



Southwest Indiana Regional Water Study

September 23, 2025

Presented to Regional Stakeholders





Agenda

Welcome – Sarah Hudson, IFA

Regional Water Studies Background and Status

Sarah Hudson, IFA

Regional Water Study Kickoff

Southwest Indiana – Sally Letsinger, Indiana University



Directives



IC 5-1.2-11.5 (2017)

<https://iga.in.gov/laws/2024/ic/titles/5#5-1.2-11.5>

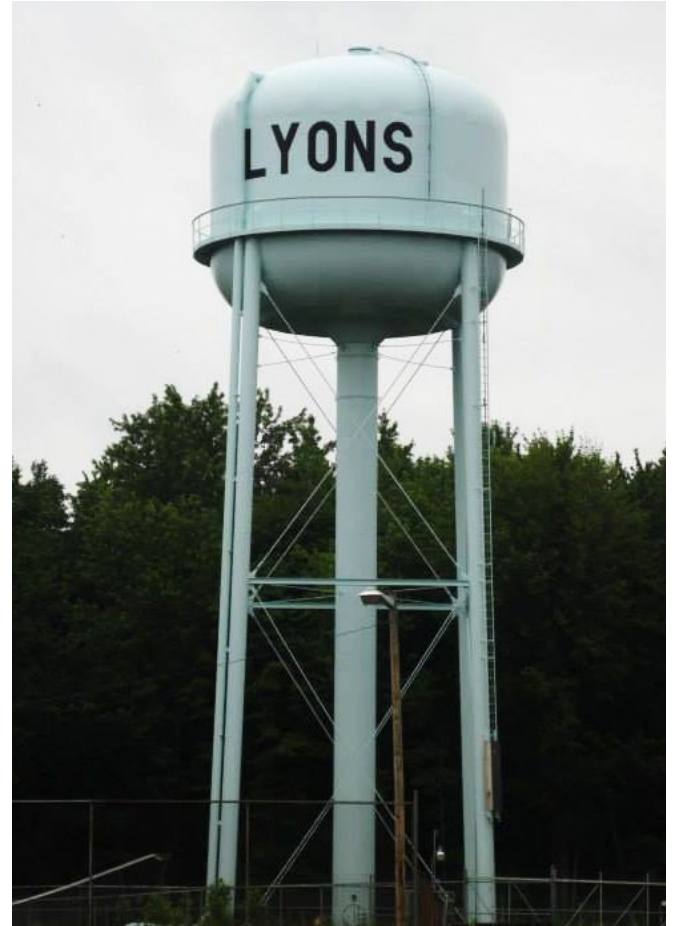
Establishes the responsibility of the Indiana Finance Authority to monitor, study, and assess water resources.



Governor Braun Executive Order 25-63 (2025)

https://www.in.gov/gov/files/EO-25-63_.pdf

Development of a statewide water inventory and management plan framework



List of Studies

Four regions completed (2021-2025)

Central Indiana

Southeast Central

Wabash Headwaters

Wabash North Central

Six regions in progress (2025)

Kankakee (kick off 5/21)

Ohio River (kick off 8/18)

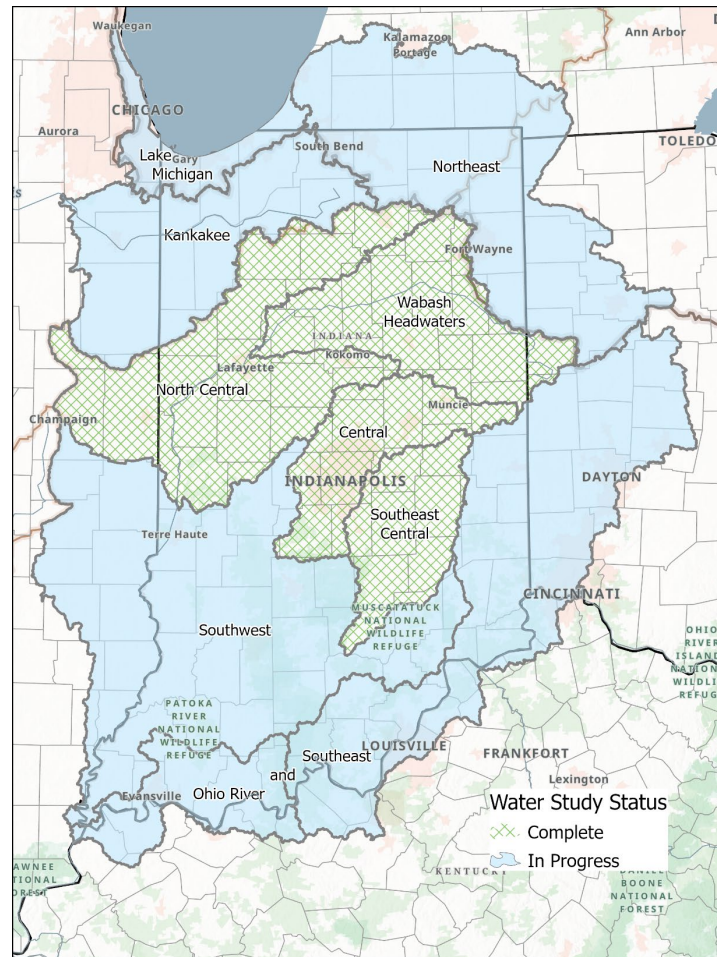
Southeast (kick off 8/18)

Southwest (kick off September 23)

Northeast (kick off TBD)

Lake Michigan (regional summary study)

<https://www.in.gov/ifa/regional-water-studies/>



Regional Water Studies

Goal and Objectives

- Improve understanding of water resources to support water planning
- At the regional level using hydrological boundaries:
 - Current and 50-year water demand
 - Current and 50-year water availability

Approach

- Scale = regional
- Boundaries = hydrological (i.e., watershed basins)
- Standardized process, customizable by region
- Focus on public water sector (i.e., utilities)
- Consistent outreach with stakeholders
 - Utilities, elected officials, economic development groups
- Utilize Advisory Committee
 - IDNR, USGS, IDEM, IN Farm Bureau, IU

Advisory Committee Composition

- **Indiana Finance Authority – Lead**
 - Jim McGoff, Sarah Hudson
- **Indiana Department of Natural Resources**
 - Ryan Mueller, Mark Basch, Garth Lindner, Allison Mann
- **Indiana Department of Environmental Management**
 - Christian Walker, Alex Powers
- **U.S. Geological Survey**
 - Dave Lampe, Aubrey Bunch, Jeff Woods
- **Indiana Farm Bureau**
 - Katie Nelson
- **Indiana University**
 - Sally Letsinger



Types of Stakeholders Vary by Region

- Water, wastewater utilities
- City/town/county governance officials
- Economic development groups
- U.S. Army Corps of Engineers
- IDNR (public water reservoirs, mine reclamation)
- Farmers
- Mines, Power Plants
- Hoosier National Forest
- The Nature Conservancy





Multiple Regional Water Studies:

Kankakee Basin
Ohio River
Southeast Indiana
Southwest Indiana
Northeast Indiana
Lake Michigan

