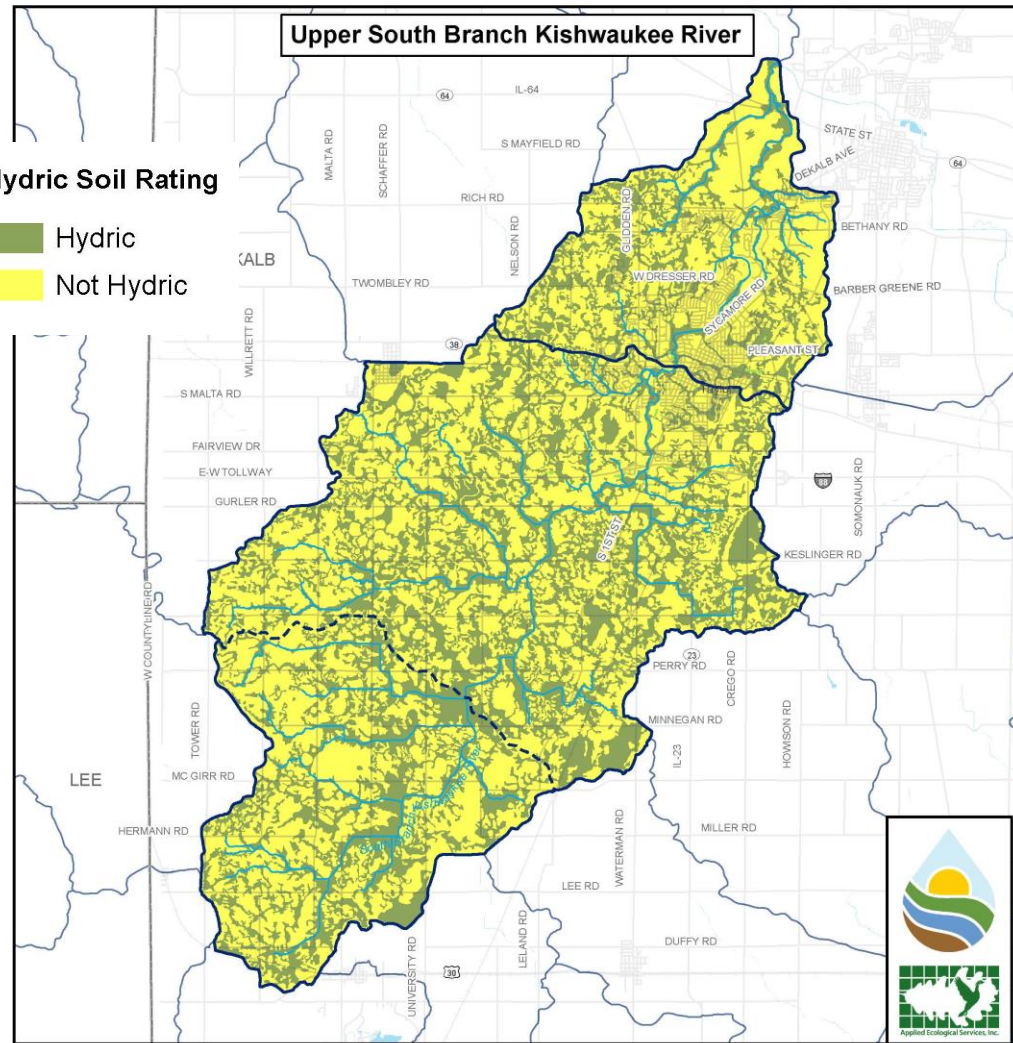
- Vast majority of watershed was “Prairie”
- Stretches of “Timber” along the main stem of the Kishwaukee near DeKalb
- Few pockets of “Marsh” scattered throughout
- Some fields already cleared for farming



Hydric Soils

Historically there were approximately 25,734 acres of wetlands (or hydric soils)

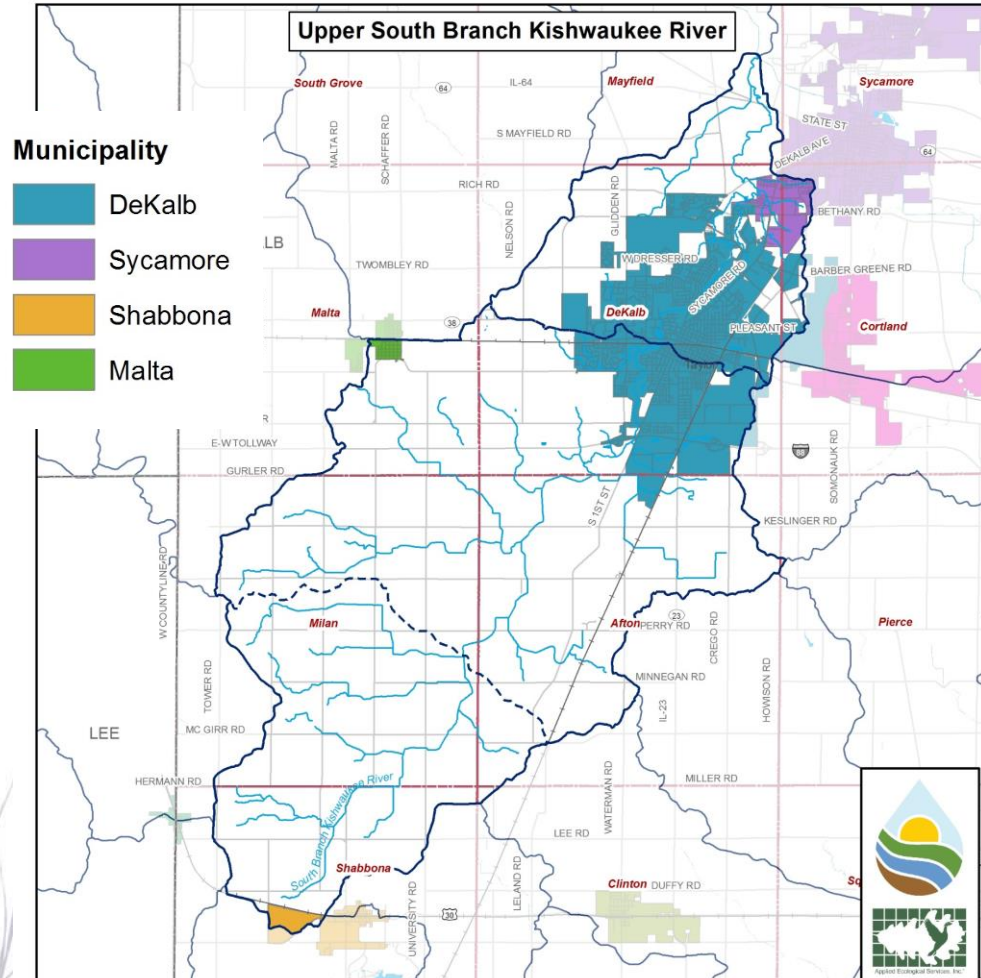
1,570 acres of pre-settlement wetlands, or 6%, remain



