

KANSAS WATER OFFICE

Report to the House Committee on Energy, Utilities and Telecommunications

January 19, 2023



Kansas Water Office

Agency Mission:

Provide Kansans with the framework, policy and tools, developed in concert with agency partners and stakeholders, to manage, secure and protect a reliable, safe, long term statewide water supply.

Agency Purpose:

- Development of comprehensive State Water Plan
- Coordinate the water resource operations of agencies at all levels of government
- Ensure adequate quantities of good quality water to meet future needs
- Efficiently operate state owned storage in federal reservoirs



Agency Overview

***Kansas Water Office**

WATER PLANNING & IMPLEMENTATION

**Kansas Water
Authority**

Water Planning

State Water Plan Development
& Implementation

**Drought
Monitoring**

Drought Response Team
Water Conservation Planning

PUBLIC WATER SUPPLY

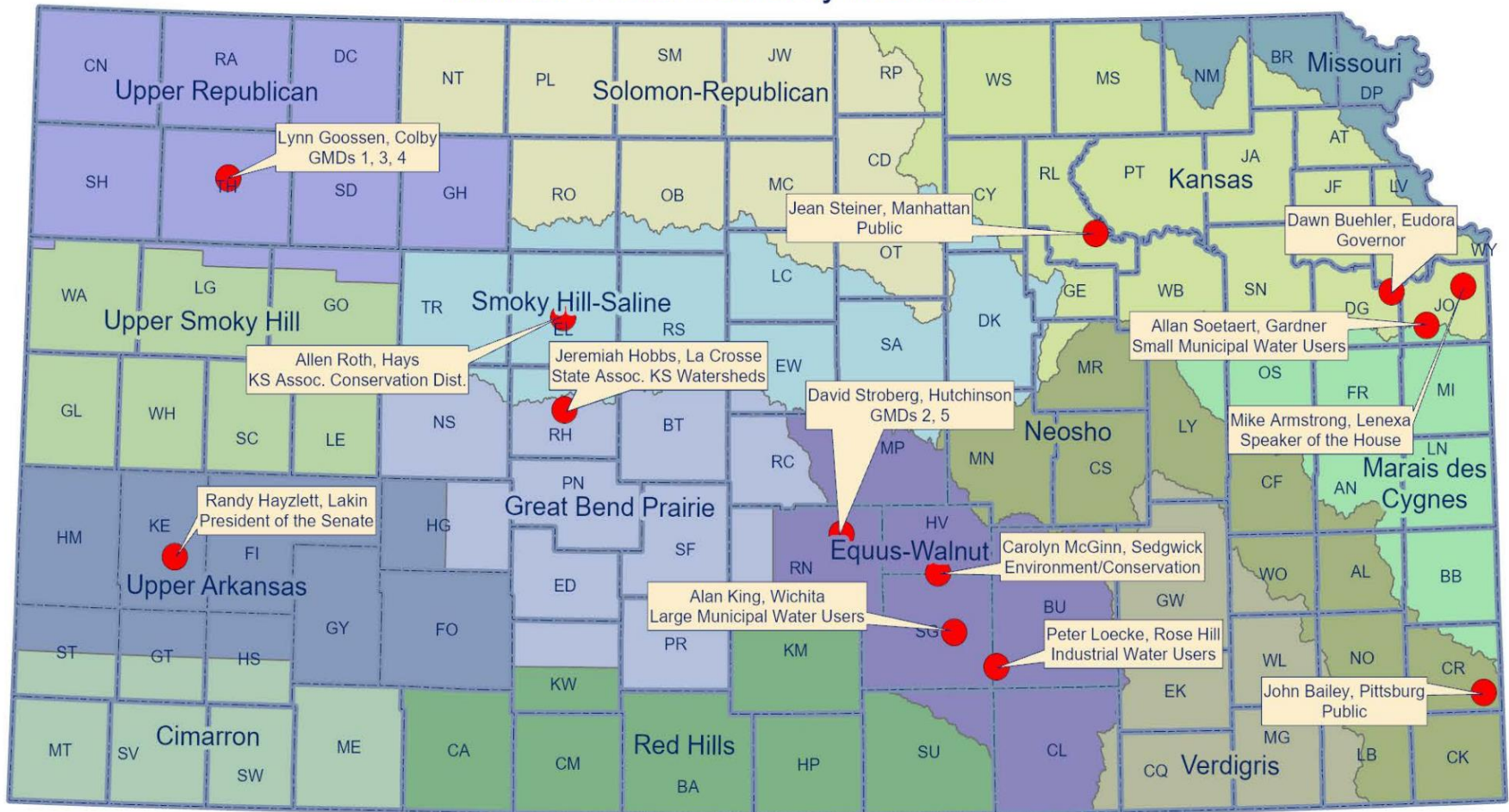
**Public Water Supply
Programs**

Reservoir Operations
Water Marketing Program
Water Assurance Program
Access District Program

**KWO Director Appointed by Governor*



Kansas Water Authority Members



