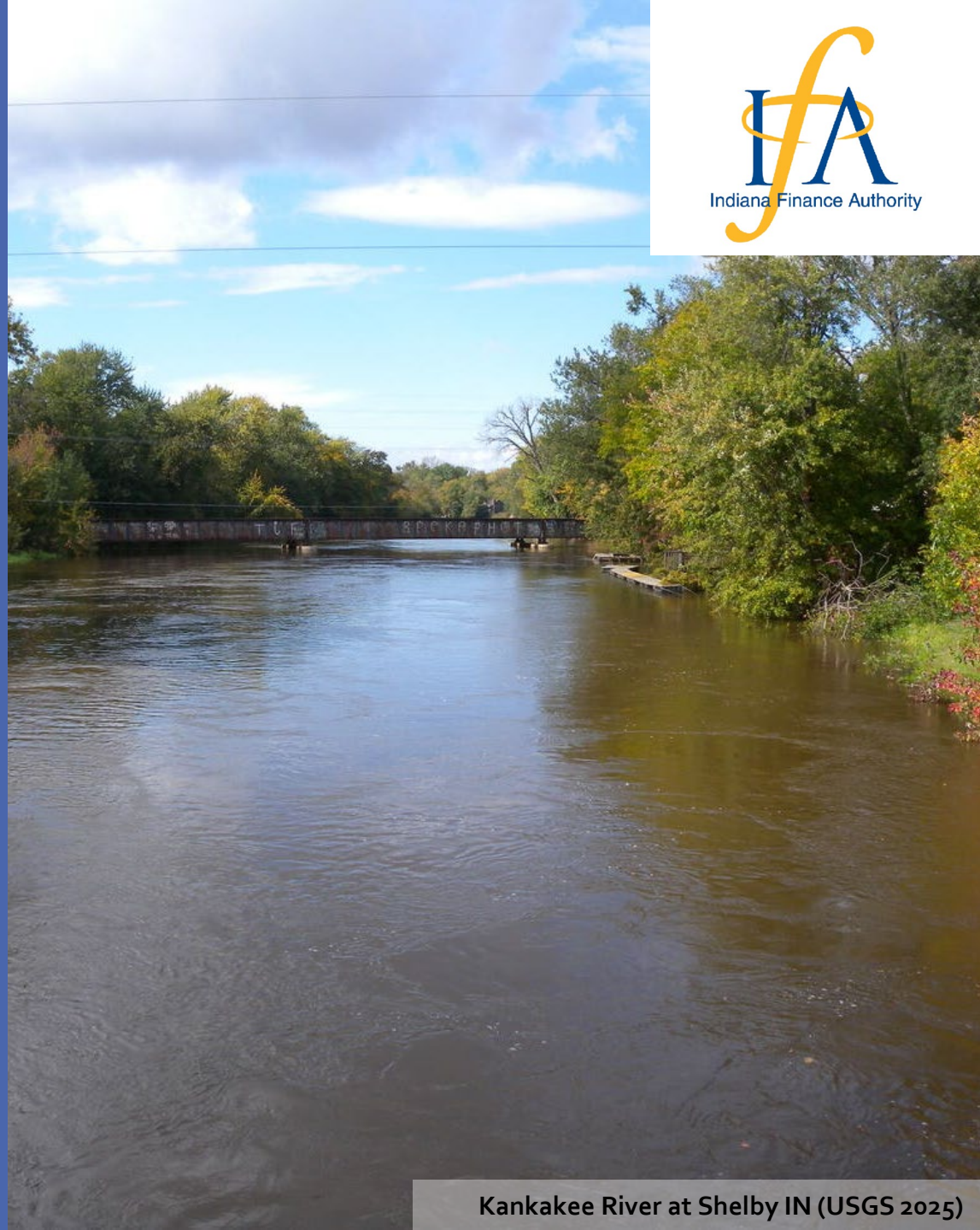
Kankakee Basin Regional Water Study

Stakeholder Workshop
December 2, 2025

Stantec



Kankakee River at Shelby IN (USGS 2025)

Agenda

- **Statewide Regional Water Studies Program**
  - History, Present, and Future
  - Approach
- **Kankakee Basin Regional Water Study**
  - Study Area and Project Approach
  - Historical and Projected Future Water Demand
  - Historical and Projected Future Water Availability
  - Water Resource Risks, Opportunities, and Recommendations
  - Project Partners and Stakeholders
  - Next Steps

Indiana Finance Authority

Indiana Regional Water Studies

- History, Present, and Future
- Deadline to complete – October 2026
- Statewide understanding of water resources to support water supply planning
  - Demand and supply
- Organized outreach with utilities, public officials, economic development interests, other stakeholders
- Standardized process/ comparable across regions

IC 5-1.2-11.5 (2018), https://iga.in.gov/laws/2024/ic/titles/5#5-1.2-11.5

Scope of Work

Phase 1: Fifty-year water demand forecast

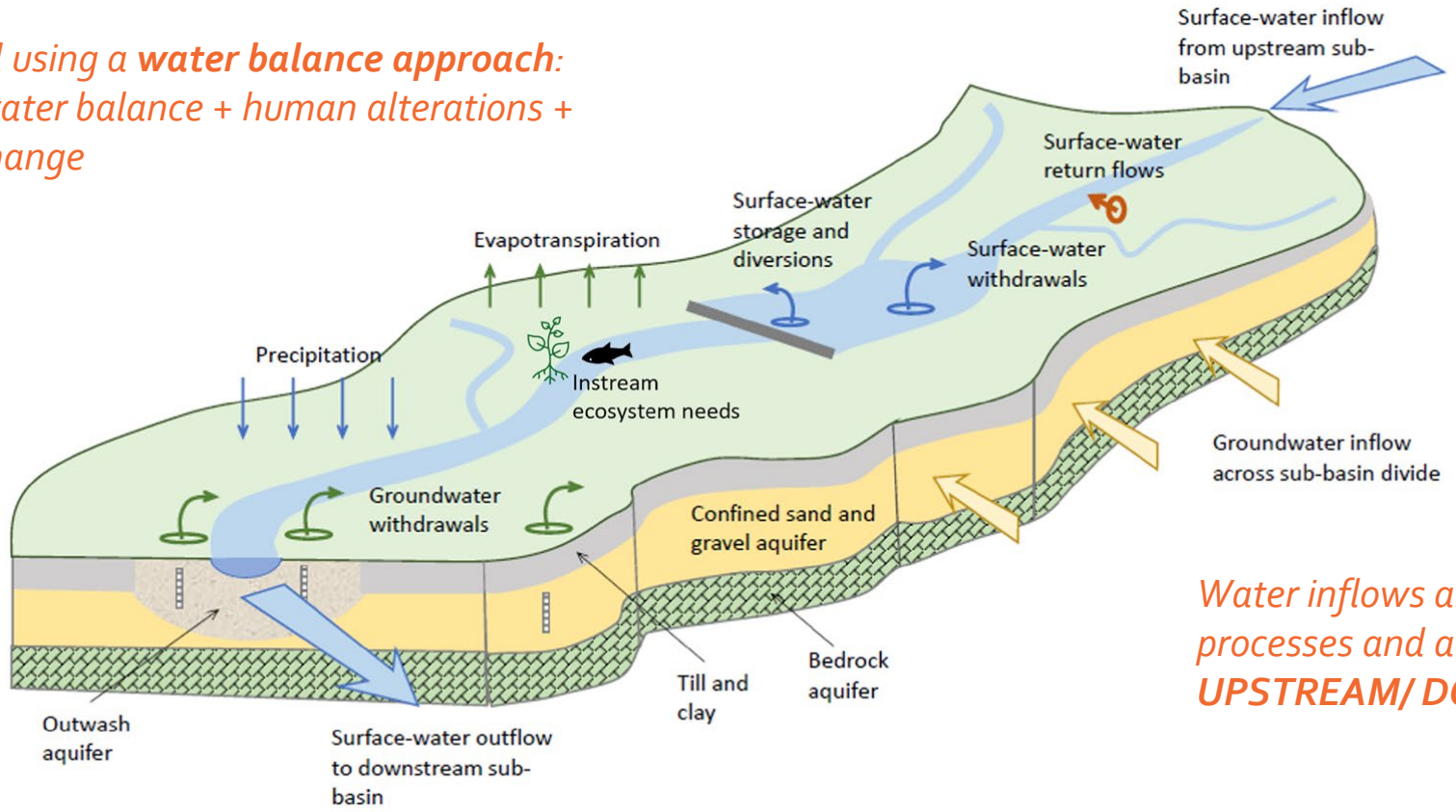
Phase 2: Fifty-year water supply availability forecast

Phase 3: Comparison of water demand and availability forecasts to identify whether enough water is available to meet the 50-year Public Water Supply needs in the region

Recommended next steps

Approach to Estimating Subbasin Water Availability

*Estimated using a **water balance approach**: Natural water balance + human alterations + climate change*

