

# Mapping and Modeling of Interbasin Water Transfers Within the United States

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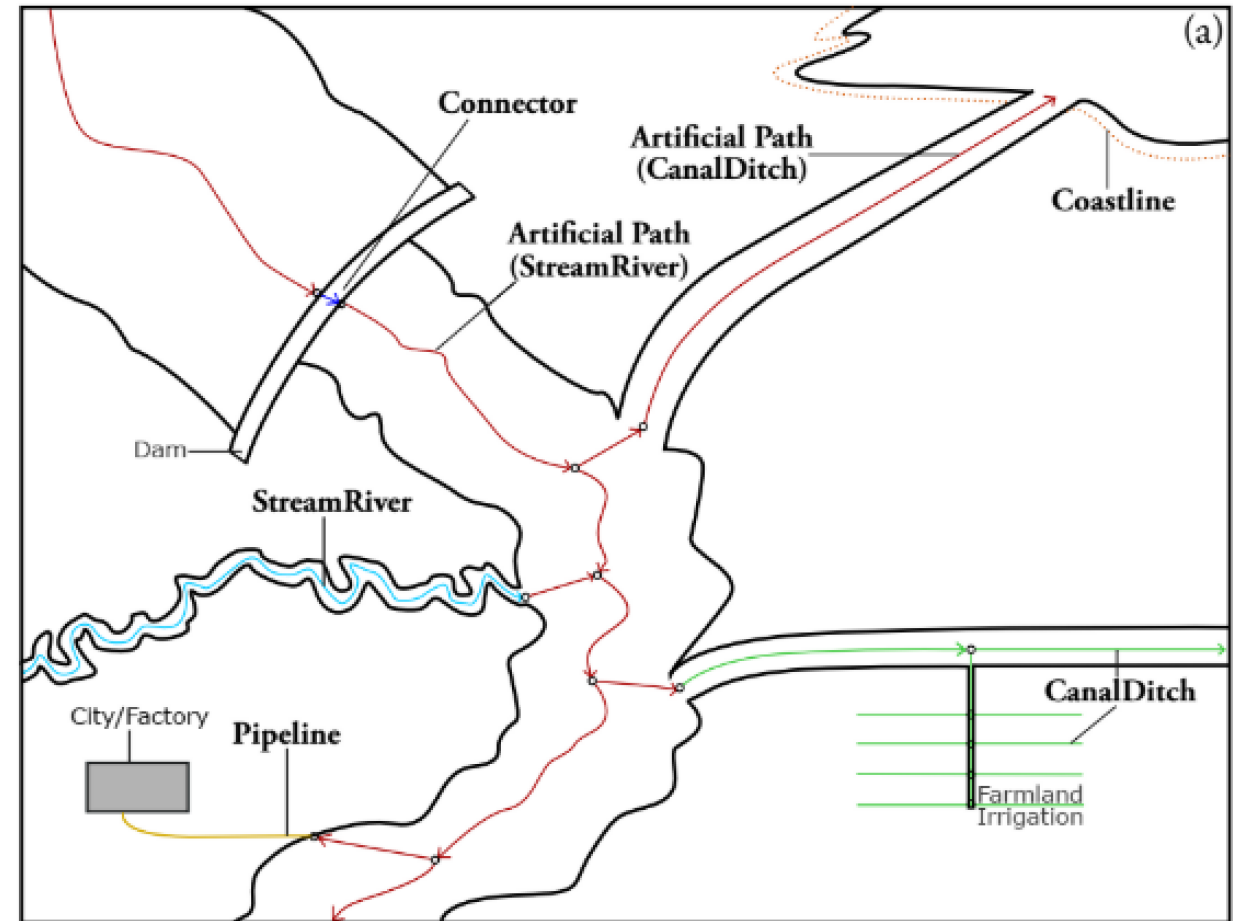
Kansas State University, Civil Engineering

*WIMS/USGS workshop*

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# Interbasin transfers (IBTs) move water across basin boundaries via man-made pathways.



# We lack a modern national database of interbasin water transfers.

INVENTORY OF INTERBASIN TRANSFERS OF WATER IN THE  
WESTERN CONTERMINOUS UNITED STATES

By Harold E. Petsch, Jr.