April 2025
Indiana Water Inventory initiated by Governor Braun

Feb-Sept 2025
Contracts in place
Utility & Stakeholder
kickoff meetings

Sept 2025
Multiple water studies underway

now-Aug 2026
Regional demand and
availability analyses

August 2026
Draft reports in review
Utility & Stakeholder
meetings

October 2026
Final reports to be published
on IFA website

December 2026
Regional summaries compiled into Statewide Water Inventory Report

Southwest Indiana Regional Water Study





Agenda

1

Project Team Introduction

2

Regional Study Approach and Structure

3

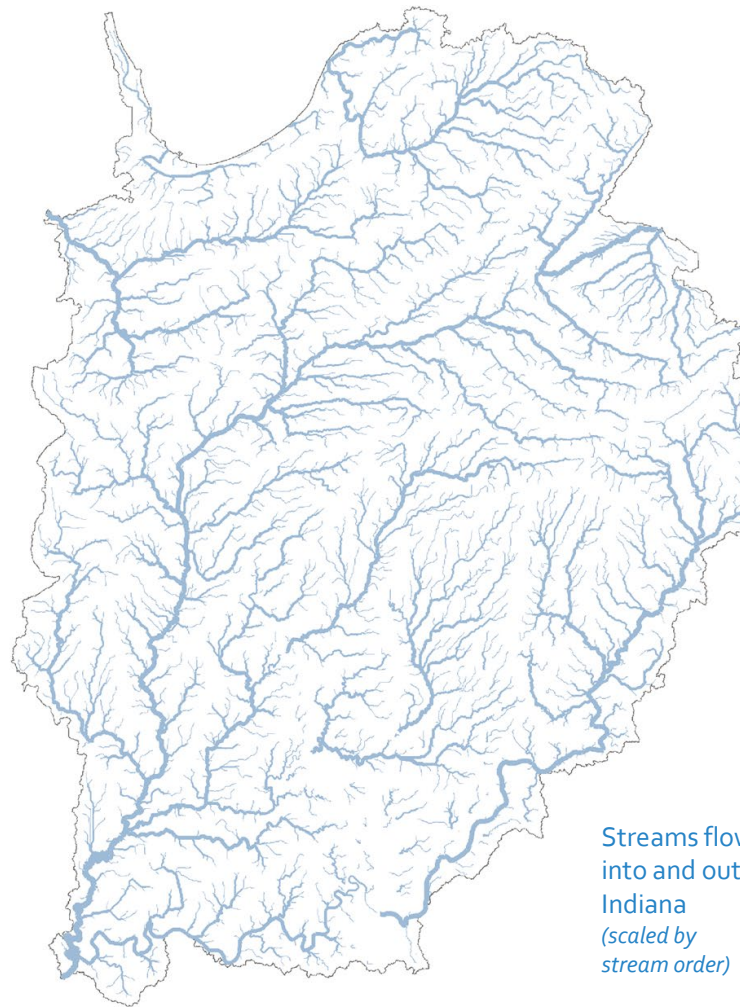
Southwest Indiana Regional Study Specifics

4

Website and Next Steps

Approach: Data-driven and Science-based

- Recognize administrative (i.e., county) boundaries, but **primarily focused on hydrology** (both surface and groundwater) at subbasin scale
- **Regional approach** allows us to focus on characteristics important to each region, incorporating region-specific economic factors, land use, water use, and geological factors
- Studies are supported by an **Advisory Committee** with representatives from state and federal agencies, stakeholders from water-use sectors, and universities



Streams flow
into and out
Indiana
(scaled by
stream order)

APPROACH: Water Demand - Historical

Approach:

- Based on historical data collected by the IDNR (1985-2023)
- Water-use sectors
 - Public supply (PS)
 - Industrial (IN)
 - Energy (EN)
 - Irrigation (agricultural and turf) (IR)
 - Rural (livestock, fisheries) (RU)

Residential wells (estimated)

Smaller livestock operations (estimated)

Assumptions:

- Water withdrawals are a proxy for water demand (treated as equivalent)
- Reported water use for significant water withdrawal facilities (SWWF) is representative of all water use
- Self-supplied residents all use water the same way

Overarching Approach in Regional Water Studies

Water balance

Natural water balance + human alterations + climate change

Water Demand

(atmospheric and ecosystem needs + human and altered land cover needs)

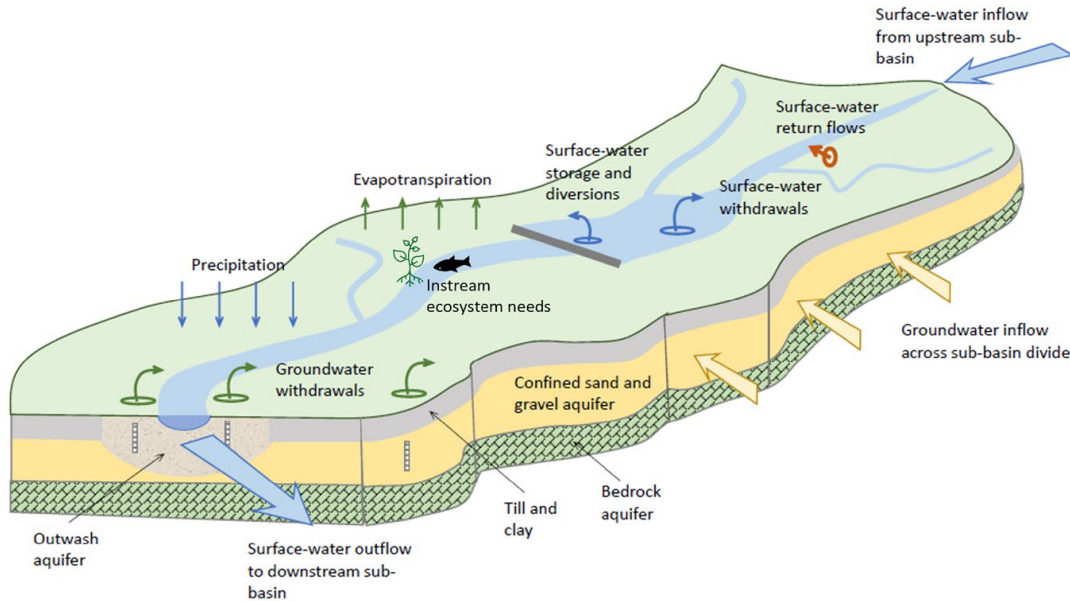
Water Availability

(climate/precip/runoff; storage | bank and floodplain storage, aquifers)

Modified by:

- ❖ Human withdrawals and inputs
- ❖ Climate change

Subbasin water availability



Water inflows and outflows in a subbasin include processes and activities **WITHIN** the basin, and **UPSTREAM/ DOWNSTREAM** of the basin

Water availability is calculated throughout the entire stream/river network

Future water availability will include estimates of future water demand and incorporate future climate forecasts



Figure modified from IFA, 2021 (Central Indiana Water Study)

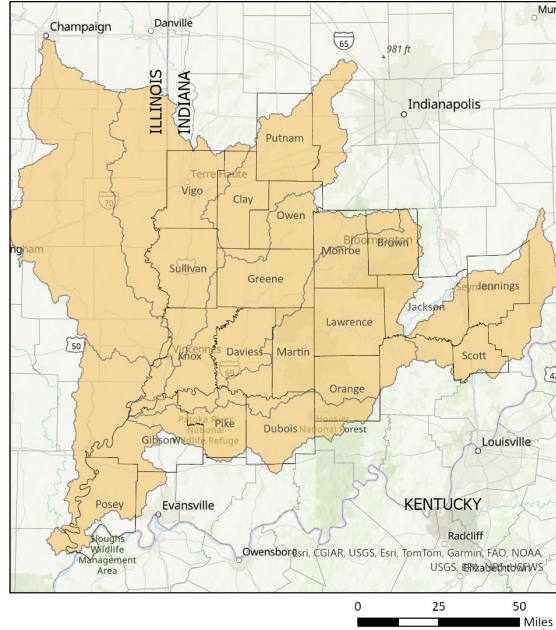
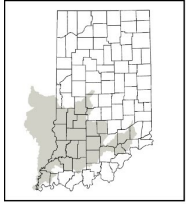
REGIONAL WATER STUDIES