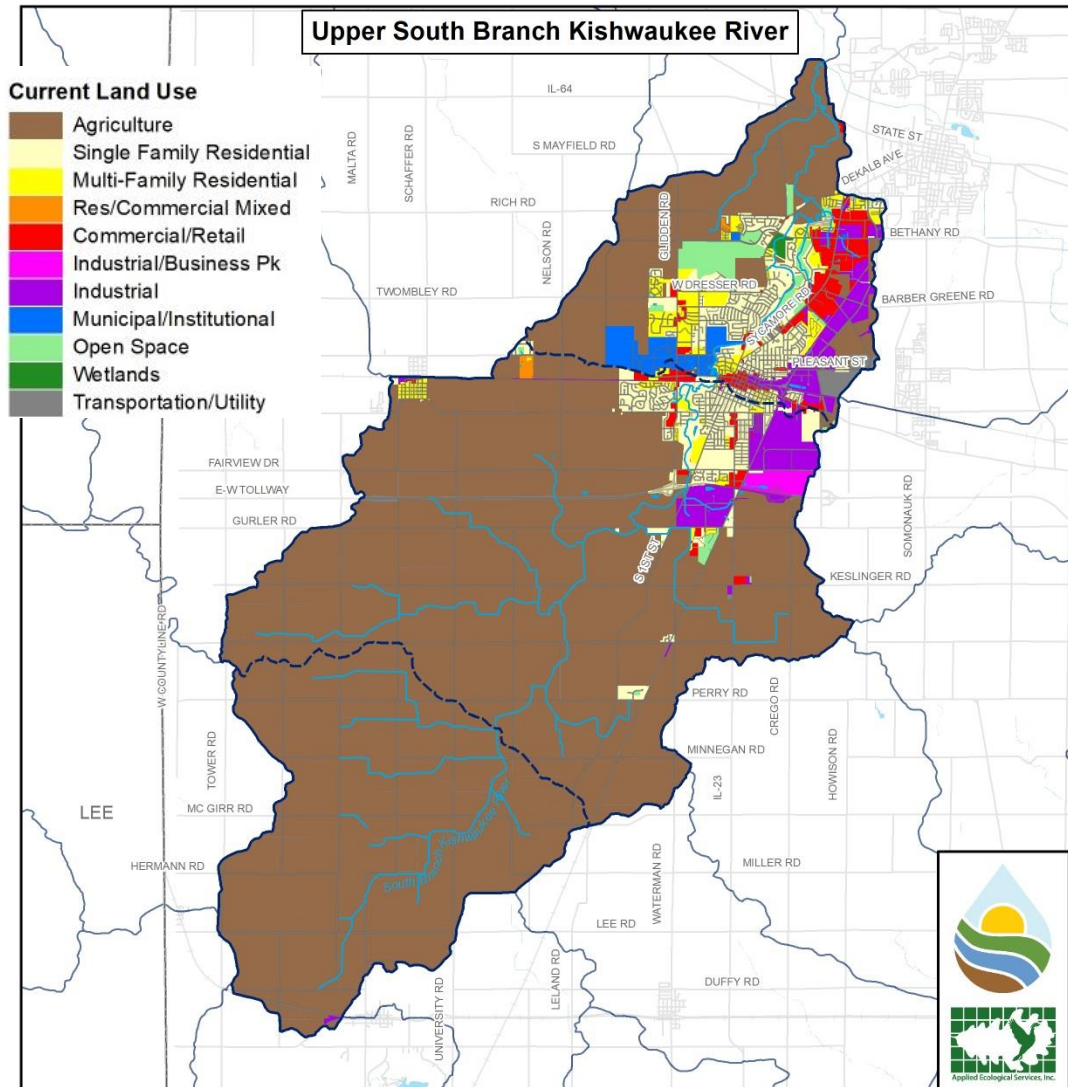
Jurisdictions

Entirely within DeKalb Co.

Jurisdiction	Area (acres)	% of Watershed
County	63,219.1	100
DeKalb	63,219.1	100
Municipalities	10,688.4	17
DeKalb	9,585.4	15.3
Sycamore	752.0	1.2
Shabbona	217.1	<1
Malta	133.9	<1



Existing Land Use (2019)