Open-File Report 85-166

1973-1982

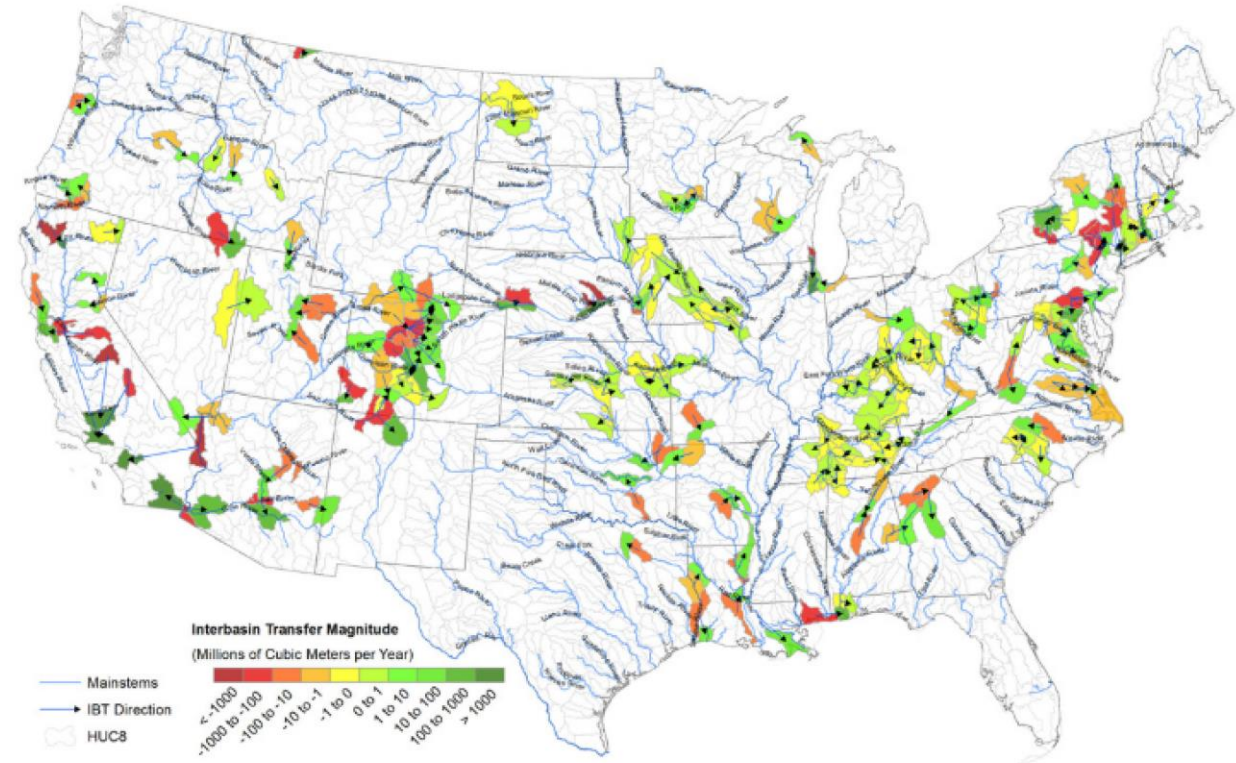
INVENTORY OF INTERBASIN TRANSFERS OF WATER  
IN THE EASTERN UNITED STATES

By Will S. Mooty and Hillary H. Jeffcoat

U.S. GEOLOGICAL SURVEY