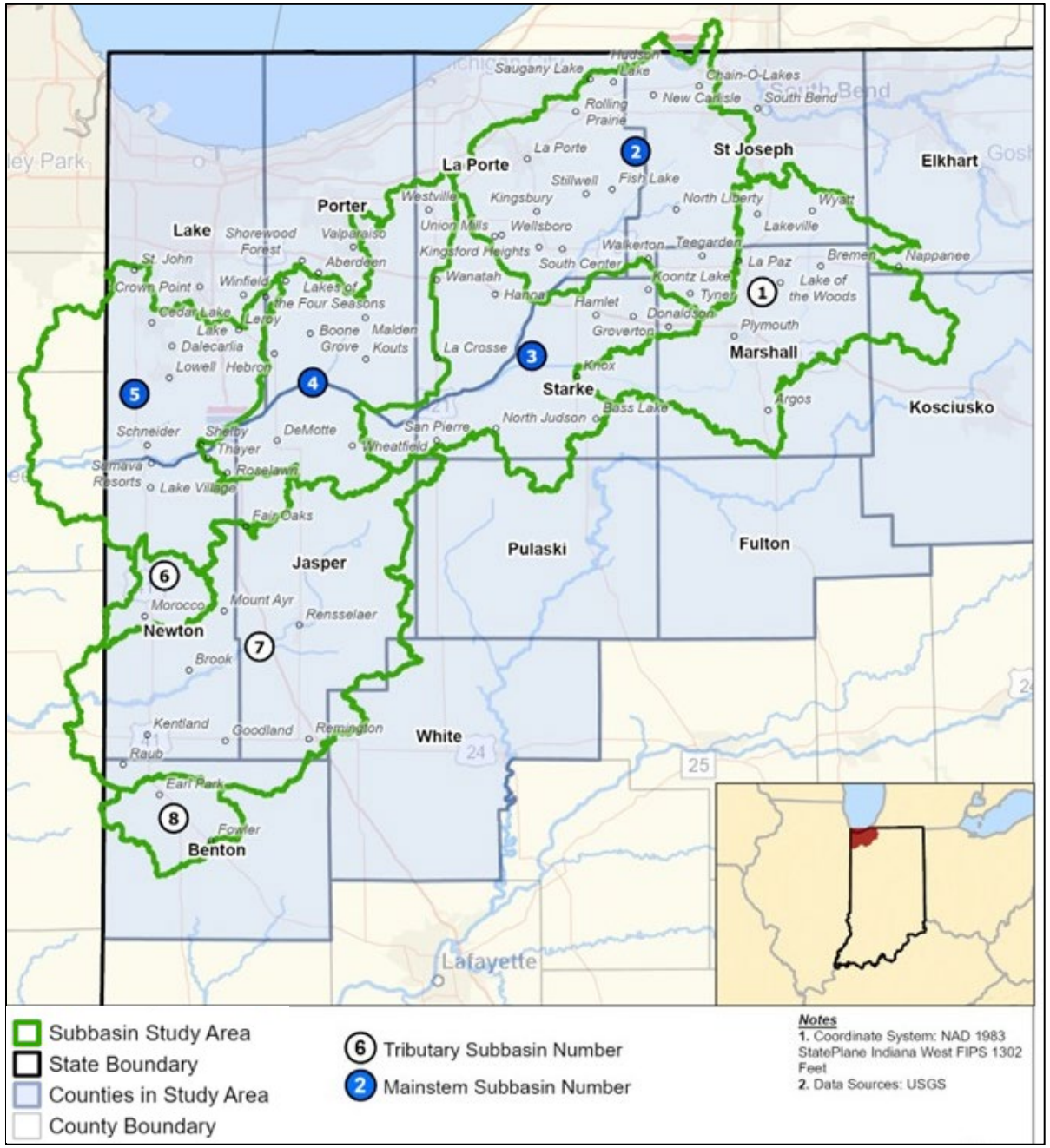


*Water inflows and outflows in a subbasin include processes and activities **WITHIN** the basin, and **UPSTREAM/ DOWNSTREAM** of the basin*

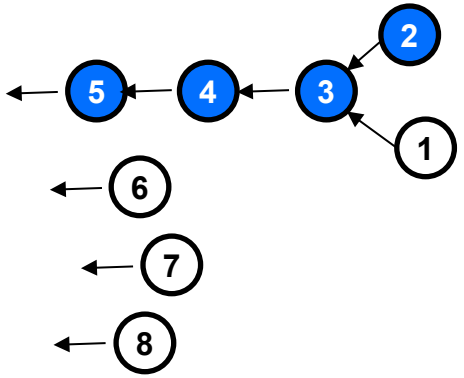
Figure modified from IFA, 2021 (Central Indiana Water Study)

Indiana Finance Authority

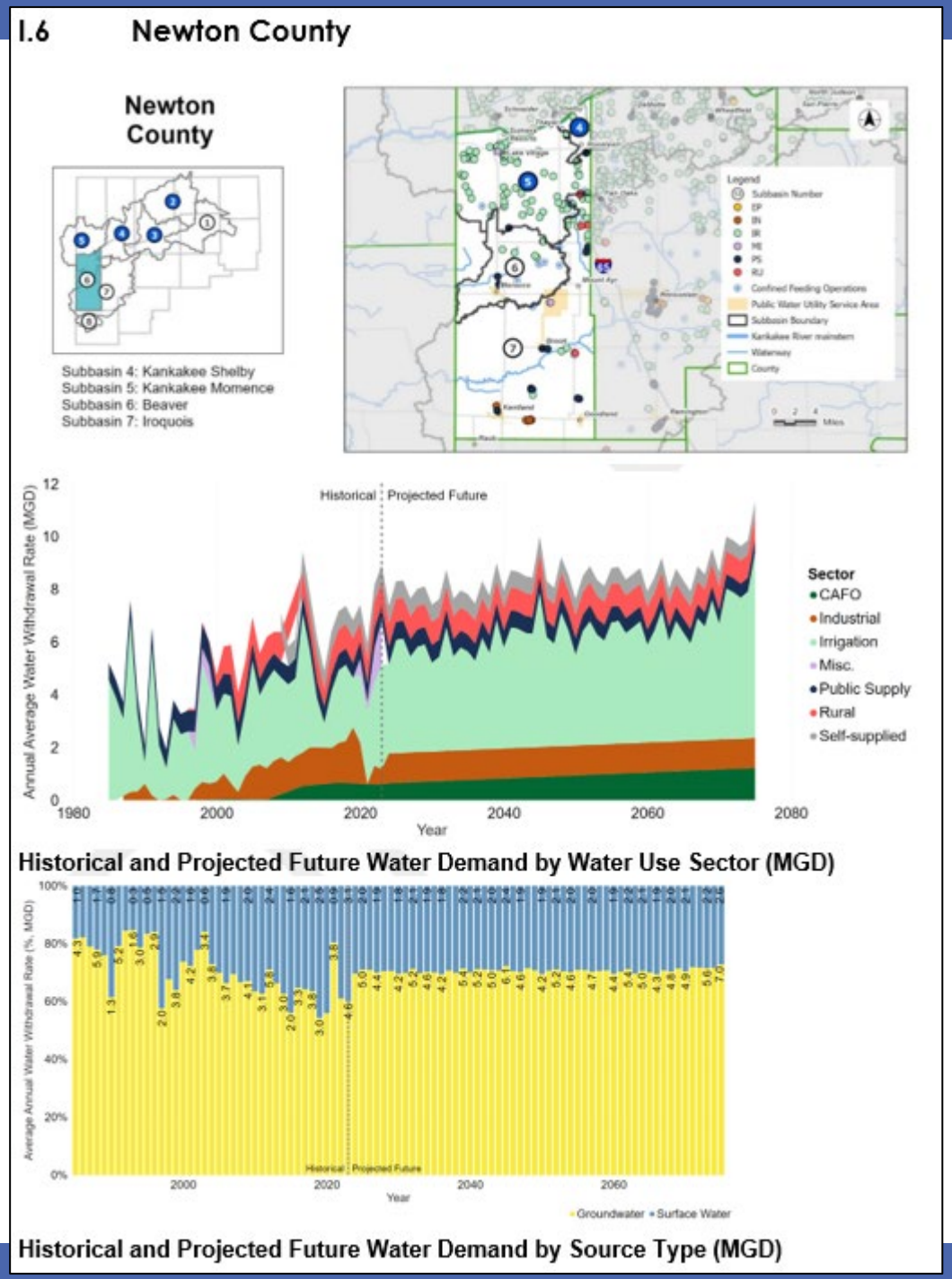
Kankakee Basin Study Area



ID	Subbasin Name	USGS Station at Outlet	Subbasin Area (sq.mi.)
1	Yellow Knox	05517000	435
2	Kankakee Davis	05515500	405
3	Kankakee Kouts	05517530	536
4	Kankakee Shelby	05518000	403
5	Kankakee Momence	05520500	515
6	Beaver	Synthetic	60
7	Iroquois	05525000	686
8	Sugar	Synthetic	85