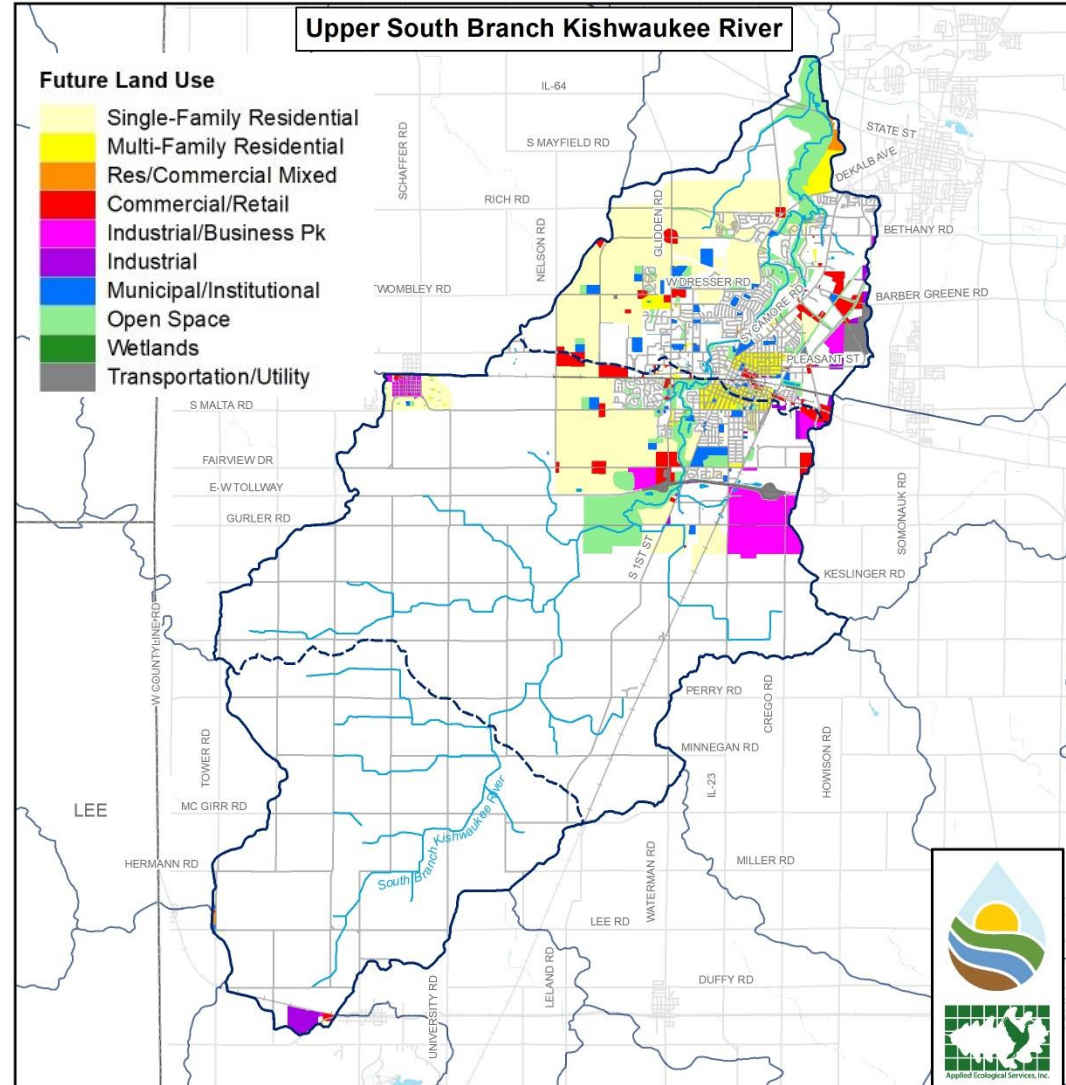


- 80% Agriculture
- 5% Residential
- 5% Utility/
Transportation
- 3% Industrial
- 2% Multi-family
- 2% Retail/
Commercial
- 1% or less all
other uses



Future Land Use Changes (2030)

- Biggest loss is in agricultural land (-9,148.5 ac, 14.5%)
- Biggest gain is in single-family residential (+5,163 ac, 8.2%)
- Other gains include open space, industrial/business park, and commercial/retail



Watershed Inventory

Identifying potential project recommendations

- South Branch Kishwaukee & Tributaries
- Riparian Areas
- Detention Basins
- Agriculture BMPs
- Natural/Open Space Areas
- Drained Wetland Sites
- Educational or Other