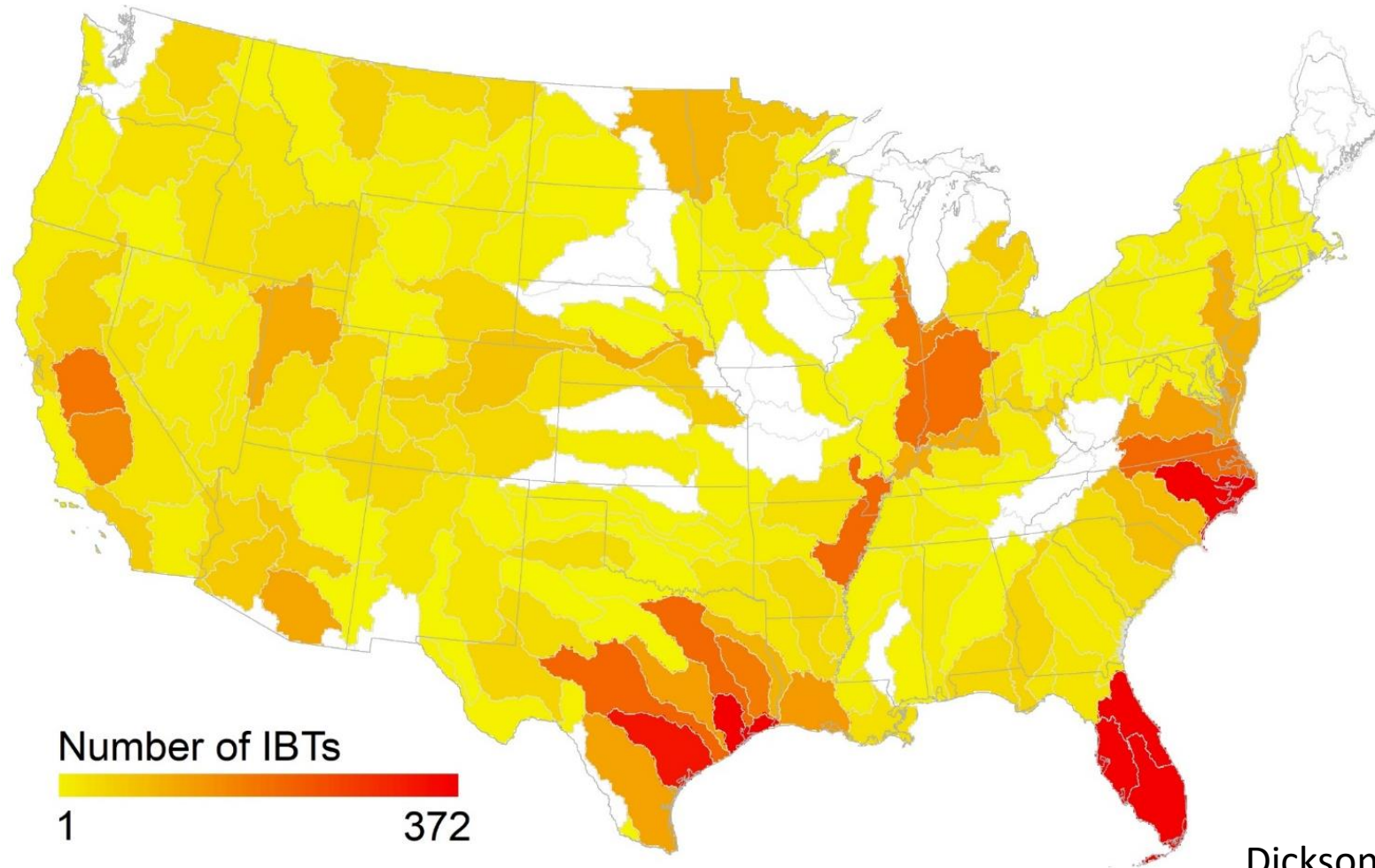
Open-File Report 86-148

1973-1982



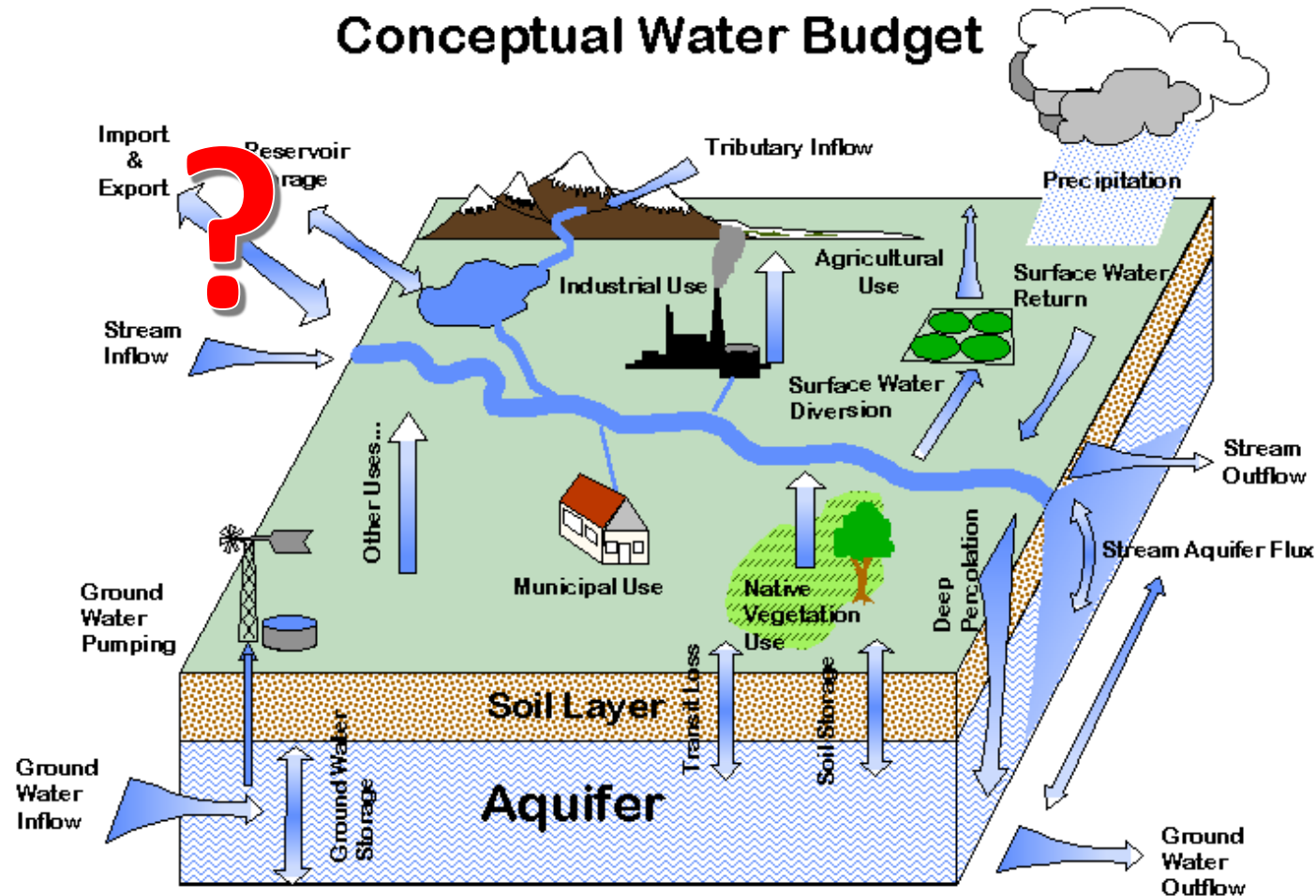
Emanuel et al., 2015

Over **5x** more IBTs have been identified since USGS studies.