Indiana Finance Authority



Example Report Output

Mapping Counties and Communities to Subbasins

Appendix I – Historical and Projected Future Water Demand Summaries by County

Indiana Finance Authority

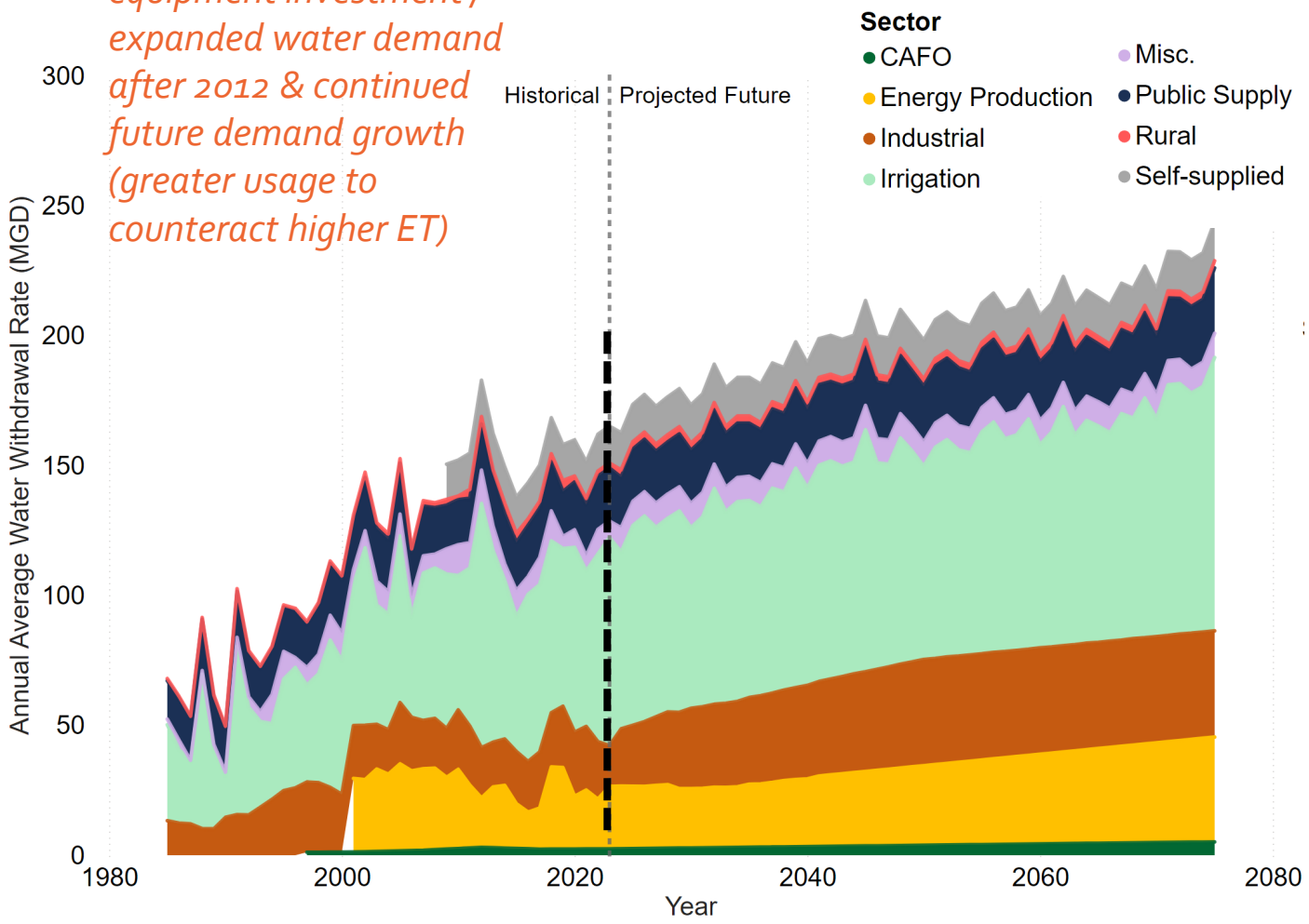
Kankakee Basin Regional Water Study – Key Takeaways

- Like many other regions of Indiana, **the Kankakee Basin is projected to grow – slightly in population**, and **more significantly in economic productivity and in water demand**.
- Fortunately, **the Basin has generally abundant water resources**, and **this is projected to remain the case under most conditions in the future**.
- The region **can likely support increases in water demand while maintaining overall supply reliability**.
- However, future projections of water availability **under some conditions** – notably in the fall season in dry and drought years for certain subbasins – **indicate potential water stress**, meaning potential unsatisfied demands and/or heightened ecological stress.

Indiana Finance Authority

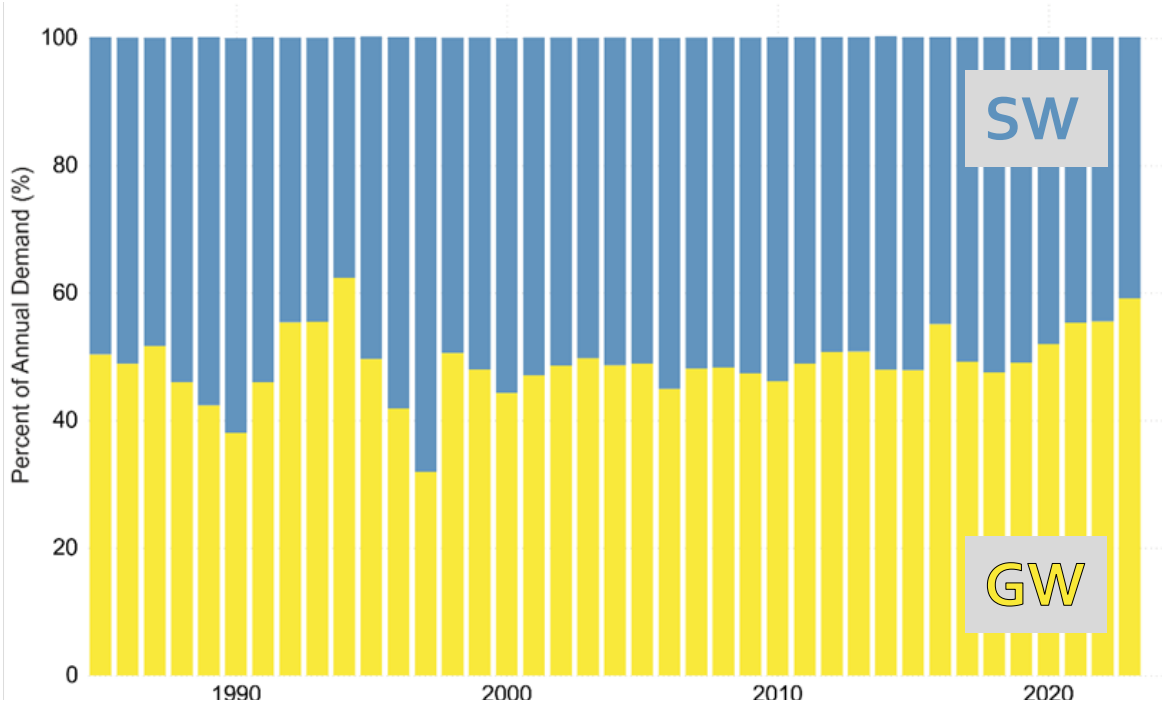
Historical and Projected Future Water Demand by Sector

Of note: irrigation equipment investment / expanded water demand after 2012 & continued future demand growth (greater usage to counteract higher ET)



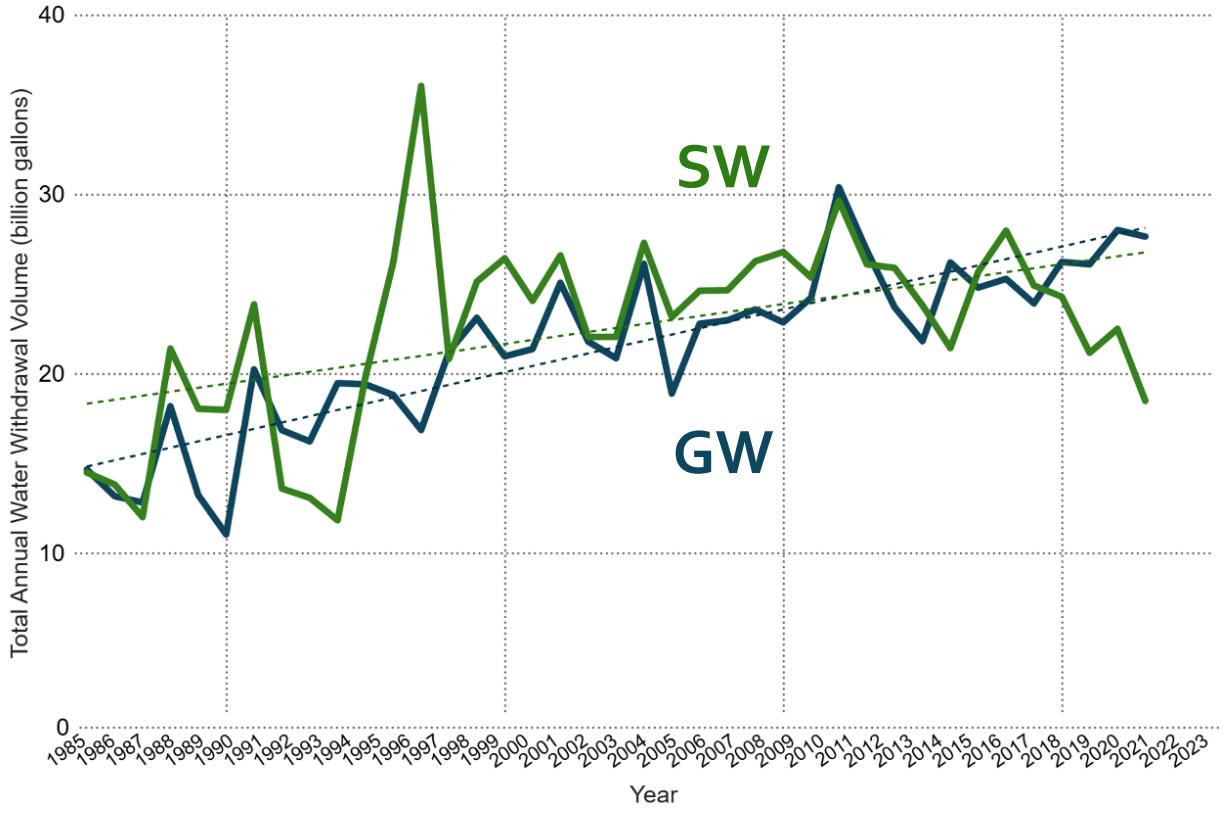
Sector	2023 Demand MGD	2075 Demand MGD	% Change, 2023 → 2075
Irrigation	80	105	+31%
Energy Production	24	40	+67%
Public Supply	20	25	+25%
Industrial	16	41	+156%
Total	**165 MGD**	**244 MGD**	**+48%**