Study Area

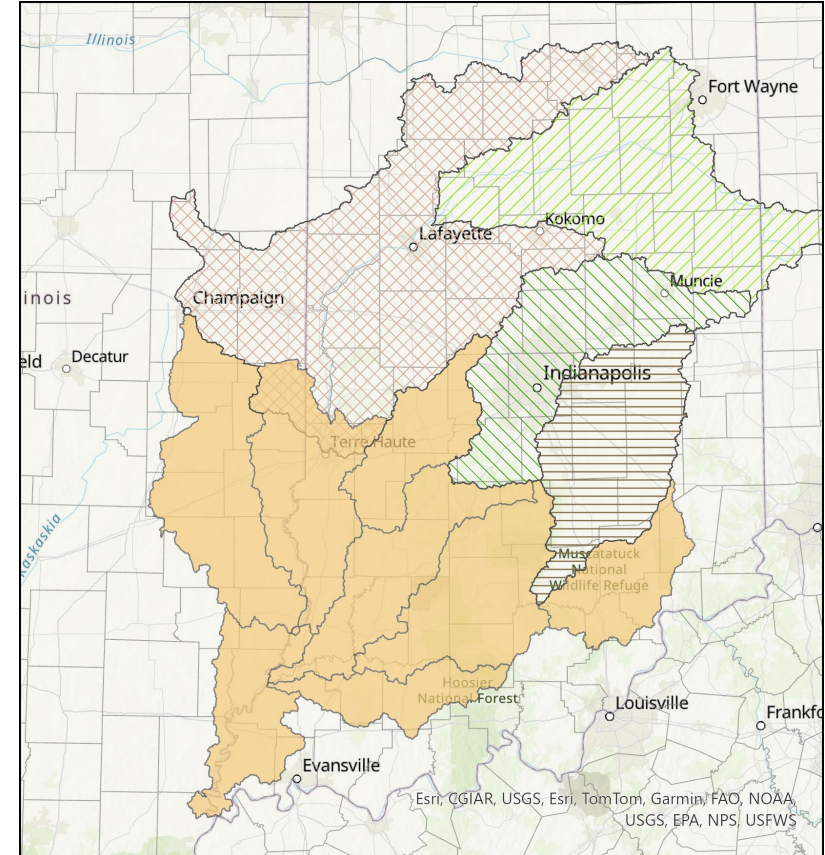




Southwest Indiana Regional Water Study



Water availability will include
contributions from upstream basins.



Southwest Indiana
Regional Water Study

Timeline:

July 2025– Contract

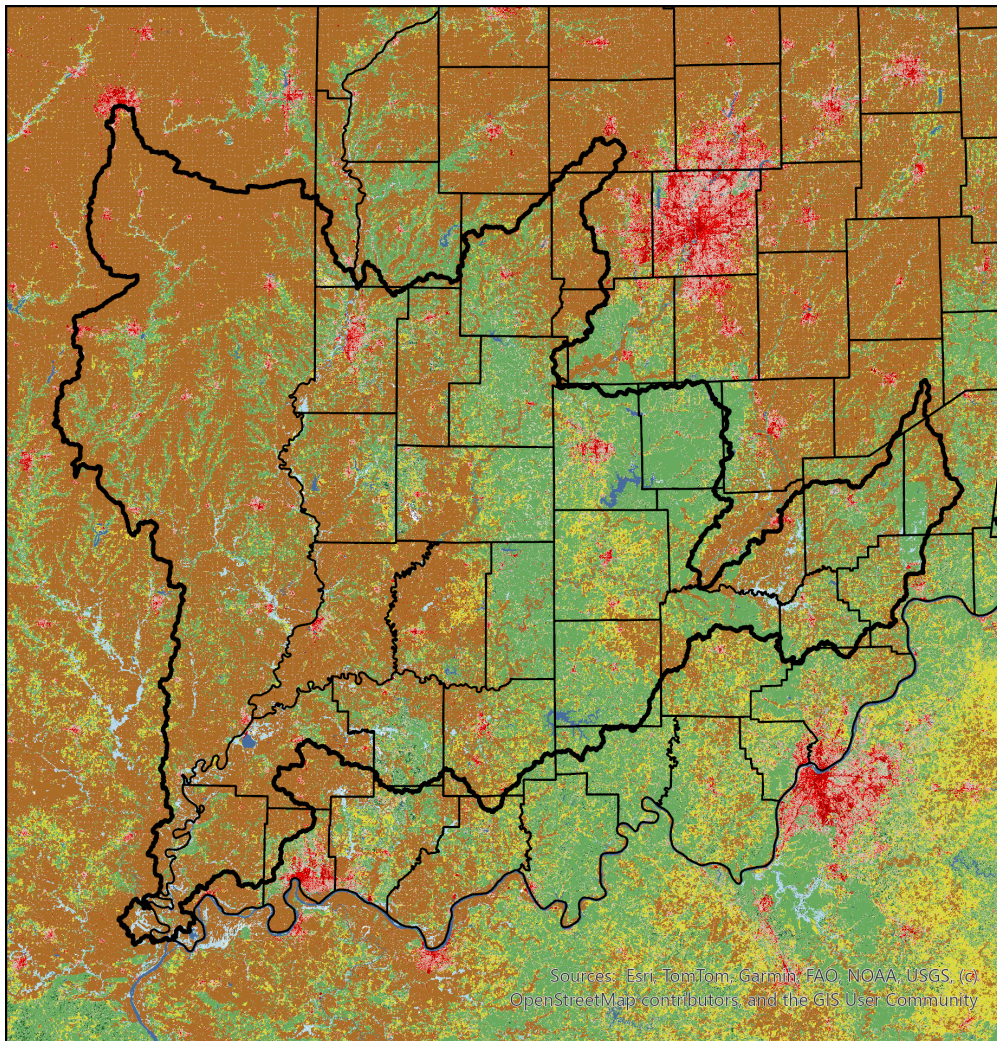
July 2025 – July 2026 – WORK

August 2026– final report



Regional characteristics

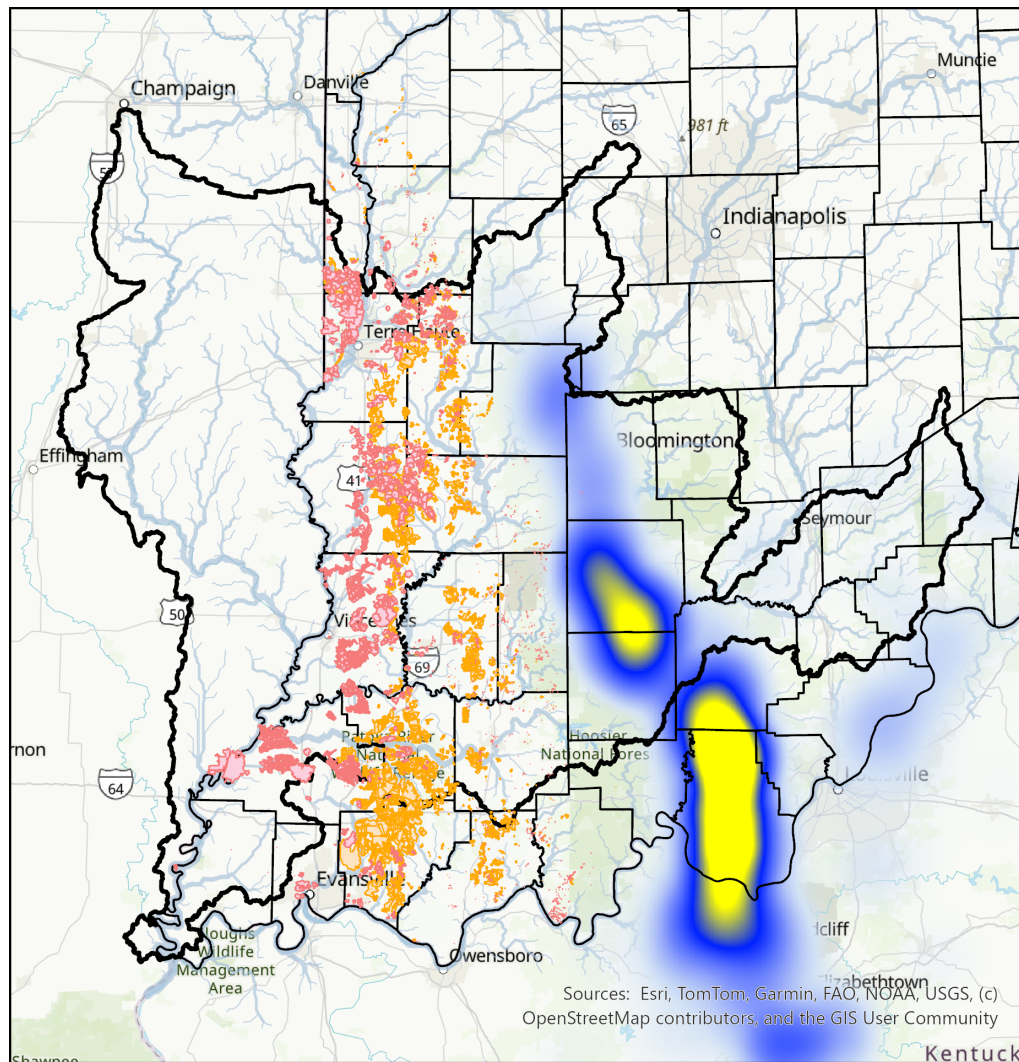
- Rural landuses, agriculture (cultivated), livestock (CAFOs), coal mining
- Public lands (forest)
- Karst solution landscape
- Surface-water-sourced public water supplies



Land Cover Class

- Open Water
- Perennial Snow/Ice
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Herbaceous
- Hay/Pasture
- Cultivated Crops
- Wetlands
- Southwest Indiana Study Area

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors and the GIS User Community



Unique hydrology

 Southwest Indiana Study Area

 Surface Mines

 Underground Mines

Sinkholes

 Sparse

 Dense

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c)
OpenStreetMap contributors, and the GIS User Community

REGIONAL WATER STUDIES

Water Demand

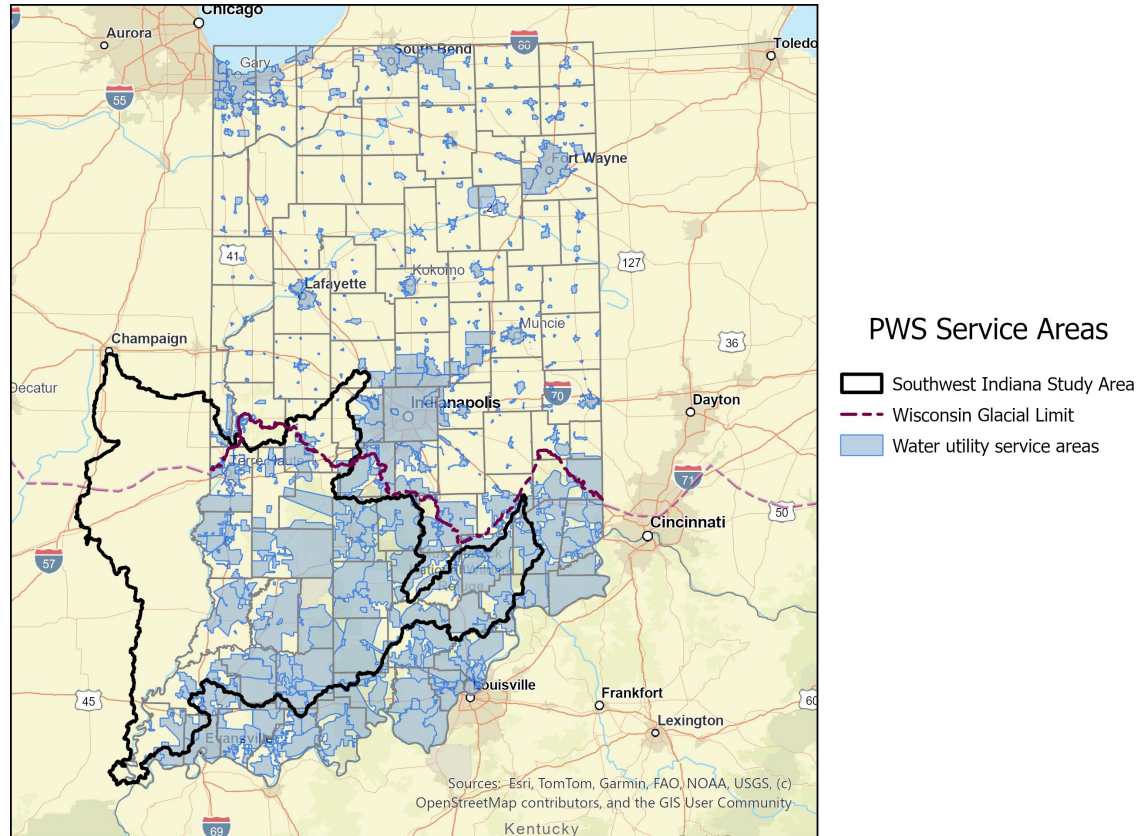


Public water utility characteristics

The study area is south of glacial limit

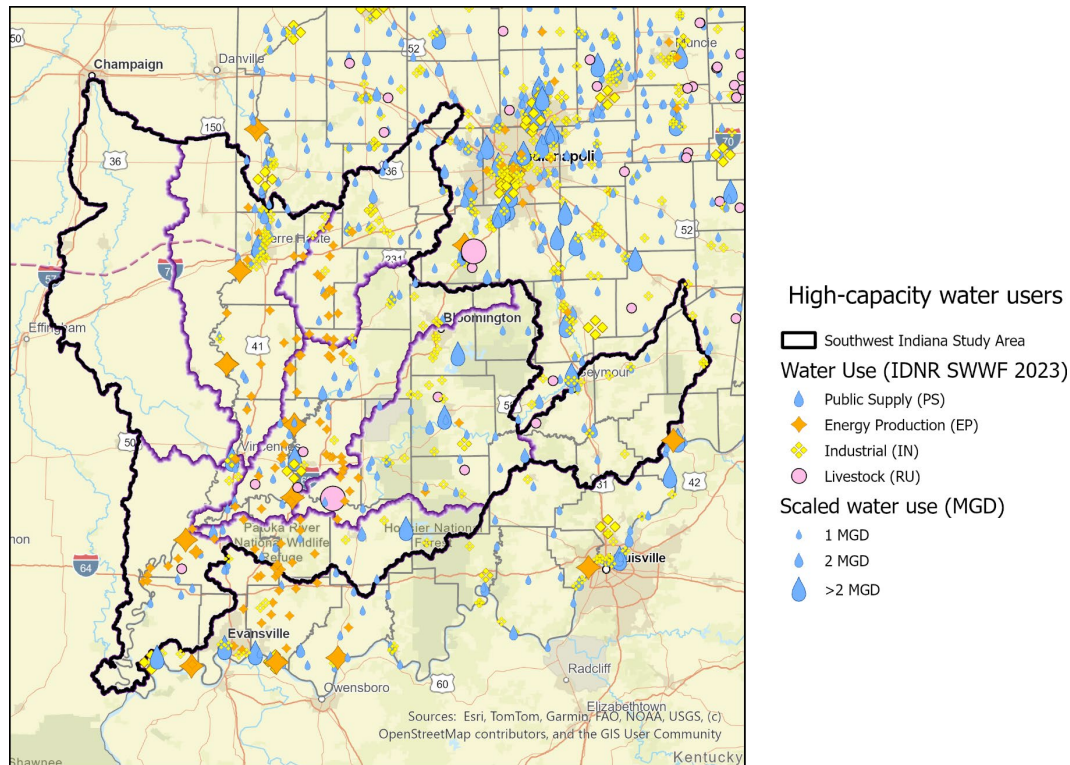
- Large water service areas
- Reservoirs are used as regional water sources
- Low self-served residential population, some using unconventional water sources such as springs or cisterns