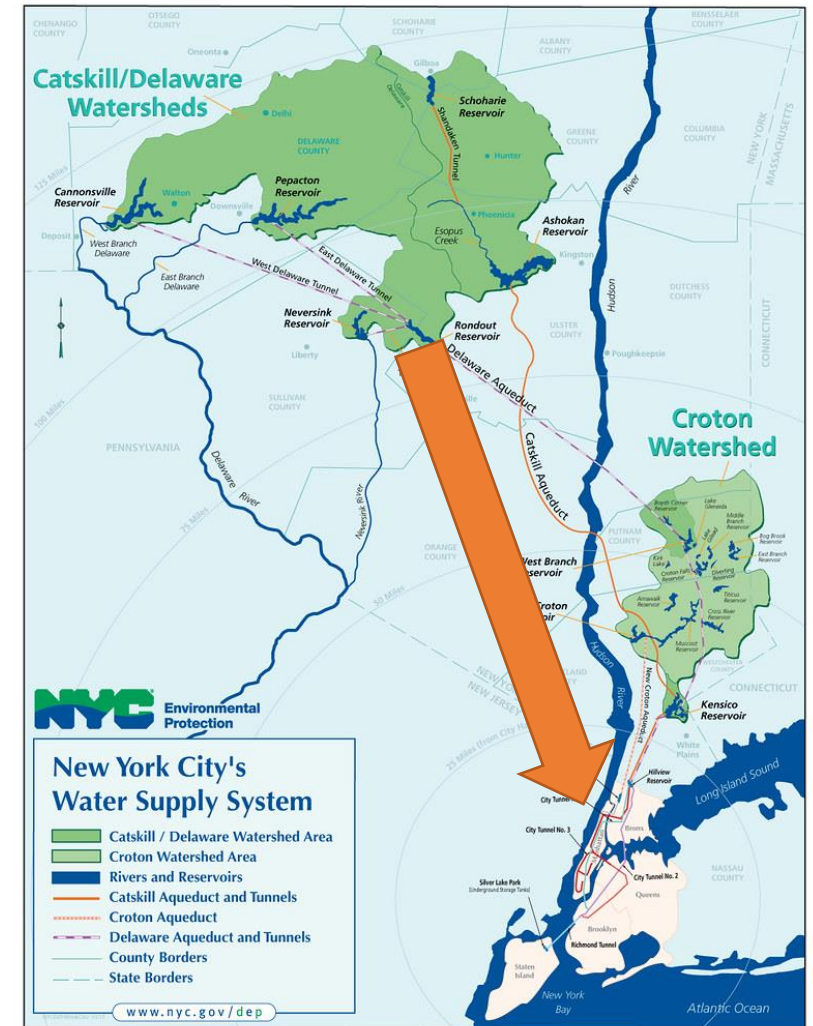
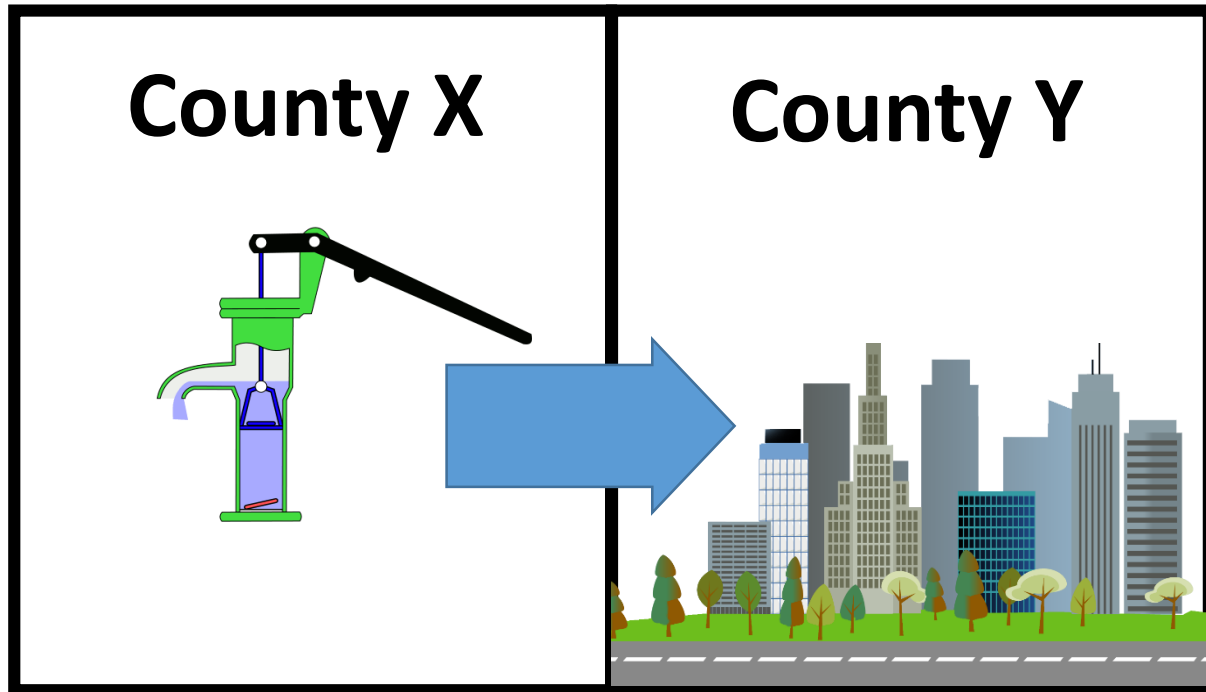


Dickson & Dzombak, 2017

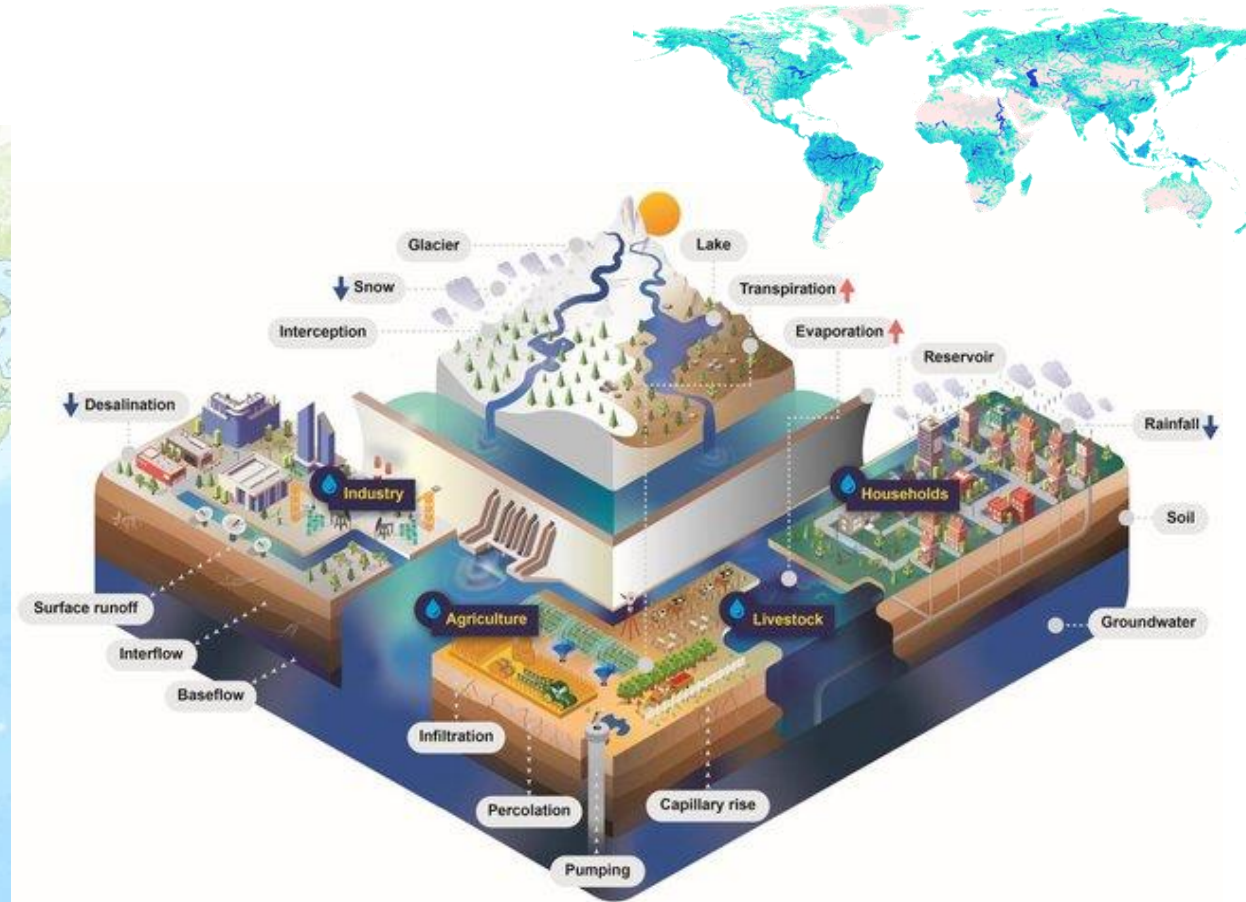
Interbasin water transfers can significantly alter local and nonlocal **water budgets**.