Water Supply Sourcing (GW and SW)



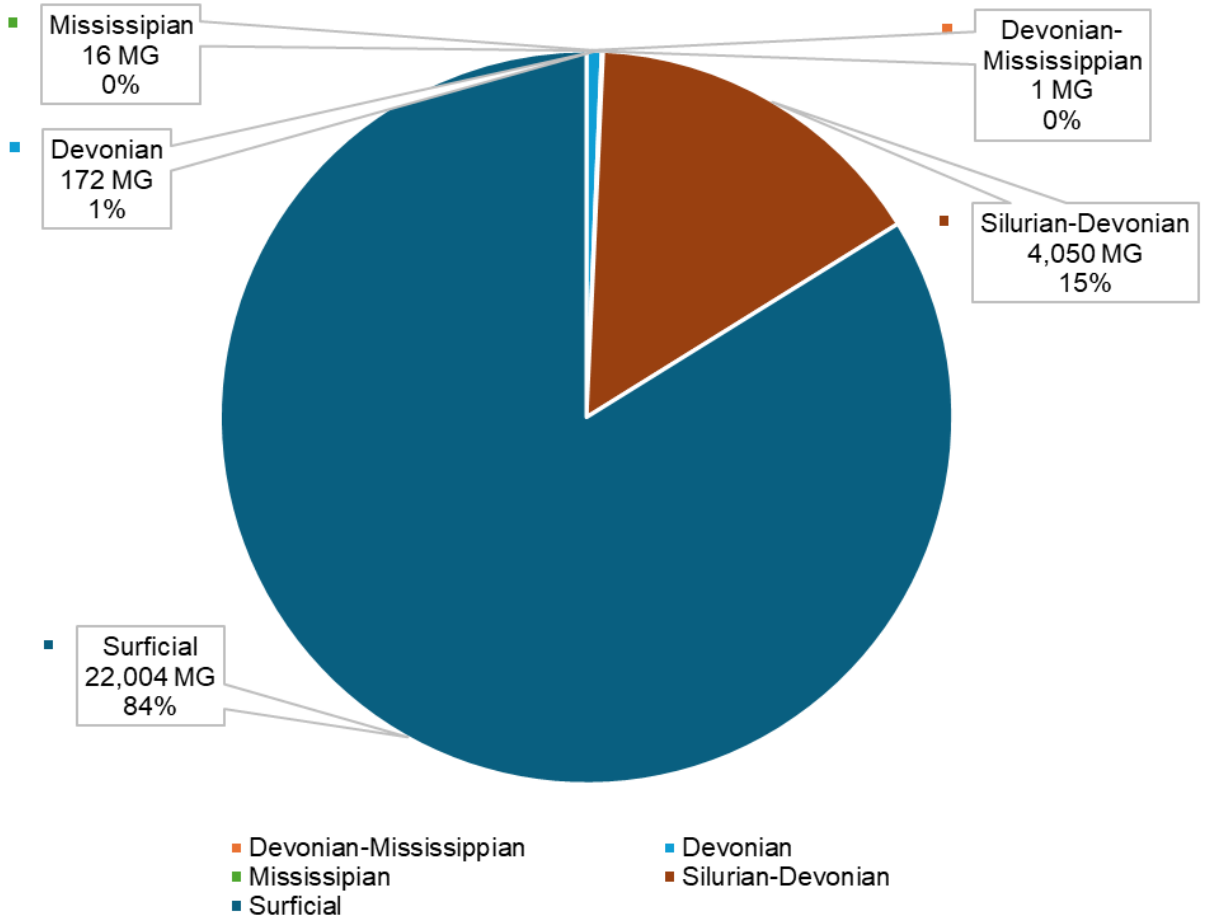
Of note: Historical withdrawals are relatively evenly split between SW and GW. The primary uses of surface water are irrigation and energy production, and the primary uses of groundwater are irrigation and public supply.

Of note: Groundwater and surface water use have both risen since 1985, but groundwater has grown faster, and yearly swings have tracked wet and dry years.



Hydrogeology

2023 Total Annual Groundwater Withdrawals (MGY and % of total) by Aquifer

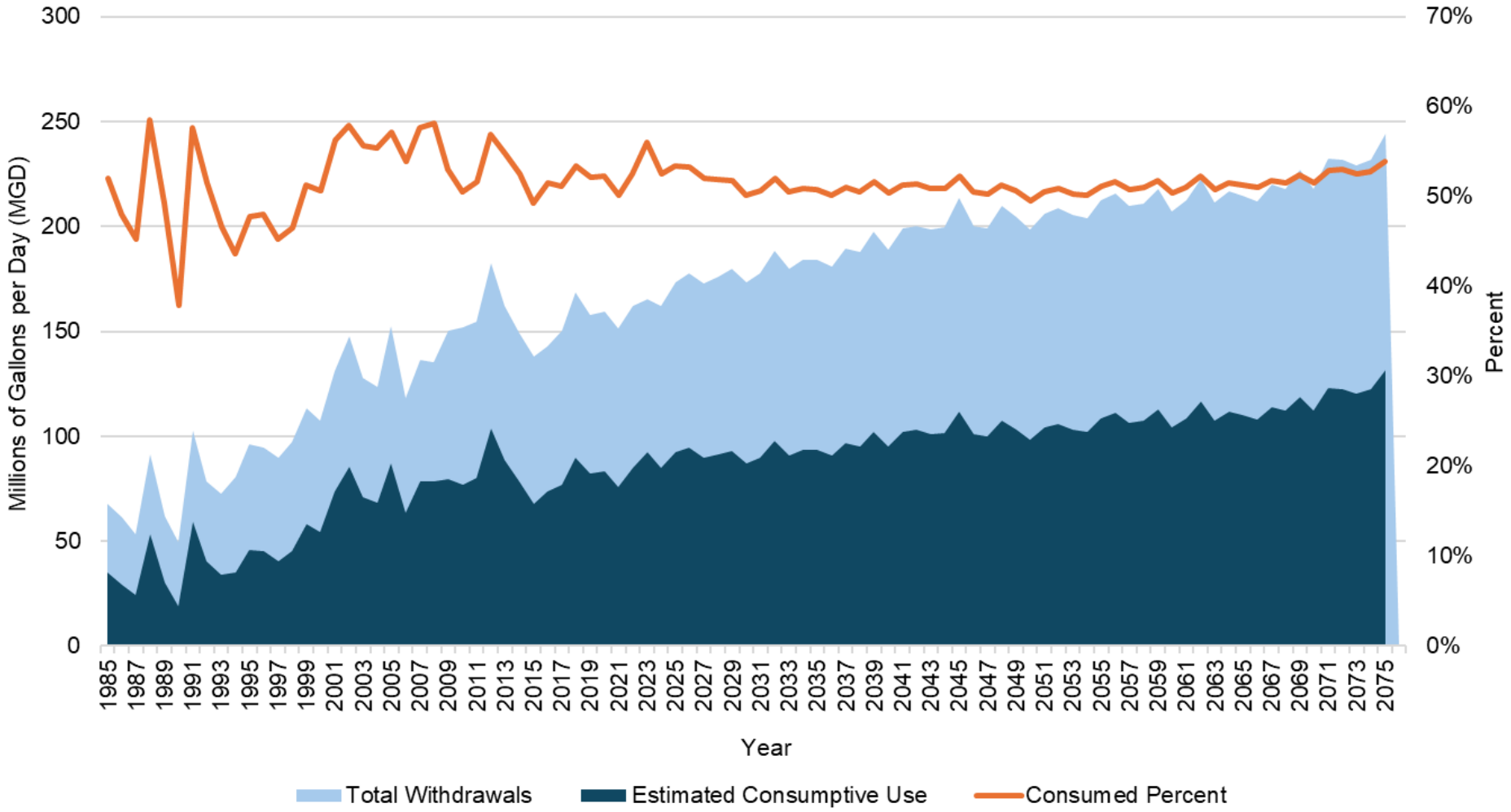


Of note: surficial (unconsolidated) aquifers served 84% of 2023 withdrawals; Silurian-Devonian carbonate bedrock added 15%, and all others made up less than 2%.

Indiana Finance Authority

Consumptive Use

Of note: Projections forecast that consumption rates (water not returned to the system) will remain steady at around 50-60% of withdrawals; so as withdrawals increase, consumption increases accordingly.