The Kansas Water Authority consists of 13 voting members who are appointed by the Governor or Legislative Leadership. State agency directors serve as ex-officio members.

Kansas Water Authority

Ex-Officio Members

- Earl Lewis
KS Dept. of Agriculture –
Division of Water Resources
- Brad Loveless
KS Dept. of Wildlife, Parks &
Tourism
- Mike Beam
KS Dept. of Agriculture
- Ernie Minton
Ag Experiment Station
Kansas State University
- David Toland
KS Dept. of Commerce
- Connie Owen
Kansas Water Office
- Andrew Lyon
KS Dept. of Agriculture -
Division of Conservation
- Sara Baer
Kansas Biological Survey
- Dwight Keen
Kansas Corporation
Commission
- Leo Henning
KS Dept. of Health &
Environment
- Jay Kalbas
Kansas Geological Survey

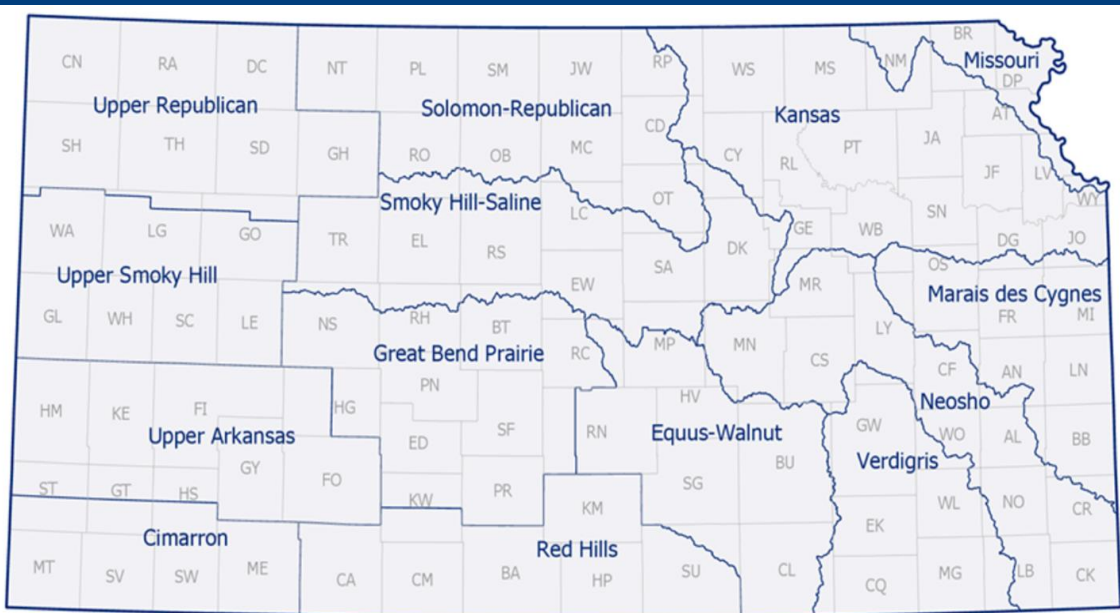
Water Planning

State Water Plan Development & Implementation

- Address state's current water resource issues and plan for future needs
 - Groundwater declines
 - Reservoir sedimentation
 - Water quality issues
- Public Input and Stakeholder Involvement
 - Regional Advisory Committees (RACs)

State Water Plan Fund

- Coordinate with KWA, RACs and agency partners to develop annual SWPF budget recommendations to implement State Water Plan