Study area – Watersheds and county boundaries are imperfect containers for water service areas



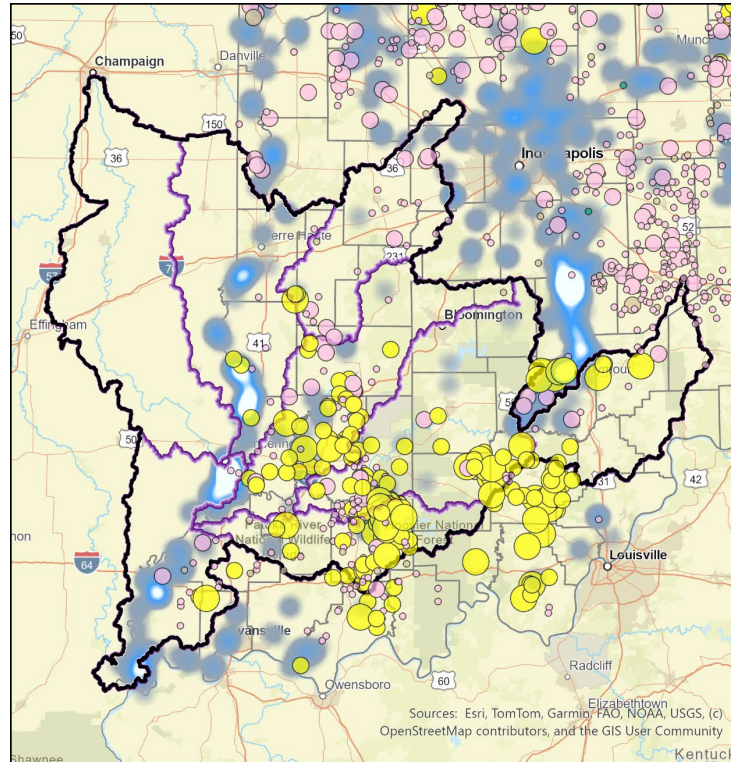
Water-use sectors

- Energy production
- Public water supplies
- Some industrial
- Few livestock operations report water use



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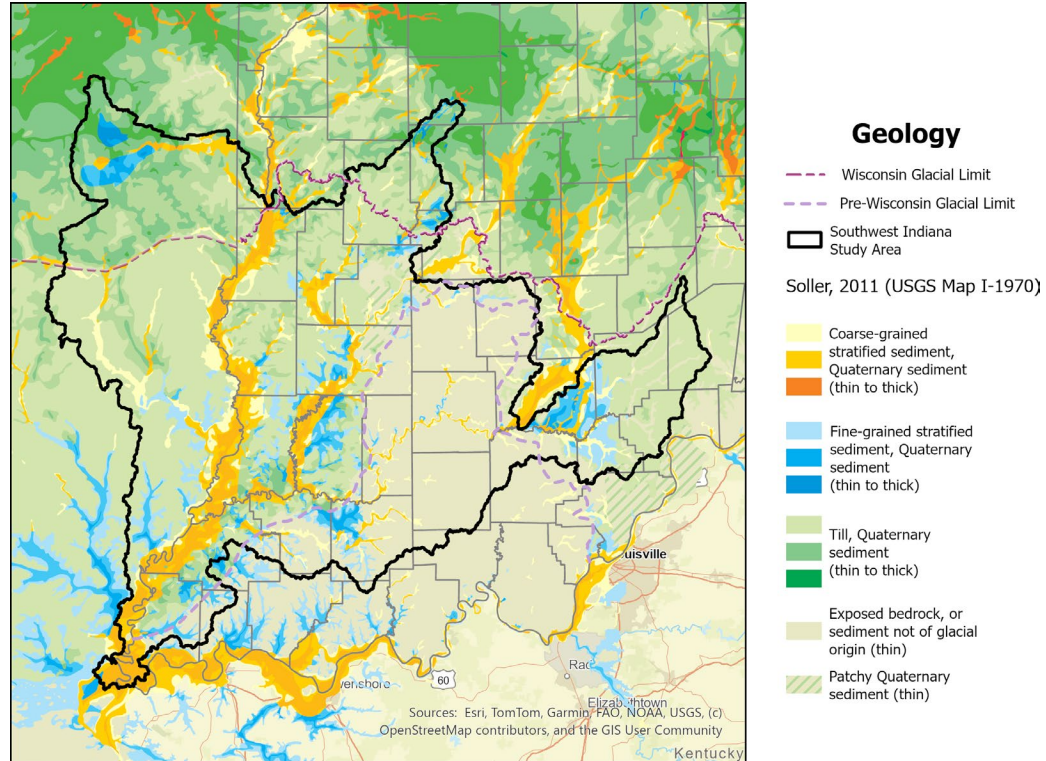


Surficial geology (context for some water-use sectors)

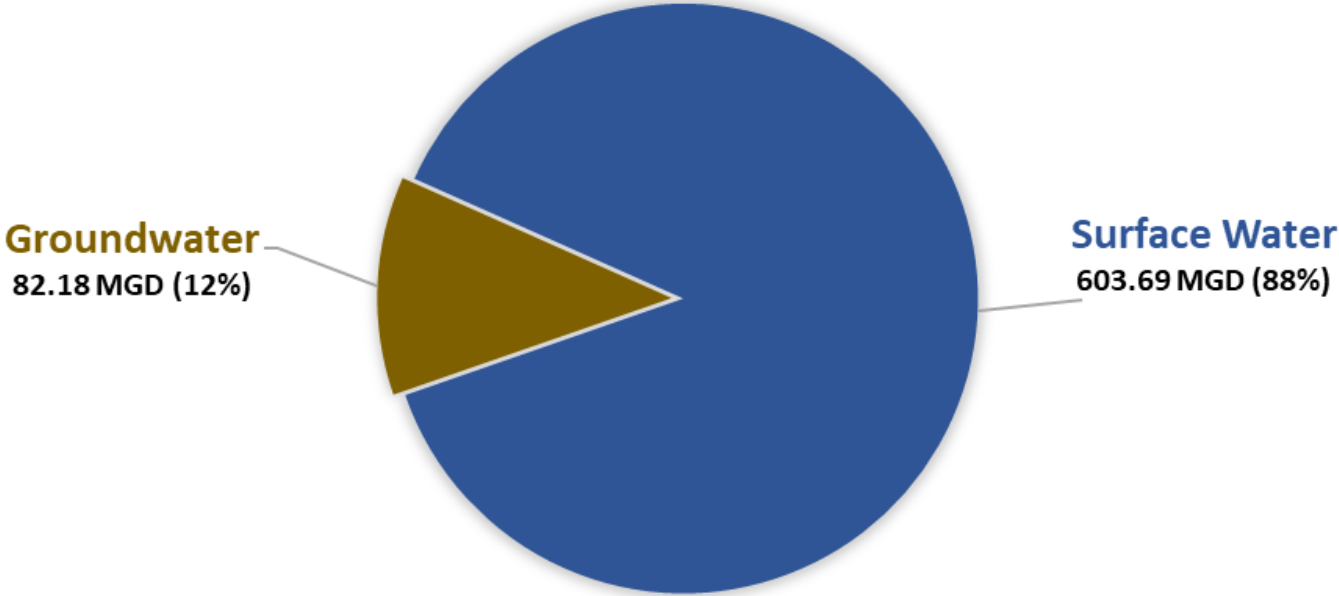
Spatial organization of high-contrast hydrogeological features