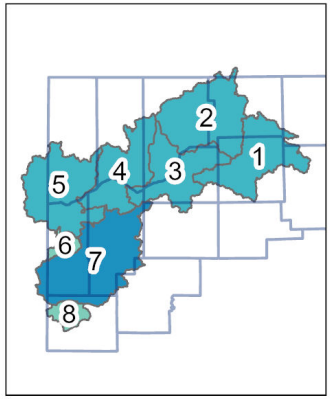


Indiana Finance Authority

Recent Water Availability (2023)

Excess Availability 2023

Annual

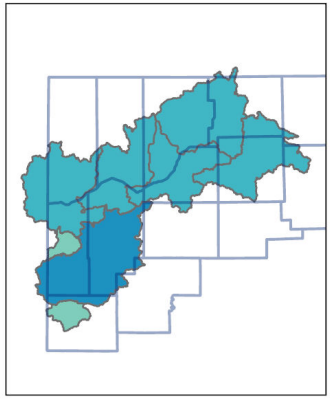


Excess water availability (million gallons per day)

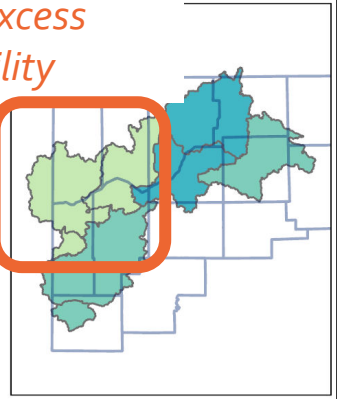
- ≤ 0
- >0 to 10
- >10 to 50
- >50 to 200
- >200 to 500
- >500 to 1000
- >1000

Limited current 'local' excess availability

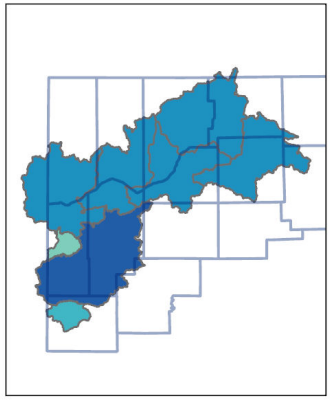
Winter (Dec - Feb)



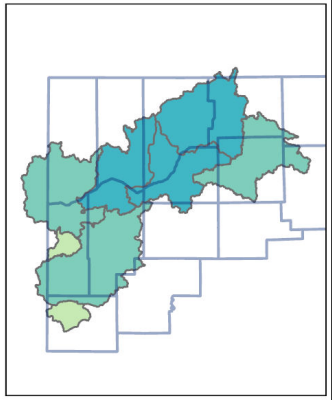
Summer (Jun - Aug)



Spring (Mar - May)

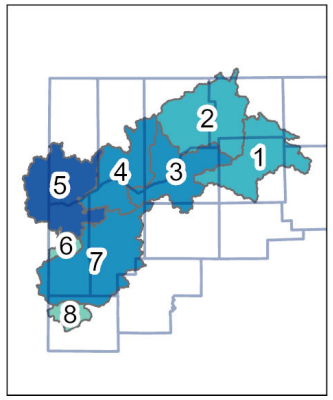


Fall (Sep - Nov)



Cumulative Excess Availability 2023

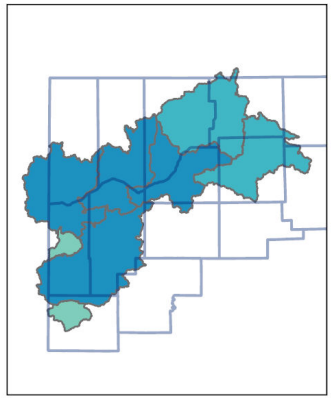
Annual



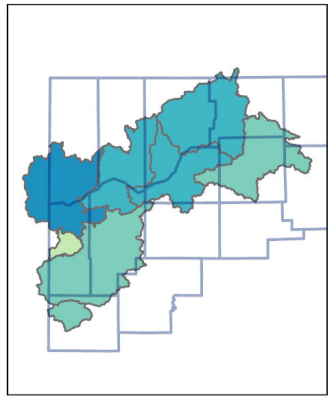
Cumulative excess water availability (million gallons per day)

- ≤ 0
- >0 to 10
- >10 to 50
- >50 to 200
- >200 to 500
- >500 to 1000
- >1000

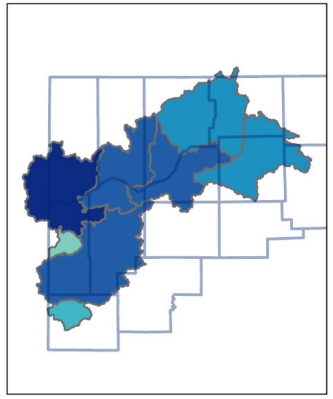
Winter (Dec - Feb)



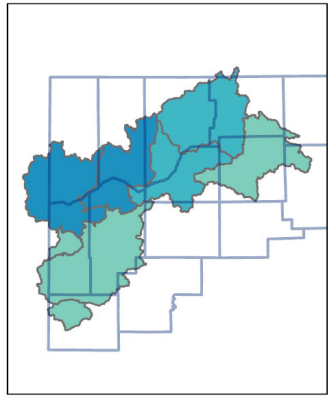
Summer (Jun - Aug)



Spring (Mar - May)



Fall (Sep - Nov)



Subbasins	
1	Yellow Knox
2	Kankakee Davis
3	Kankakee Kouts
4	Kankakee Shelby
5	Kankakee Momence
6	Beaver
7	Iroquois
8	Sugar

Indiana Finance Authority

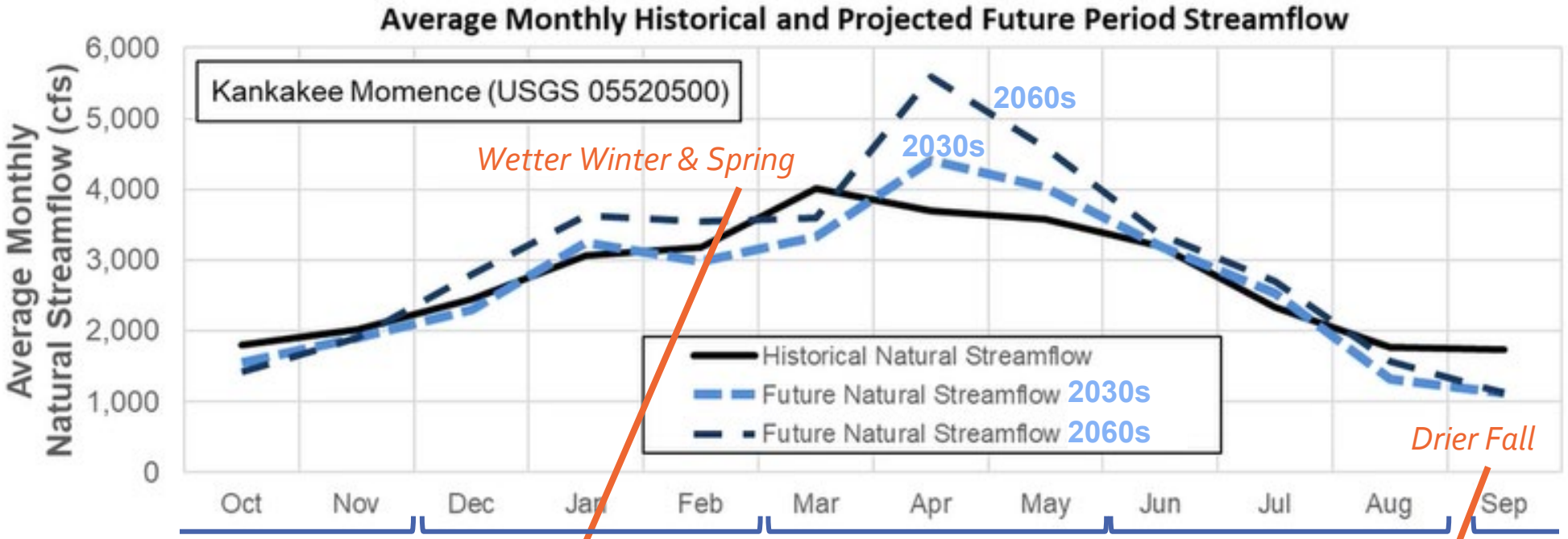
Historical Water Availability Key Findings

- Historical water supply exceeds historical water demand (including instream flow/ ecosystem needs) in most locations and most seasons
- Variations in natural baseflow (driven by climate and land use) are the main drivers of cumulative excess water availability
- Strong seasonal variation exists in cumulative excess water availability

  SPRING > WINTER > SUMMER > FALL
- Kankakee River mainstem subbasins have the highest cumulative excess water availability across all seasons