# Interbasin water transfers can significantly alter local and nonlocal **water use/availability**.



Interbasin water transfers can significantly alter local and nonlocal **hydrology**.



**Community Water Model**

# We are creating a modern national IBT database.

This project will

- permit water budget closure
- connect place of diversion and water use
- enable quantification of how IBTs impact water resources at the regional and national scale
- model collective IBT impacts under changing climate, population shifts, and land use changes.



*Water Resources Research Act Program  
National Competitive Grants Program (104g)*





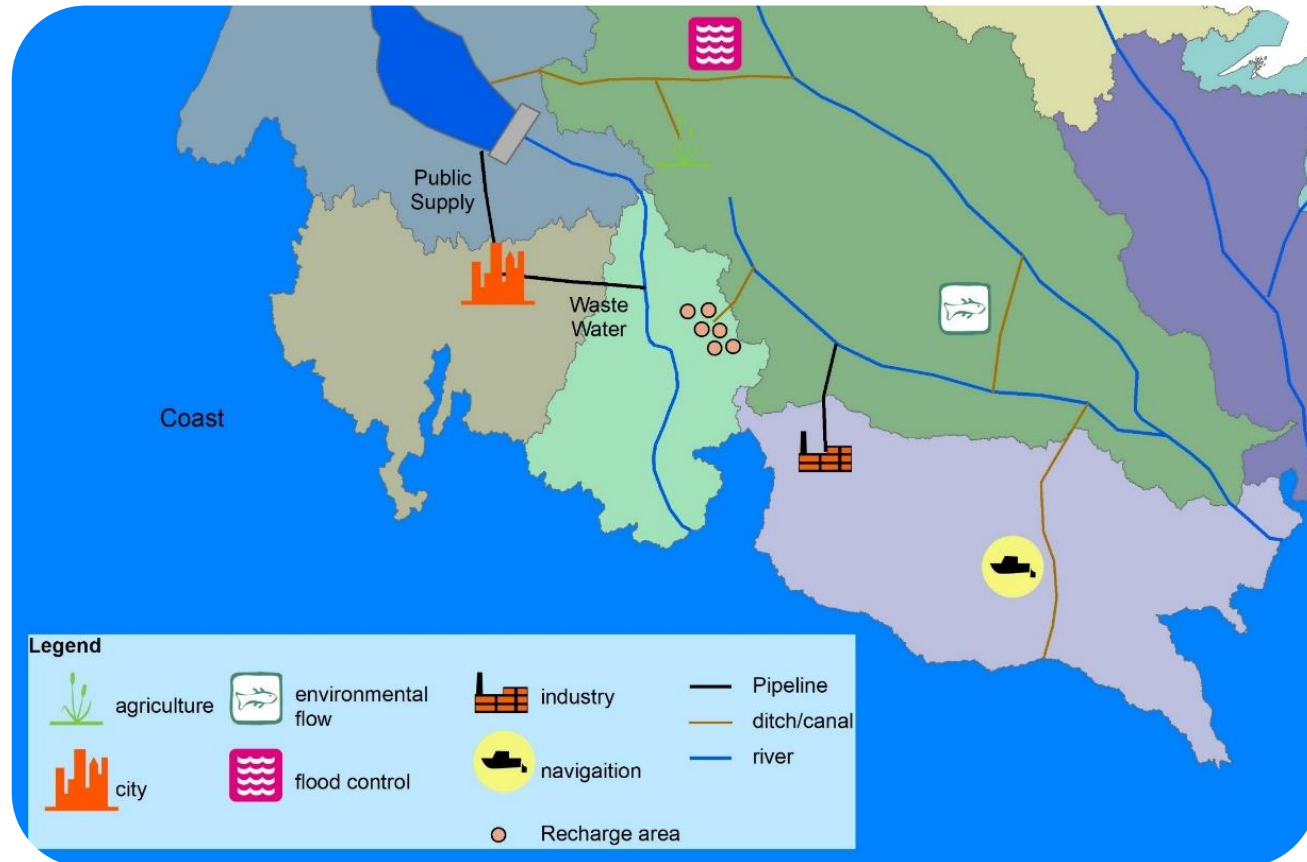
# This project has 3 key objectives.