Many fewer aquifer systems than north of the glacial limit(s)

Surface-water reservoirs are utilized for public water supplies



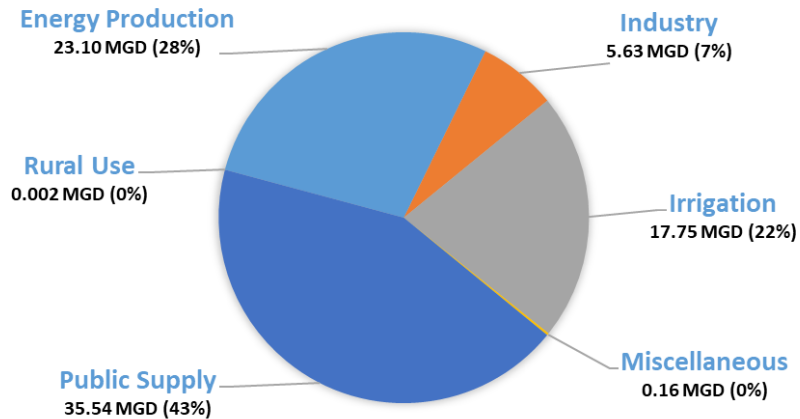
2023 SOUTHWEST INDIANA SWWF WATER BY SOURCE



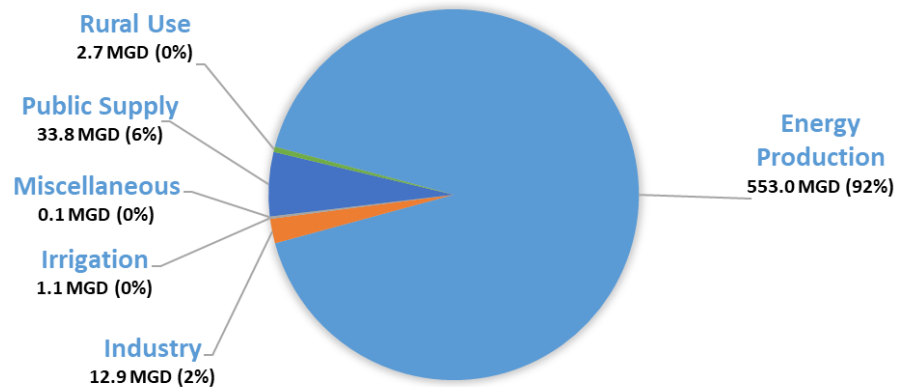
*Preliminary Data

Water withdrawals by sector

2023 SW INDIANA GROUNDWATER WITHDRAWALS



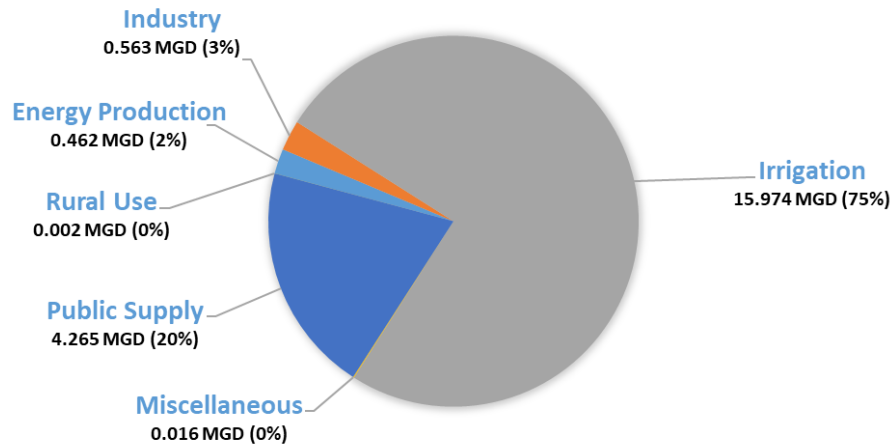
2023 SW INDIANA SURFACE WATER WITHDRAWALS