Indiana Finance Authority

Historical vs. Projected Future Streamflow



Wetter Winter & Spring

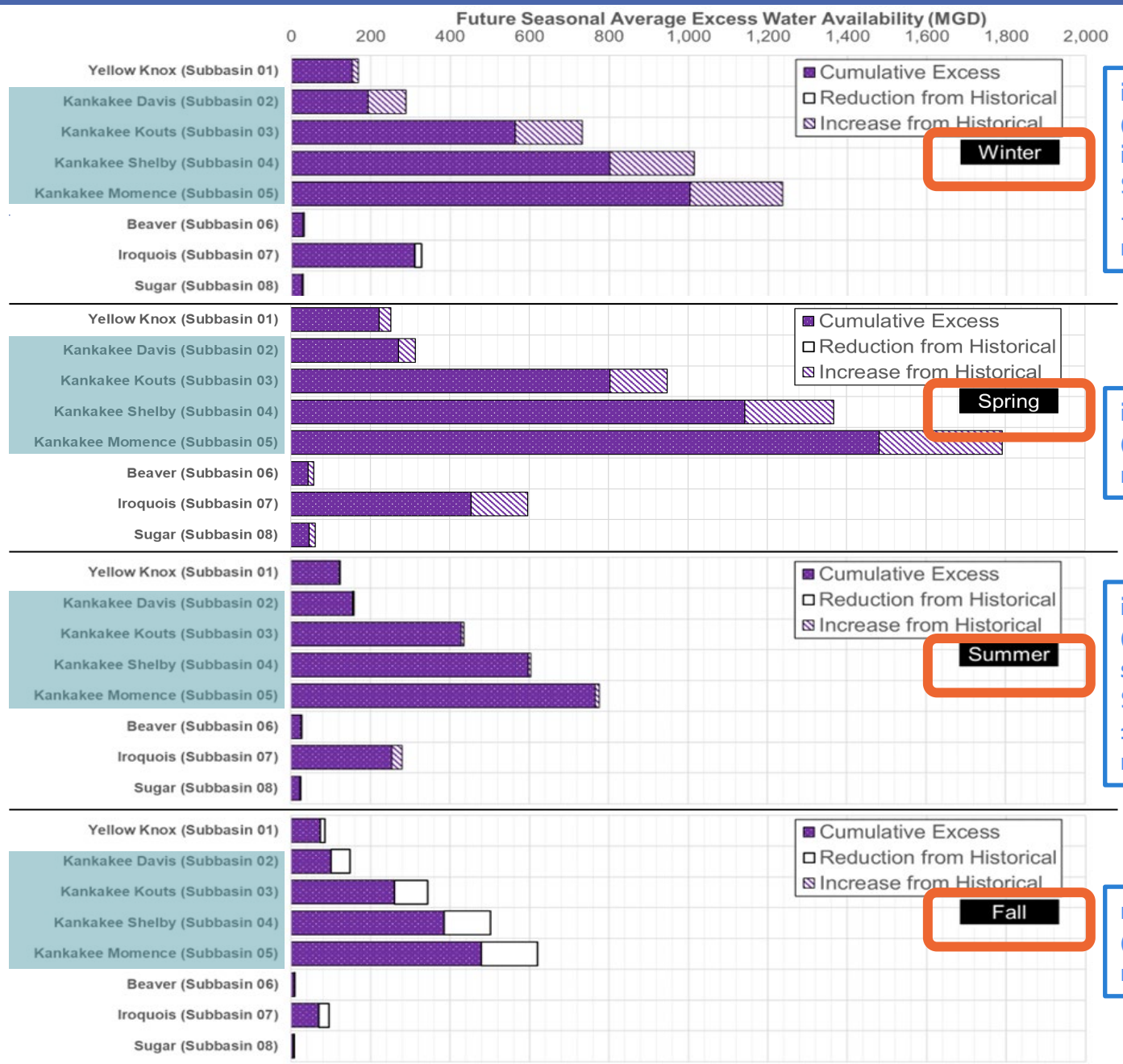
Possible implications for dewatering fields and getting crops in the ground

Drier Fall

Possible increasing water stress / drought susceptibility due to decreased water availability and increased seasonal irrigation demand

Indiana Finance Authority

Projected Future Water Availability



increased availability (10% to 49%) in subbasins 1-5, Slightly reduced (-4% to -6%) in subbasins 6-8 relative to historical

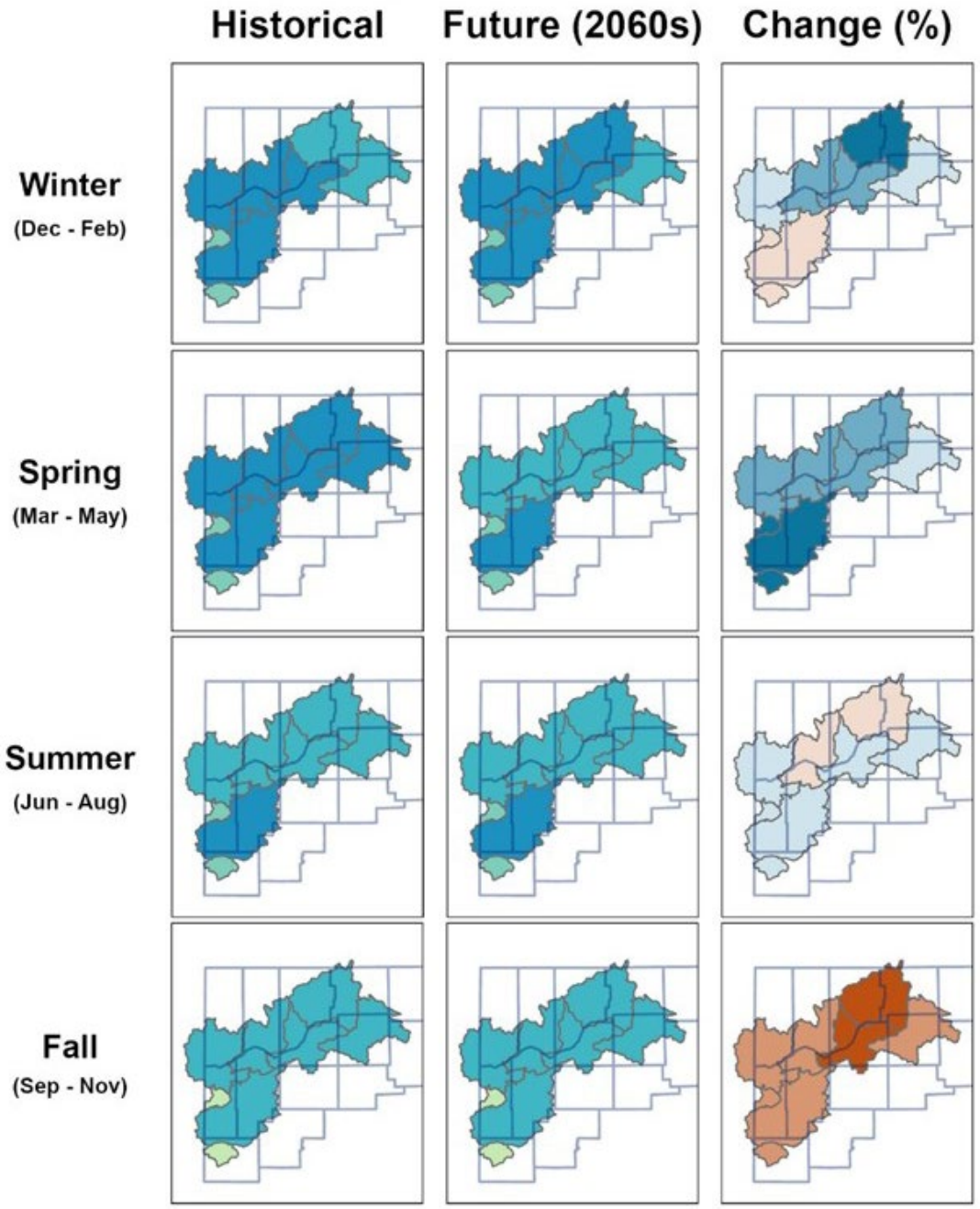
increased availability (13% to 32%) relative to historical

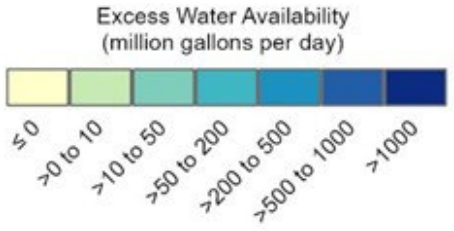
increased availability (1% to 12%) in subbasins 1, 3-8 Slightly reduced by -1% in subbasin 2 relative to historical

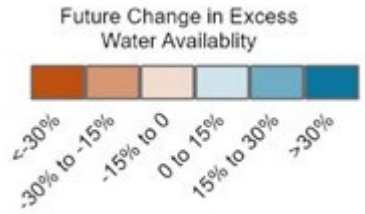
reduced availability (-15% to -32%) relative to historical

Indiana Finance Authority

Projected Future Water Availability (1)







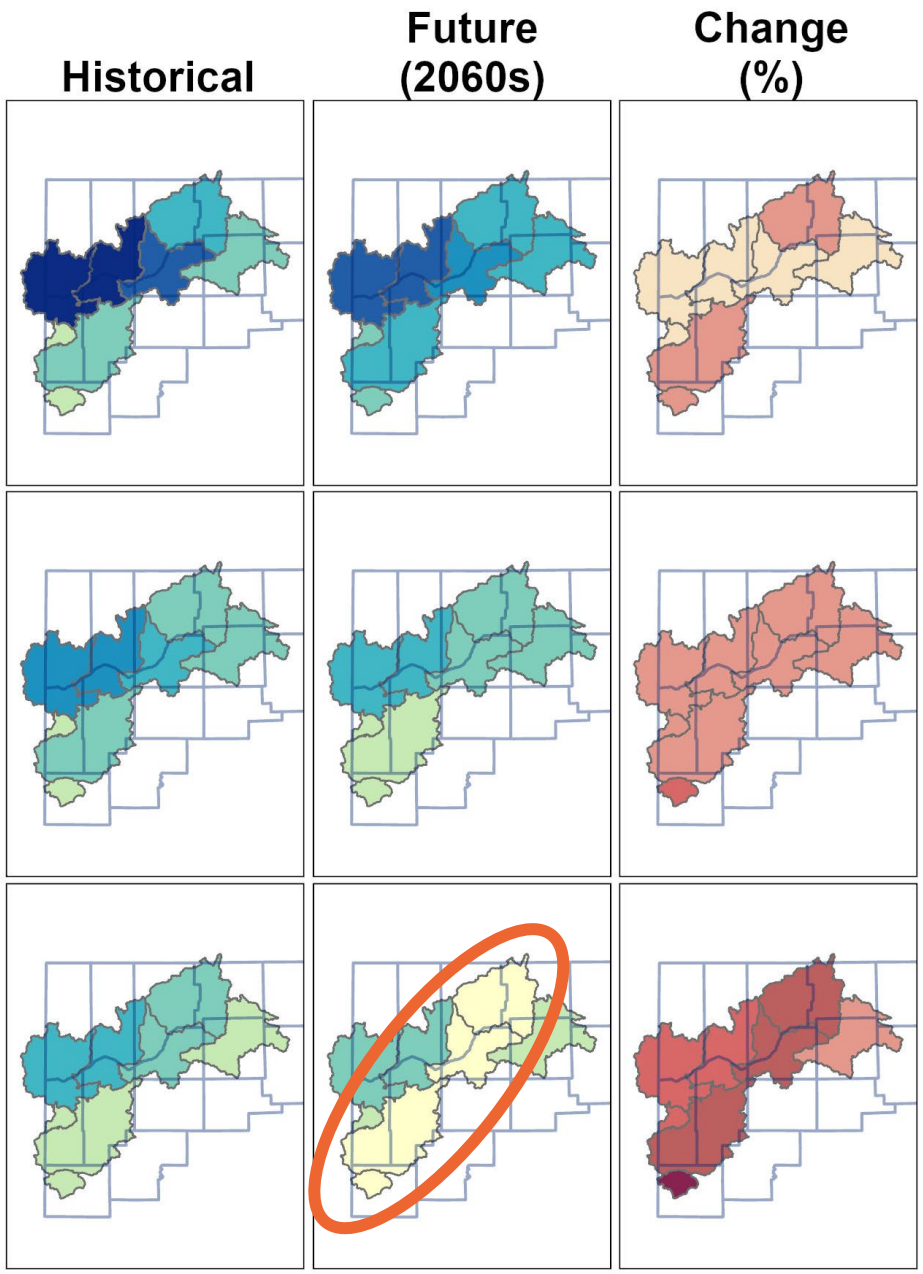
Winter and spring exhibit widespread increases in excess water availability (subbasin, local) driven by higher projected baseflow and precipitation.