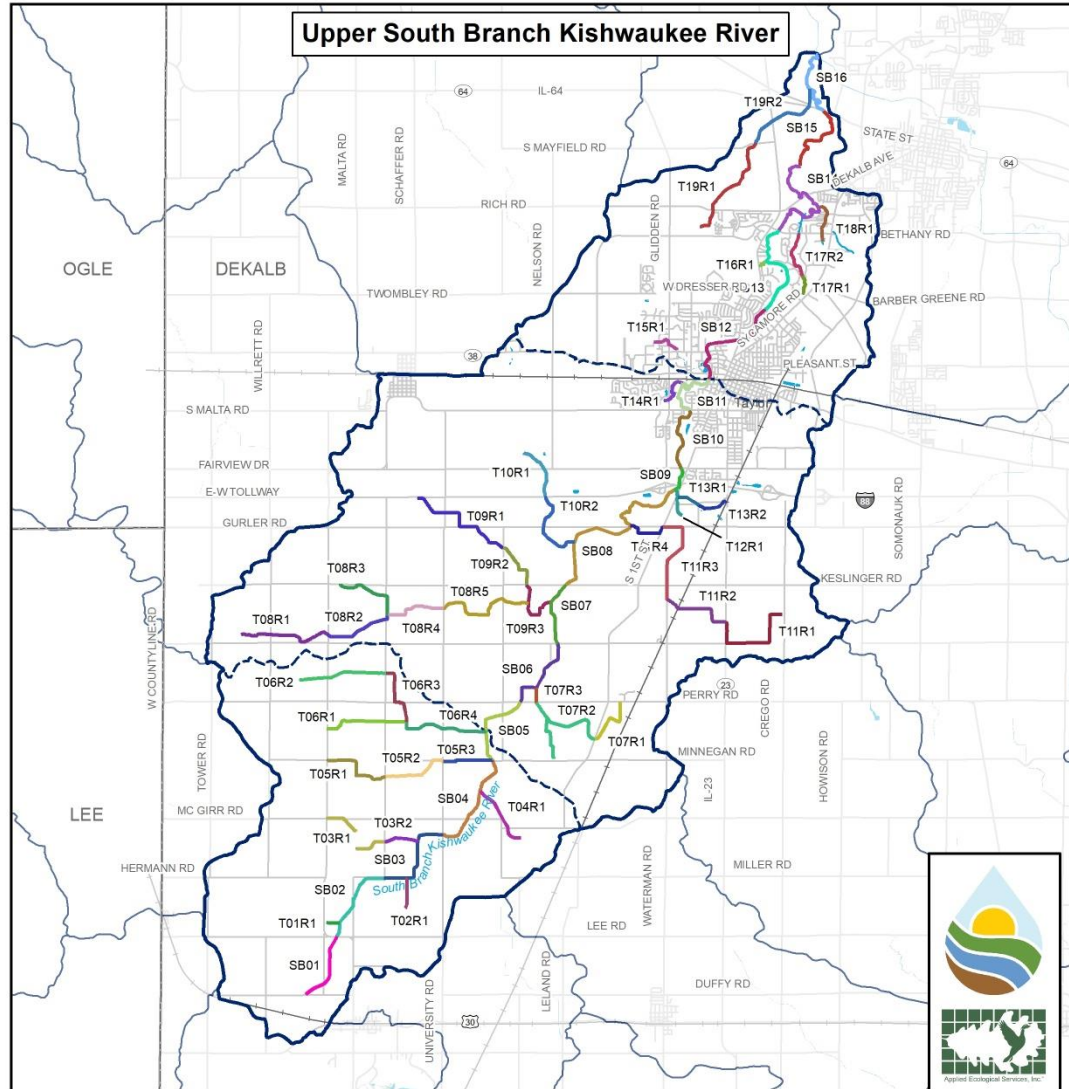
Streams Reaches

South Branch Kishwaukee River

- 16 Reaches
- 137,878 lf (26.1 mi)

Tributary streams

- 19 Tributaries
- 227,559 lf (43.1 mi)