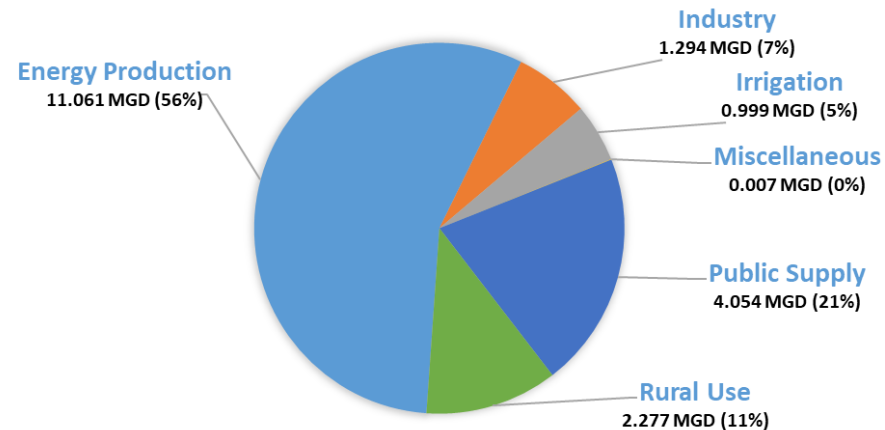
*Preliminary Data

Water withdrawals consumed (not returned) by sector

2023 SW INDIANA GROUNDWATER CONSUMPTIVE USE

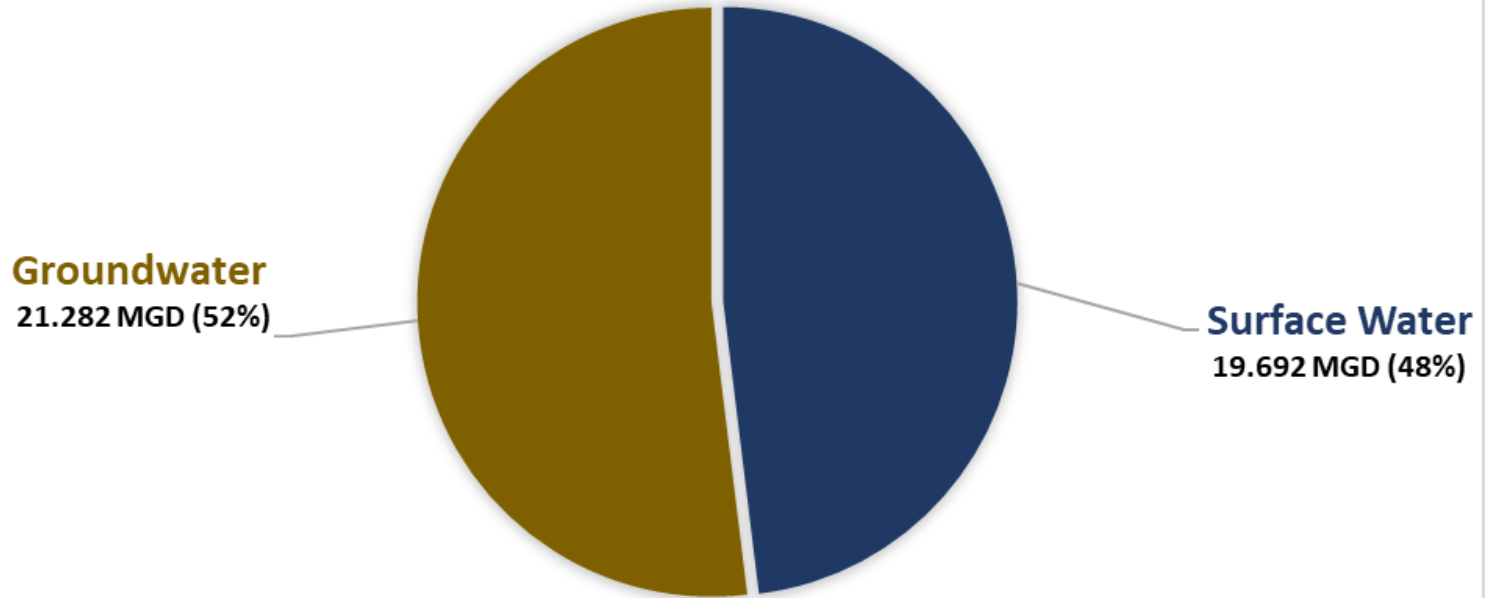


2023 SW INDIANA SURFACE WATER CONSUMPTIVE USE



*Preliminary Data

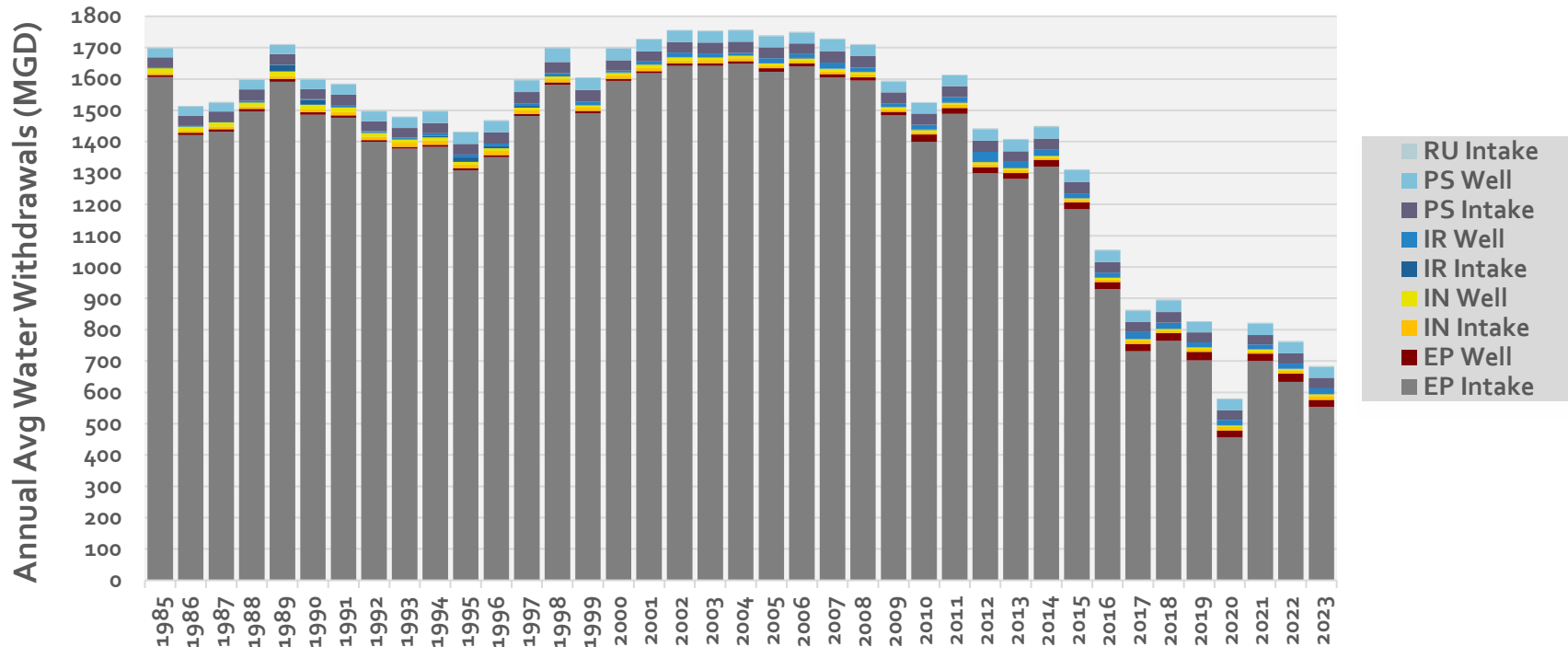
2023 SOUTHWEST INDIANA SWWF CONSUMPTIVE USE



*Preliminary Data

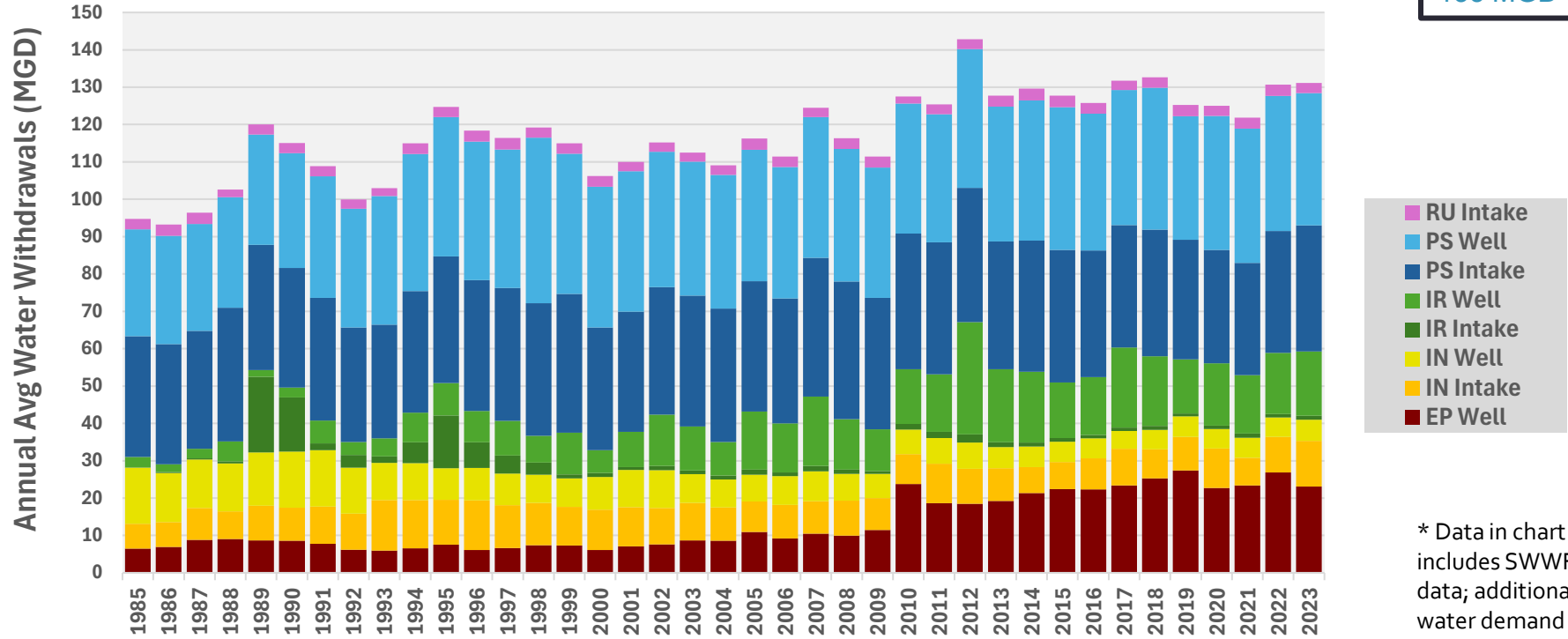
2023 Total
Demand =
686 MGD

Historical Water Usage in Southwest Indiana by Use Type & Water Source



*Preliminary Data

Historical Water Usage in Southwest Indiana by Use Type & Water Source



2023 Total Demand (minus EP Intakes) = 133 MGD

* Data in chart only includes SWWF data; additional water demand data analyzed includes self-supplied residential, CAFOs