Summer projections show modest changes, with most subbasins remaining within ±10% of historical values.

Fall displays consistent decreases across all subbasins (-15% to -32%), reflecting expected declines in late-season baseflow under future climate conditions.

Indiana Finance Authority

Projected Future Water Availability (Fall Season)



Cumulative excess water availability (million gallons per day)

- ≤ 0
- >0 to 25
- >25 to 100
- >100 to 200
- >200 to 350
- >350 to 500
- >500

Future Change in Cumulative Excess Water Availability

- <-200%
- -150% to -200%
- -100% to -150%
- -50% to -100%
- -25% to -50%
- 0% to -25%

Subbasins 2,3,7, and 8 have positive cumulative excess water availability historically, but are projected to show negative in the future, signaling potential late-season shortages during drought conditions

Indiana Finance Authority

Future Water Availability Key Findings

- **Future water supplies are projected to nearly always exceed future demands (including instream flow/ ecosystem needs)**
- Projected higher natural baseflows in Winter and Spring, but lower natural baseflow plus higher demand in Fall
- Under future dry conditions, current supply-demand imbalances are projected to get worse during Fall
- Under drought condition (95%) in fall, some subbasins show negative cumulative excess availability, meaning potential unsatisfied demand or ecological stress
- Seasonal water availability variations within a given year are projected to increase

Indiana Finance Authority

Water Resource Risks

Demand Growth Uncertainty

- Industrial demand growth
  - information industry (data centers)
  - advanced manufacturing
- Energy production
- Frequency of future drought (and implications for irrigation water demand)

Water Availability Risks and Drivers

- A changing climate
- Water quality considerations
- Difficulty in predicting future conditions

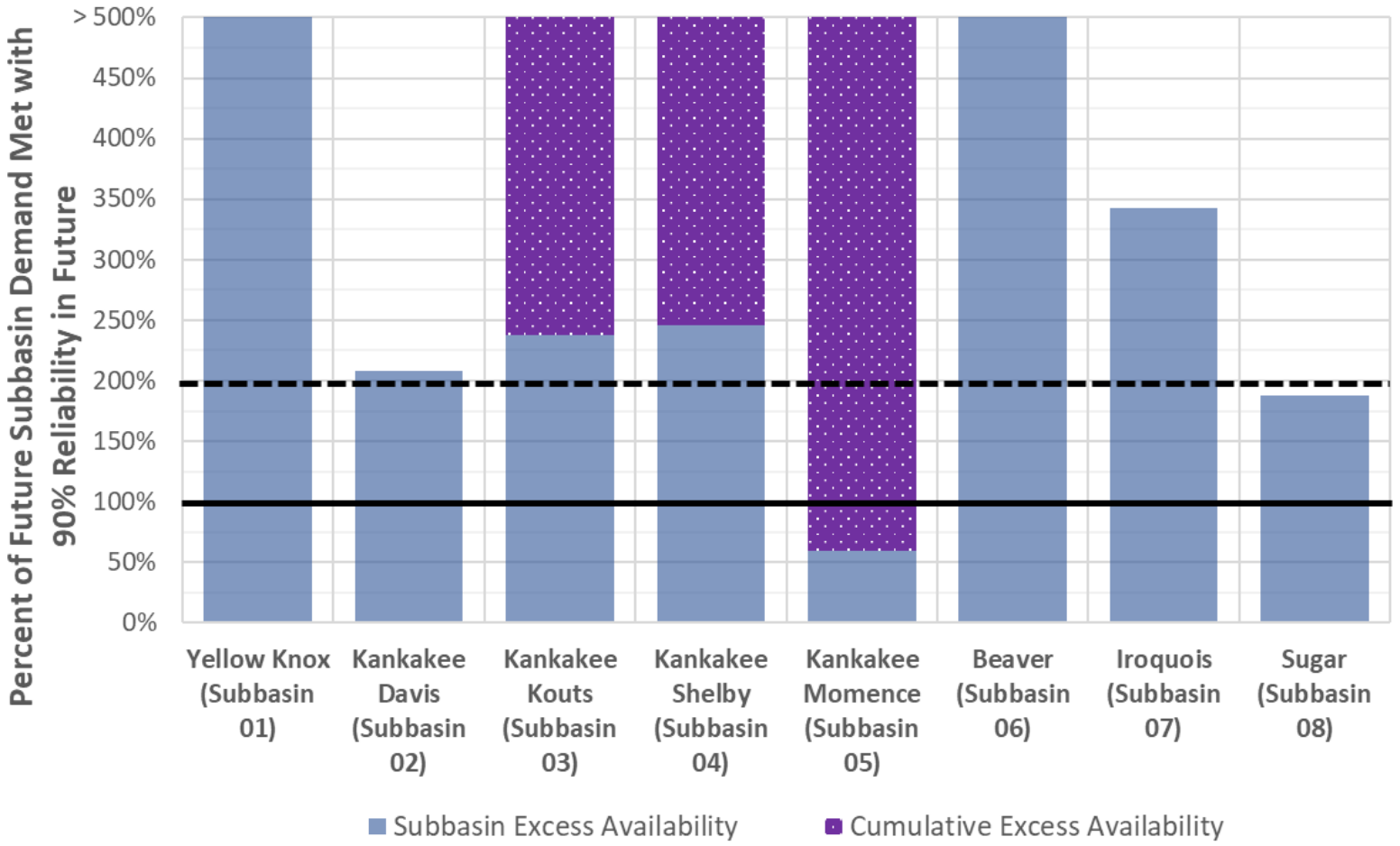
Downstream Reliance on Upstream Water Supply Sources

- (see next slide)

*Indiana is increasingly home to **advanced manufacturing** (such as semiconductors, biotech and pharmaceuticals, batteries, and electric vehicles) and **data centers**, and the Kankakee Basin is part of this evolving story. The Basin is a microcosm of the larger national trend, whereby **the historical economic engine of agriculture is increasingly supplemented by new industry**.*

Industrial water demand growth in the Kankakee Basin is projected to outpace agricultural water demand growth by 5:1 *(with irrigation projected to increase ~30% from 2023 to 2075 and industrial demand projected to increase >150%)*

Downstream Reliance On Upstream Water Supply Sources



Of note: downstream Kankakee River mainstem subbasins, particularly Subbasin 05, depend on cumulative excess availability contributed from upstream subbasins.

In other words, water resources development in upstream Subbasins 02, 03, and 04 will strongly influence the reliability of Subbasin 05 water supply in the future.

Future Kankakee Kouts (Subbasin 03) Demand, as a Percentage of Subbasin (Local) and Cumulative (Regional) Excess Water Availability, That Could be Met with a 90% Reliability

Indiana Finance Authority

Water Resource Opportunities and Recommendations

Enhance supply of surface and/or groundwater	Decrease demand for water	Better understand and manage water as a limited resource			
Groundwater Exploration and Development	Water Conservation and Water Use Efficiency	Data Collection, Monitoring Networks, and Modeling	Communication, Coordination, and Education	Water Policy and Practice (environmental flows, more proactive assurances and protections for existing water users)	Recommended Follow-On Analyses (exploration, data collection)

Indiana Finance Authority

Project Partners

Advisory Committee

Indiana Finance Authority

DNR Indiana Department of Natural Resources

IDEM Indiana Department of Environmental Management EST 1986

USGS science for a changing world

Indiana Farm Bureau

Indiana University

Additional Data & Technical Support

Purdue University

www.kankakeeandyellowrivers.org

Indianapolis

CBB

US Army Corps of Engineers®

Illinois State Water Survey
Prairie Research Institute

Additional Project Stakeholder Interviews

Encompassing Utilities, Economic Development Authorities, Elected Officials, and Major Water Users

ST. JOSEPH COUNTY
ESTABLISHED 1830

LAKE COUNTY
parks & rec

CITY OF
VALPARAISO

LaPorte County Indiana
Community & Economic Development

"A Nice Place to Visit"
NEW CARLISLE
INDIANA
"A Great Place to Live"
Founded 1833