2018 USDA Cropland Data

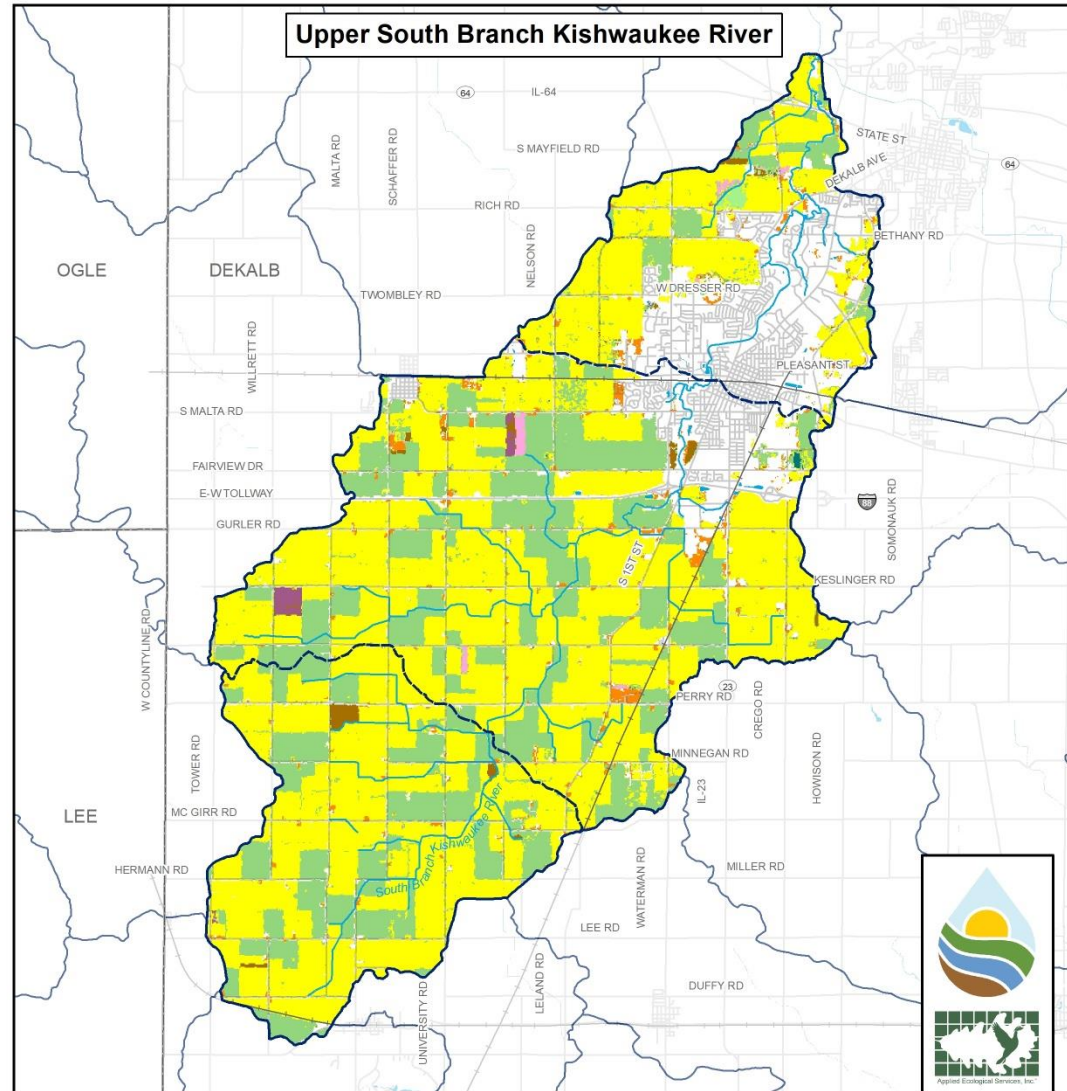
67% corn

29% soy

2% grassland/pasture

All others <1%

Cropland Data USDA 2018



2018 IL Soil Conservation Transect Survey

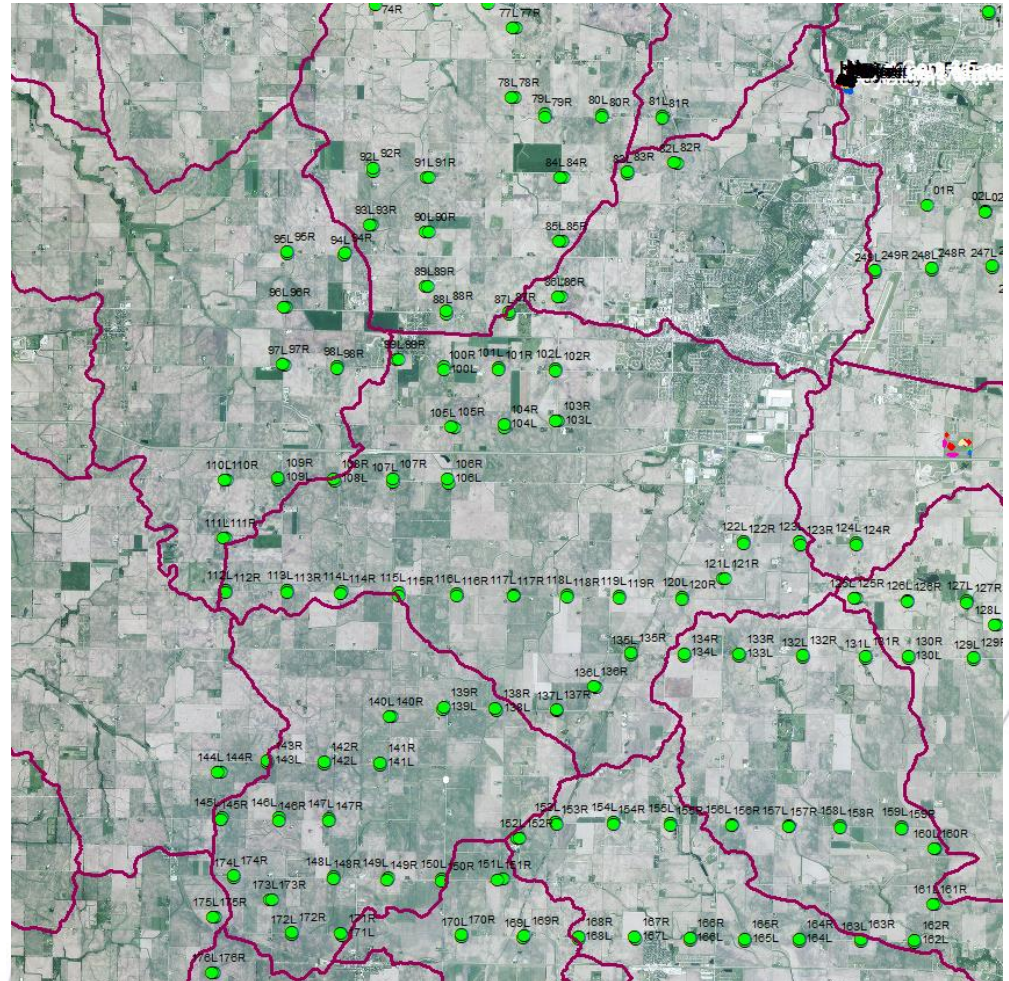
Tillage practices:

39% Reduced till

31% Mulch till

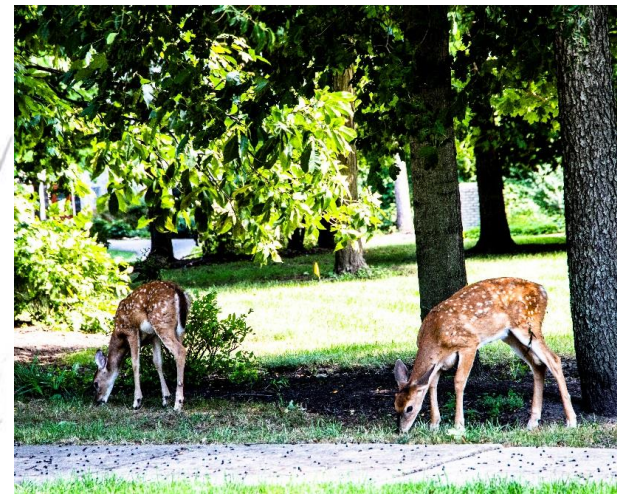
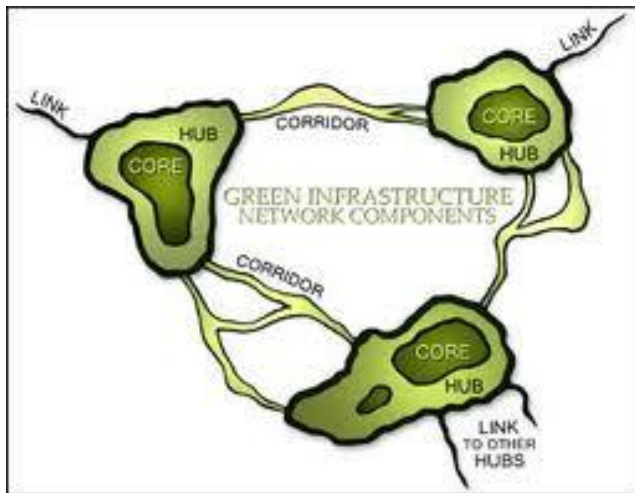
23% Conventional till

6% No-till



Green Infrastructure

Green Infrastructure is a connected **network** of *Hubs* and linking *Corridors* that conserves open space for ecological function, cleans water, benefits a range of species, and reduces flooding.



A parcel level analysis was done on all undeveloped lands.