*Preliminary Data

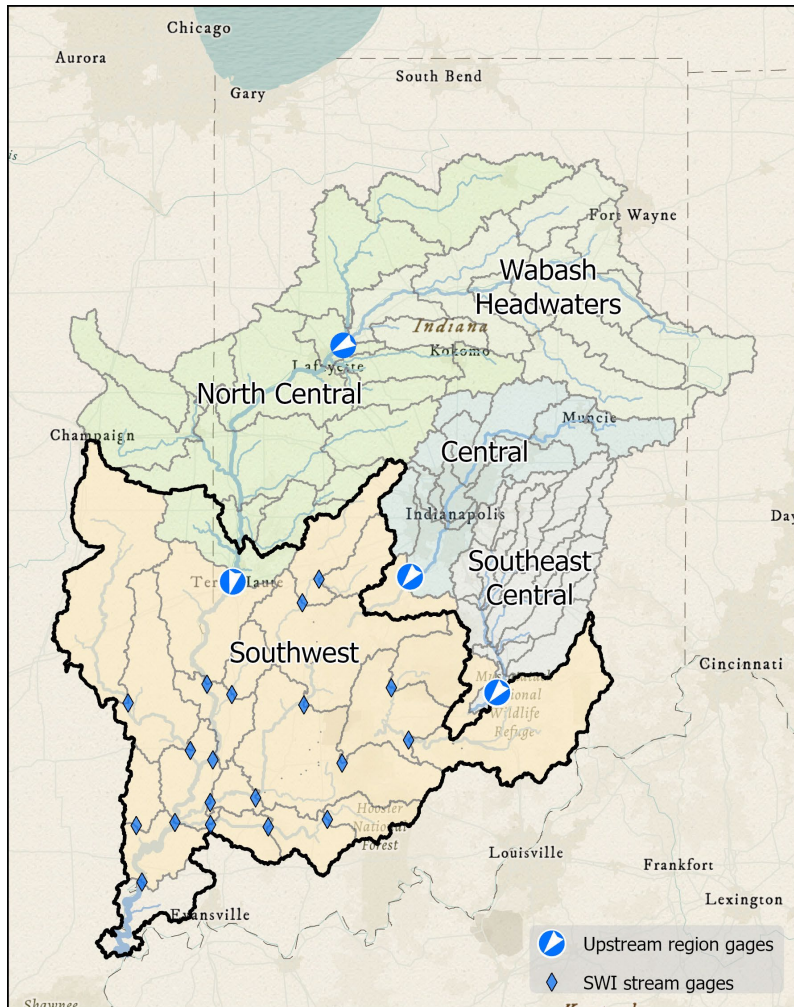
REGIONAL WATER STUDIES

Water Availability

Southwest Indiana Study Area

- **Hydrology & Data Processing**

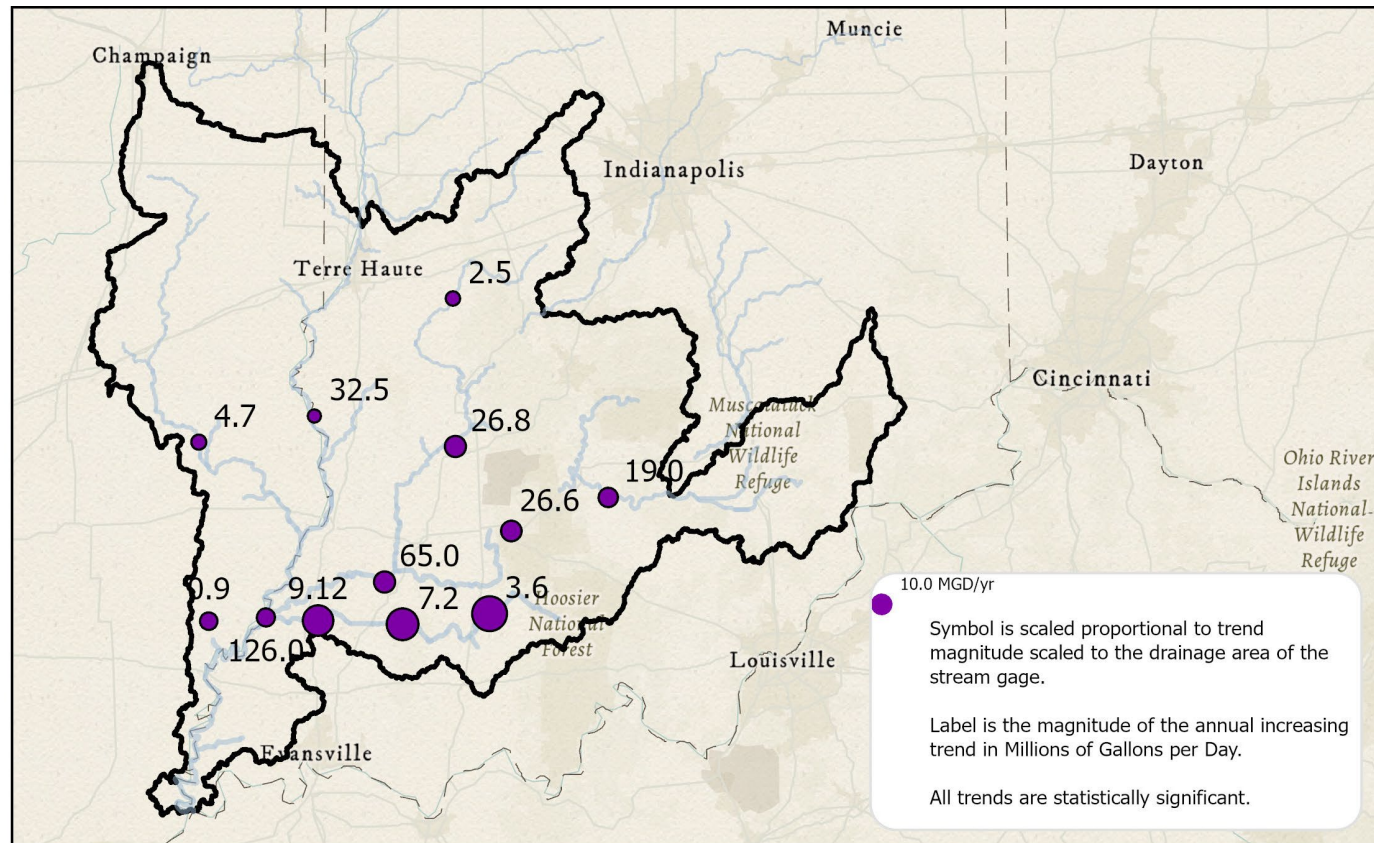
- Subbasin Delineation: 19 subbasins selected for analysis
- Streamflow Data: USGS gage timeseries have been reviewed
- Instream Flow Metrics: Script has been developed to calculate 7Q10 and Q90 values for each subbasin
- Streamflow Trend Analysis: Applied Mann-Kendall test to identify trends in streamflow records



Southwest Indiana: Trends in Streamflow Volume

Summary

- 12 gages have full data – All exhibiting an **increasing trend in river discharge**
- Winter/Spring responsible for trend (especially March)
- Summer/Fall not significantly increasing or decreasing



*Preliminary Data

Southwest Indiana Region website

<https://www.in.gov/ifa/regional-water-studies/southwest-indiana-regional-water-study>

- Goals of the study
- Study area maps
- Project updates

Email for feedback

WaterResources@ifa.in.gov



Questions? Input? Data?

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