**Objective 1:** Produce a comprehensive and publicly available national inventory of interbasin water transfers.

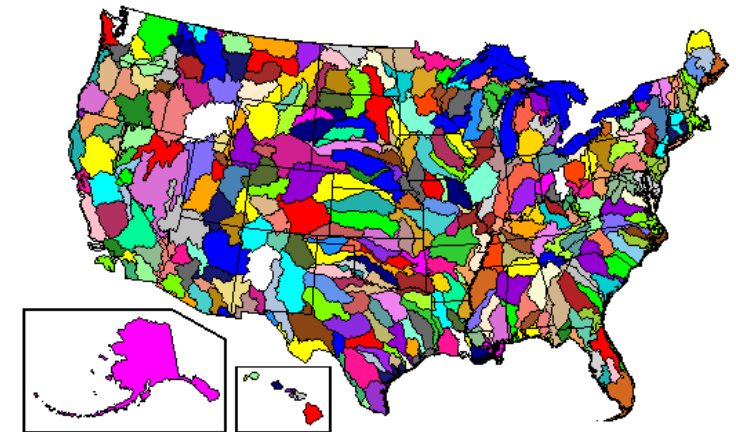
**Objective 2:** Generate models to estimate, predict, and gap fill IBT conveyance volumes based on collected IBT data, as well as other widely available biophysical and socio-economic data.

**Objective 3:** Determine the collective impact of IBTs under current and historical conditions, as well as under different water supply/demand and climate scenarios.

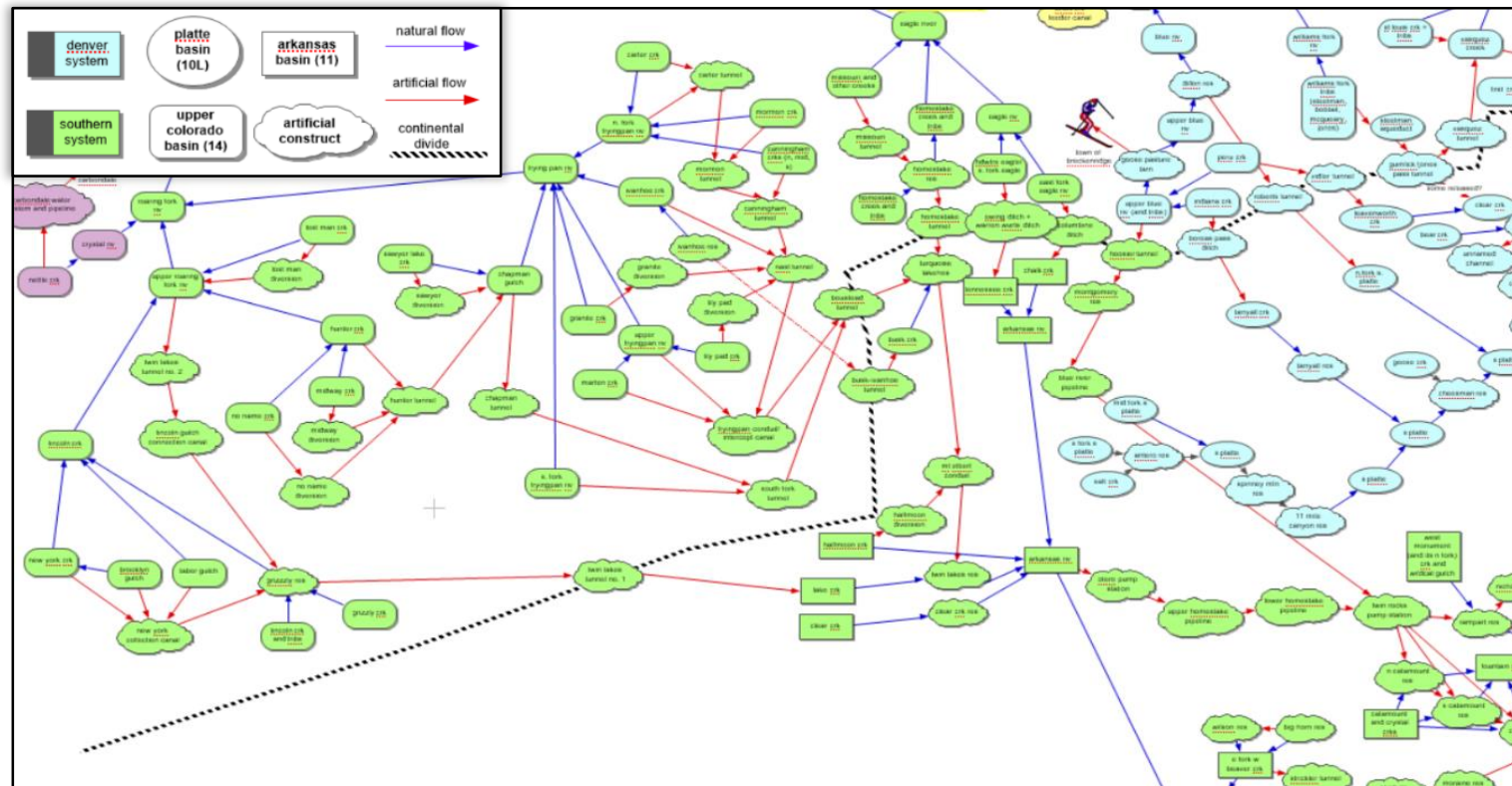
# Objective 1: National inventory of interbasin water transfers.