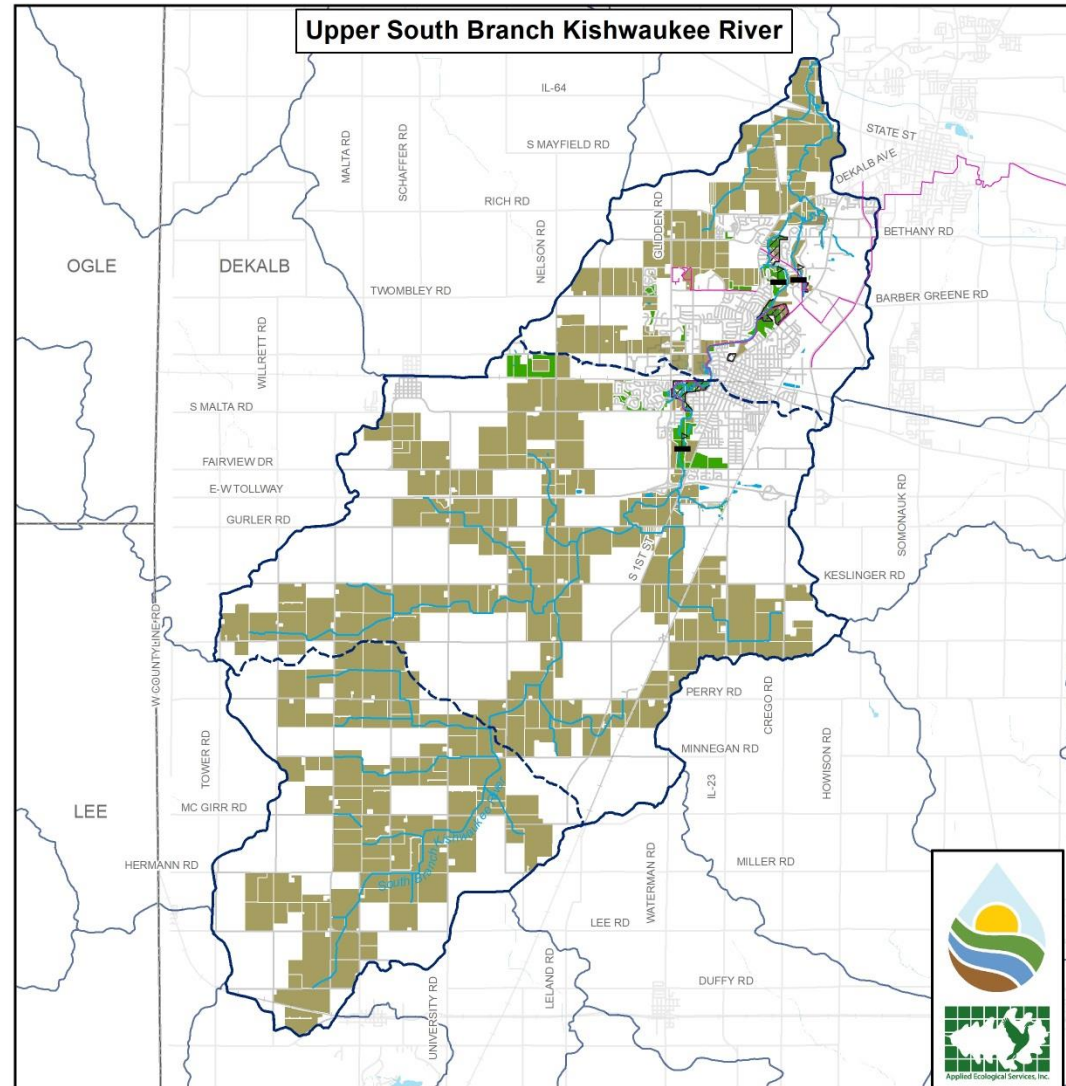


Green Infrastructure Network

GIN includes 611 parcels, totaling 27,592 acres, 854 acres (3%) of which are protected

- Existing Recreational Trails
- Important Natural Areas
- Protected Green Infrastructure
- Unprotected Green Infrastructure
- Golf Courses