Indiana Finance Authority

Next Steps

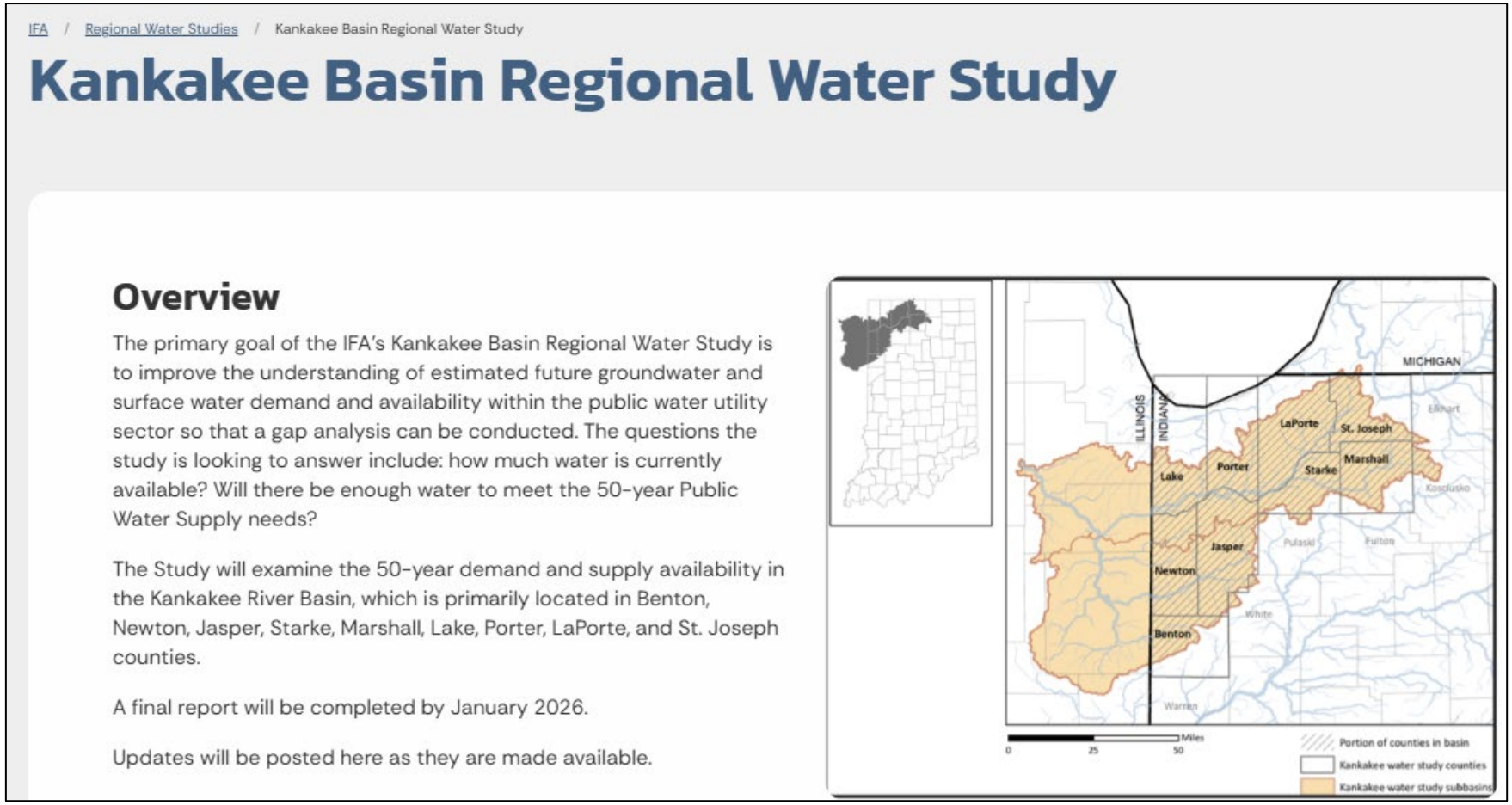
- Written report, anticipated January 2026, including:
  - Executive summary
  - Historical and projected future water demand by county and by subbasin
  - Historical and projected future water availability by subbasin

Please send comments or questions regarding this presentation to IFA (WaterResources@ifa.in.gov) or directly to the project team (eric.hersh@stantec.com) by Thurs 12/4

Indiana Finance Authority

Kankakee Basin Regional Water Study

https://www.in.gov/ifa/regional-water-studies/kankakee-basin-regional-water-study/



IFA / Regional Water Studies / Kankakee Basin Regional Water Study

Kankakee Basin Regional Water Study

Overview

The primary goal of the IFA's Kankakee Basin Regional Water Study is to improve the understanding of estimated future groundwater and surface water demand and availability within the public water utility sector so that a gap analysis can be conducted. The questions the study is looking to answer include: how much water is currently available? Will there be enough water to meet the 50-year Public Water Supply needs?

The Study will examine the 50-year demand and supply availability in the Kankakee River Basin, which is primarily located in Benton, Newton, Jasper, Starke, Marshall, Lake, Porter, LaPorte, and St. Joseph counties.

A final report will be completed by January 2026.

Updates will be posted here as they are made available.

Indiana Finance Authority

IFA Regional Water Studies

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

- Goals of the studies and study area maps
- Project information updates, presentations, and press releases)

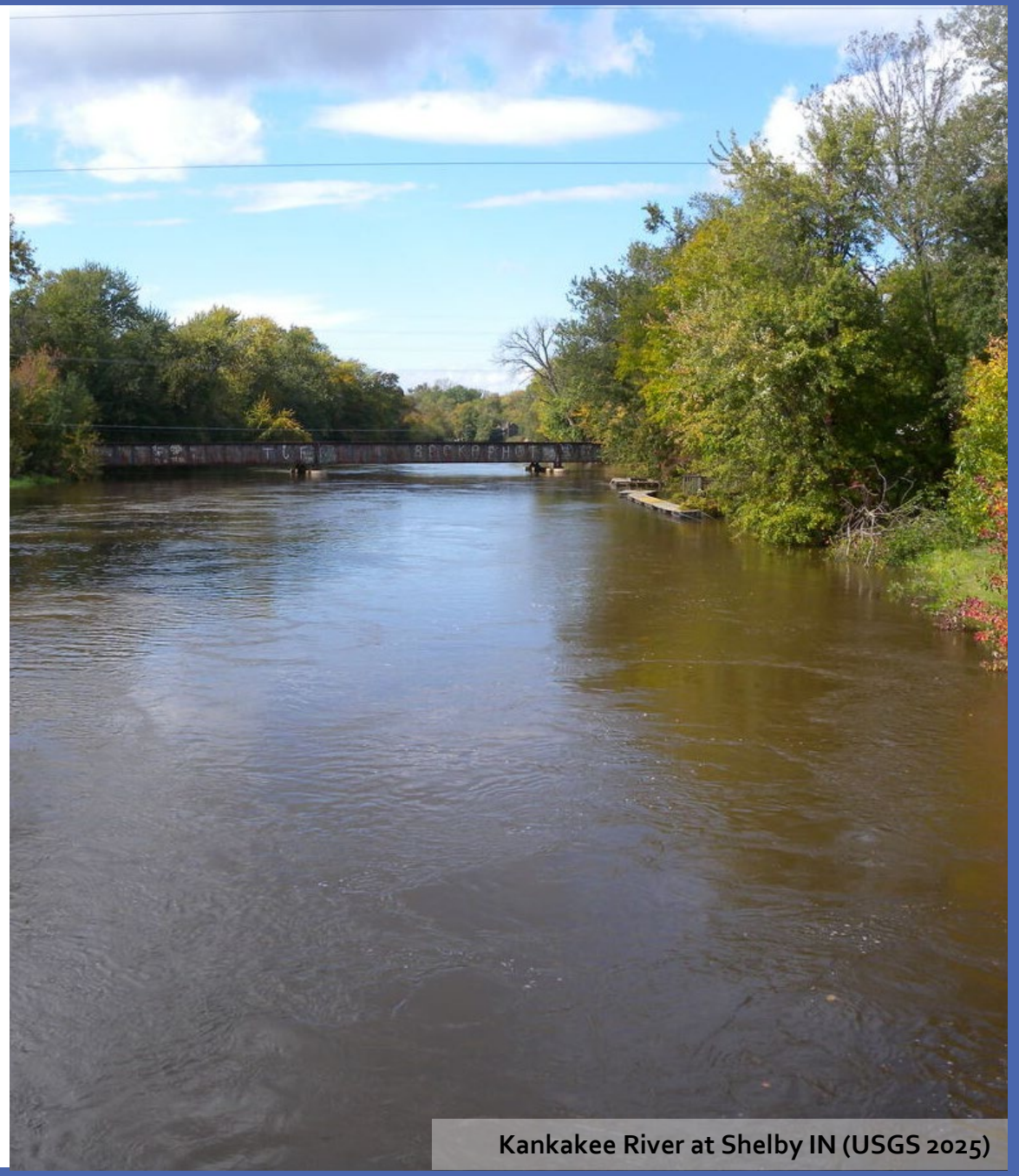
Please send general questions or feedback to IFA (WaterResources@ifa.in.gov)

Indiana Finance Authority

Thank You

Eric Hersh, PhD, PE
Project Technical Lead
Eric.Hersh@stantec.com

Kathy Allen, PLA, PMP
Project Manager
Kathleen.Allen@stantec.com



Kankakee River at Shelby IN (USGS 2025)