- IBTs can
- i) serve various purposes
  - ii) occur at diverse scales
  - iii) employ different infrastructure

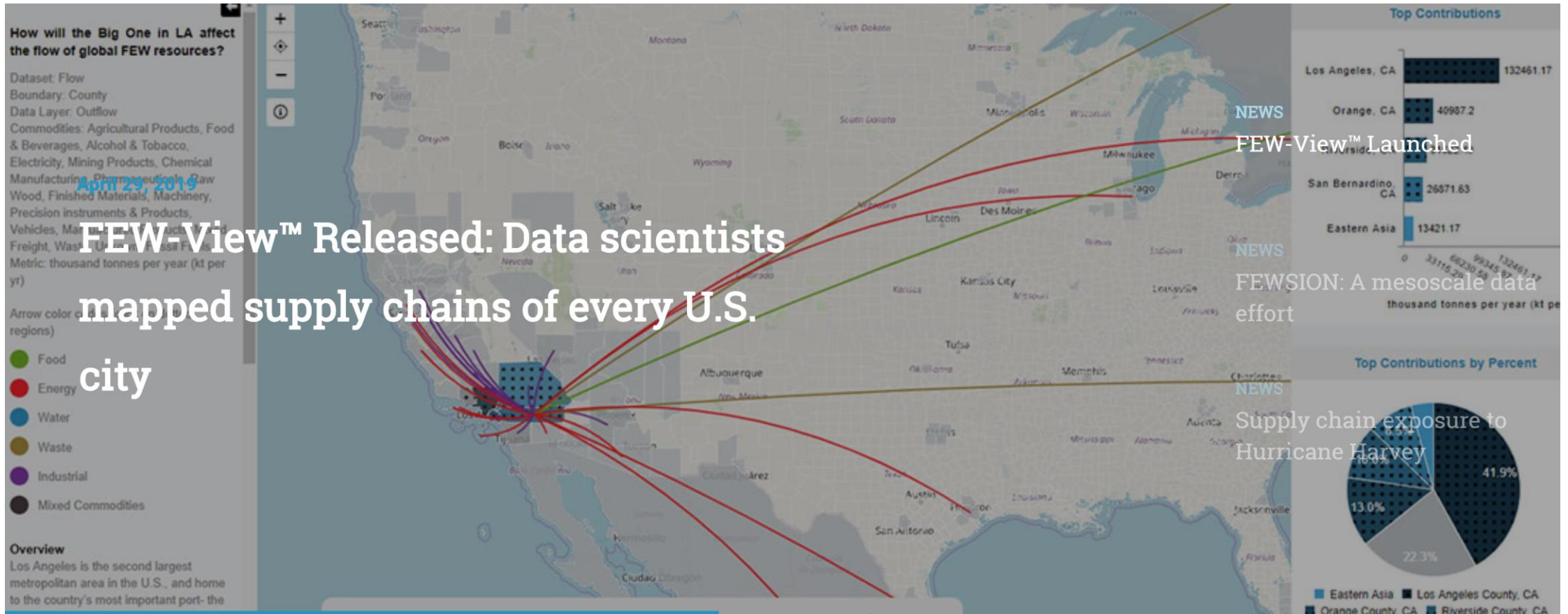


# Objective 1: National inventory of interbasin water transfers.



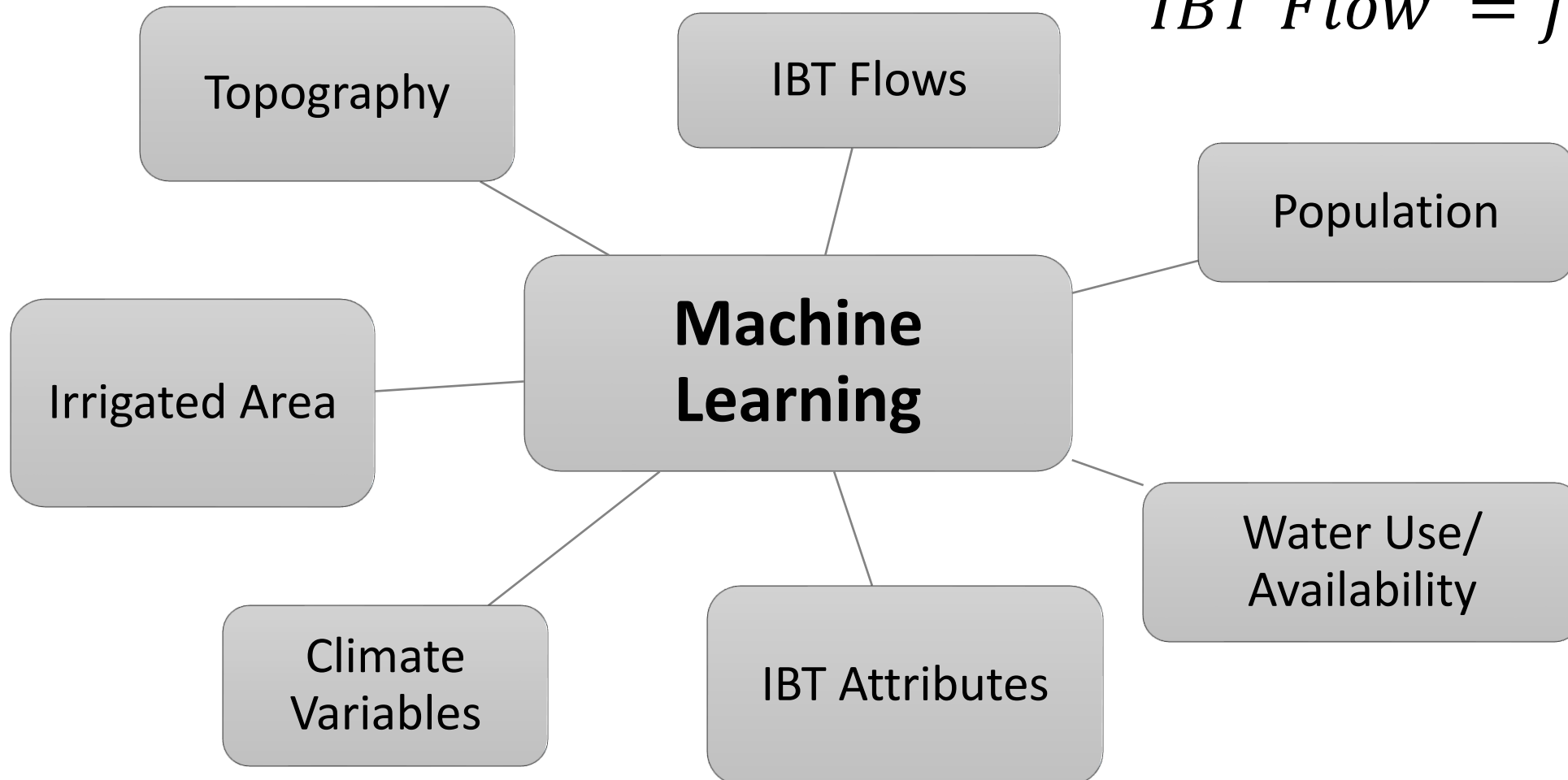
A partial representation of the complex IBT network within Colorado.