Identifies areas that need special consideration or protection in the future

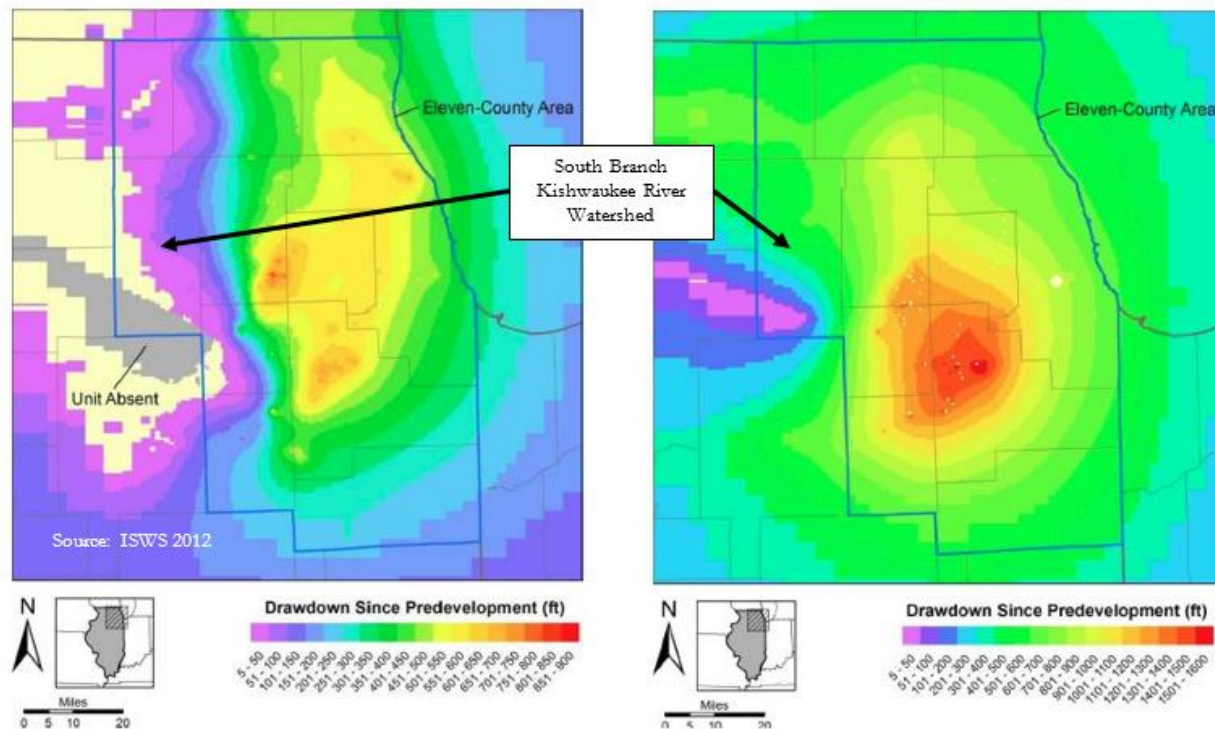


Groundwater

Modest increases expected in groundwater withdrawals (50-400 ft); drawdown expected to remain relatively stable.

Ancell Unit

Ironton-Galesville Unit



Source: ISWS 2012



IEPA Designated Uses & Impairments (2018)

- Upper South Branch Kishwaukee is Not Supporting for Fish Consumption (mercury, PCBs)
- Upper half of Kishwaukee is also Not Supporting for Aesthetic Quality (bottom deposits)

Designated Use	Use Attainment	Impaired?	Cause of Impairment	Source of Impairment
South Branch Kishwaukee River: IL_PQC-02				
<i>Aquatic Life</i>	Fully Supporting	No	None	N/A
<i>Fish Consumption</i>	Not Supporting	Yes	Mercury, PCBs	Source Unknown
<i>Primary Contact Recreation</i>	Not Assessed	-	-	-
<i>Aesthetic Quality</i>	Fully Supporting	No	None	-
South Branch Kishwaukee River: IL_PQC-13				
<i>Aquatic Life</i>	Fully Supporting	No	None	N/A
<i>Fish Consumption</i>	Not Supporting	Yes	Mercury, PCBs	Source Unknown
<i>Primary Contact Recreation</i>	Not Assessed	-	-	-
<i>Aesthetic Quality</i>	Not Supporting	Yes	Bottom Deposits	Source Unknown



Water Quality Summary

Analyzed the last 10 years of accessible water quality data from multiple sources including IEPA, NIU, KWRD, and AES.

Based on average results of each parameter at most downstream locations, the water quality averages stemming from nonpoint sources are:

- Phosphorus averages 0.288 mg/L vs target of 0.0725 mg/L
- Nitrogen averages 5.195 mg/L vs target of <2.461 mg/L
- TSS averages 20.9 mg/L vs target of <19 mg/L

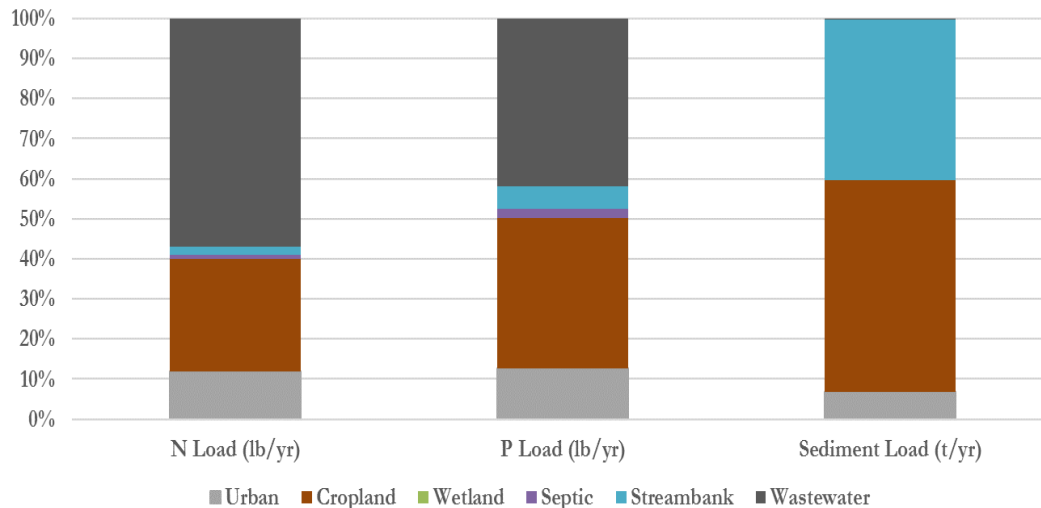


Pollutant Loading Model

- Watershed-wide pollutant loading from non-point source was modeled using USEPA's STEPL tool (Spreadsheet Tool to Estimate Pollutant Loads).
- Model uses land use/land cover category types, precipitation, soils information, stream data, existing BMPs, and other data.
- Estimates total loads for nitrogen, phosphorus, and sediment.



Pollutant Loading Model



Excluding wastewater:

- 28% of nitrogen, 37% of phosphorus, and 53% of TSS comes from Cropland.
- Streambanks contribute 40% of sediment load.
- 12% and 13% of TN and TP and 7% of TSS come from urban land uses.

STEPL Source	N Load (lbs/yr)	% of Total Load	P Load (lbs/yr)	% of Total Load	Sediment (tons/yr)	% of Total Load
Urban	98,634	11.9%	15,964	12.7%	2,334	6.9%
Cropland	231,584	28.0%	47,159	37.4%	17,813	52.7%
Wetland	94	0.0%	38	0.0%	25	0.1%
Septic	7,660	0.9%	3,000	2.4%	0	0.0%
Streambanks	18,411	2.2%	7,088	5.6%	13,538	40.1%
*Wastewater	469,281	56.8%	52,692	41.8%	65	0.2%
Total	825,666	100.0%	125,941	100.0%	33,775	100.0%



Watershed Impairment Reduction Targets

Based on water quality data near outlet of the watershed and the results of the STEPL modeling, we need the following reductions from nonpoint source pollution:

- 75% reduction in phosphorus (54,790 lbs/yr)
- 53% reduction in nitrogen (187,459 lbs/yr)
- 9% reduction in sediment (3,000 tons/yr)

These are the reduction goals that we will be aiming for when recommending restoration projects throughout the watershed.