# Objective 1: National inventory of interbasin water transfers.

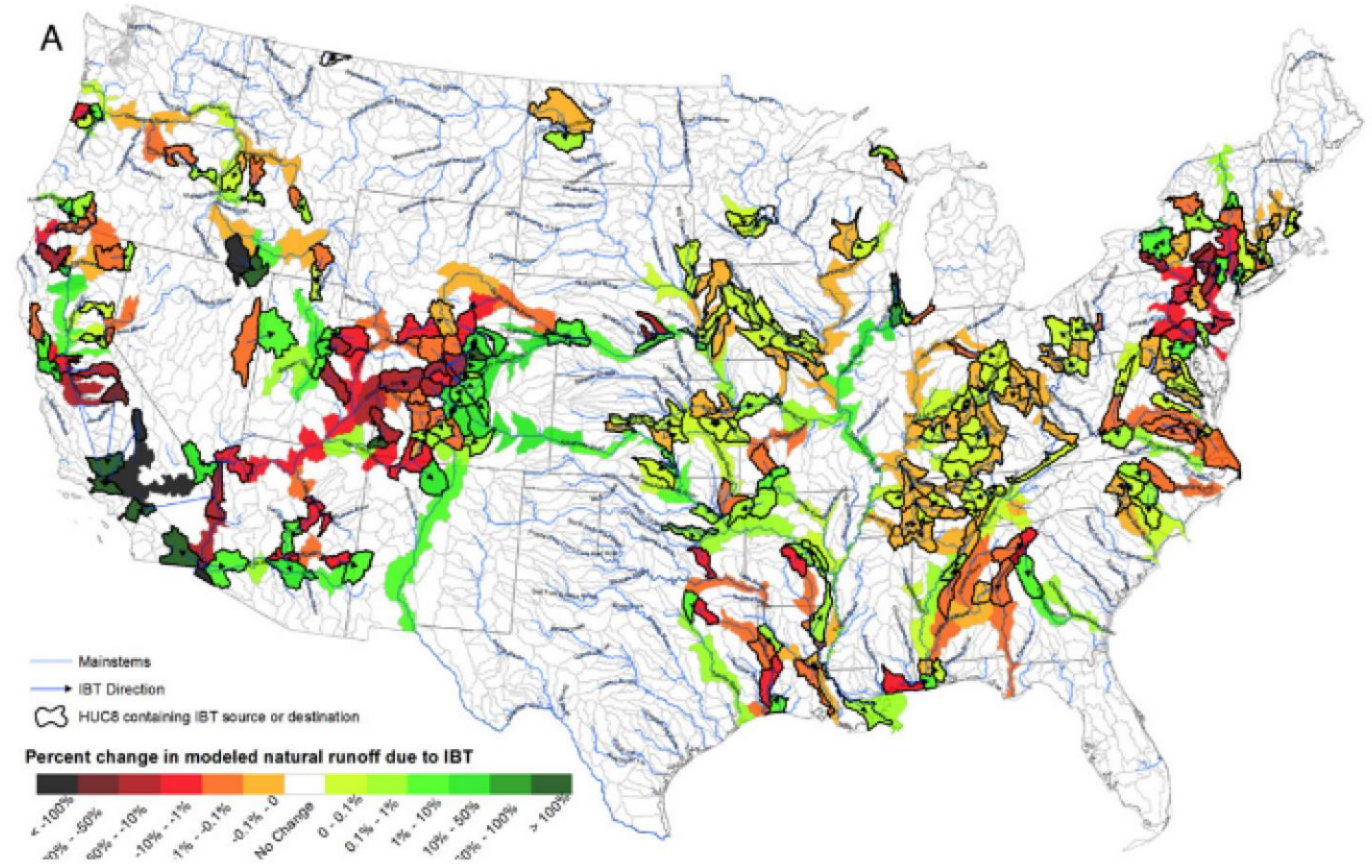


# Objective 2: Models to estimate, predict, and gap fill IBT data

$$IBT\ Flow = f(x_1, x_2, \dots, x_n)$$



# Objective 3: Collective impact of IBTs under various scenarios



# We are just starting this project and could use your help!

- Do you have IBT data or know someone that does?
- Is there any specific data you'd like to see collected?
- Do you have any ideas on how this data could be used?
- Can your organization (or someone you know) use this data?

## **Please come talk to us or email!**

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