Vision for a Healthy Watershed

Watershed planning is a voluntary, community supported approach to improving or protecting water quality, groundwater, open space, and quality of life for people.



*“Unless someone like you
cares a whole awful lot,
Nothing is going to get better.
It's not.”*

— Dr. Seuss, The Lorax.

The rest of our time will be dedicated to collecting your feedback on what is important to you in this watershed.



World Café Exercise

“A simple, effective, and flexible format for hosting large group dialogue”

- 8 tables – one for each goal topic + the mission statement + places of the heart/goal prioritization
- Each table has a goal/mission starting point and questions to prompt brainstorming
- 5 minutes of brainstorming for each topic/table – facilitator takes notes
- Rotate through each station so everyone gets a voice
- Later, this brainstorming will be used to flesh out the mission, goals, and objectives of the plan



World Café Exercise

8 tables/stations with a facilitator at each:

- One for the plan mission statement
- One for each of the six goal topics
- One for both Goal Prioritization and Places-of-the-Heart exercise



Mission Statement

A Mission Statement defines the watershed organization's purpose and overall goals:

- What do we do?
- How or for whom do we do it?

Example - AES Mission:

We create ecologically driven land-use solutions based on science. We inspire and enable stewardship of land, water, soil, and air.



Mission Starting Point

The mission of the watershed plan is to improve water quality in the Upper South Branch Kishwaukee River watershed to reduce nonpoint source pollution inputs, reduce flooding, improve habitat, increase educational opportunities, and increase stewardship of the watershed and its resources.



Watershed Goal Topics

Goals are general actions, or better yet, an outcome towards which we strive

Surface Water
Quality

Education,
Stewardship, &
Communication

Agriculture

Green
Infrastructure
Network & Habitat

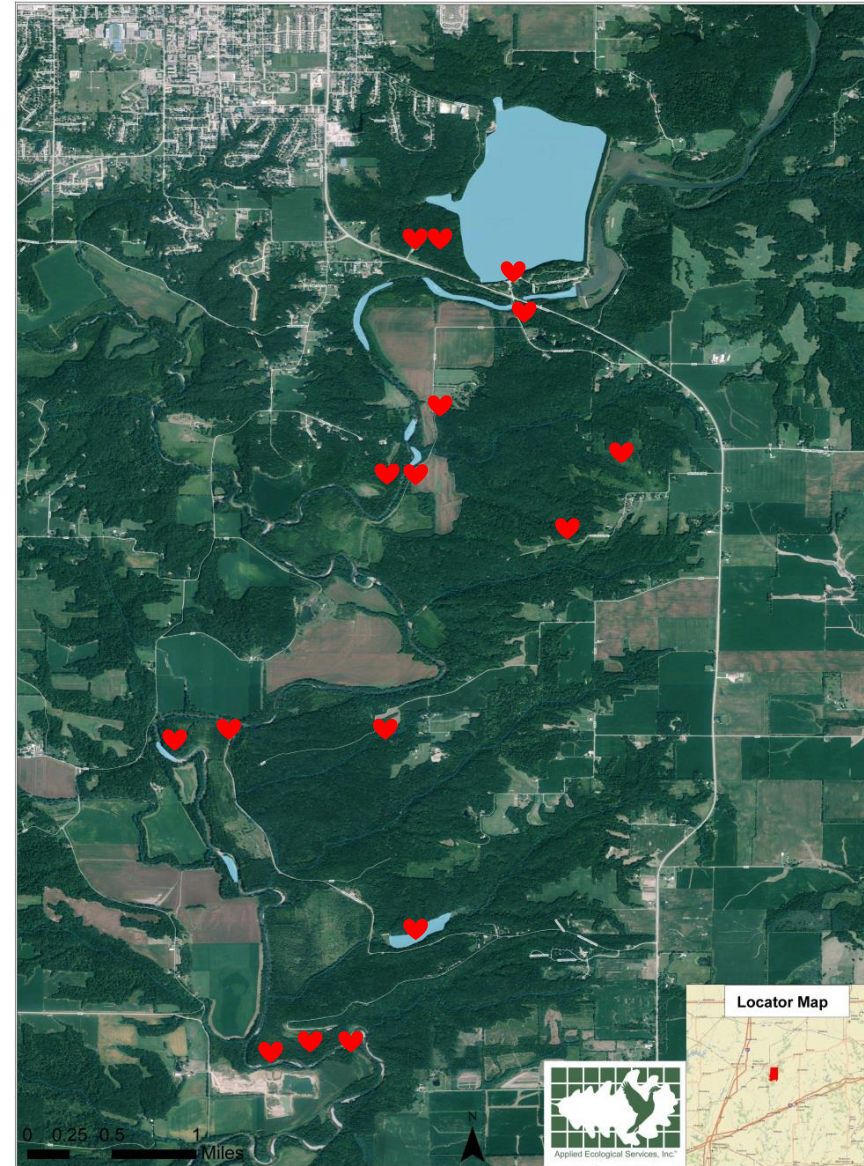
Groundwater

Flooding



Places-of-the-Heart

- Place a numbered heart sticker on the map in a place that has meaning to you personally
- Write down your number and why that place is important to you on a post-it note
- Place as many hearts as you want
- Note flood problem areas with an “X”



Rules for Goal Prioritization

- Each person will get five stickers to place next to identified goals.
- You may place up to two stickers on any one goal if you feel strongly about its importance.
- Must place all five stickers



Questions?



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