Drought Monitoring & Response

Drought Monitoring

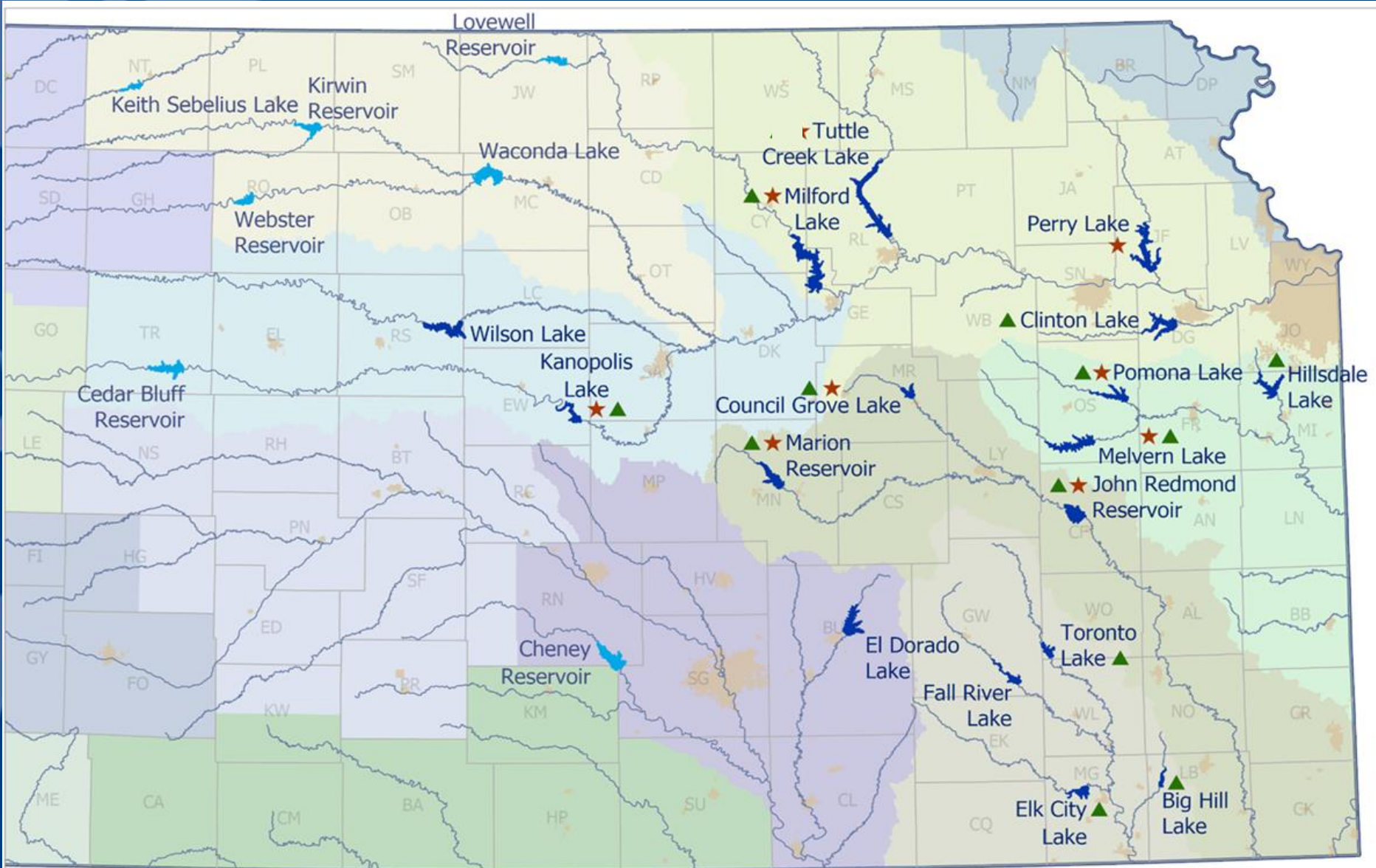
- KWO is responsible for monitoring drought and notifying the Governor when drought conditions exist within the state.
- Coordinate monitoring efforts with several agencies including the KDA, KDHE, KSU Weather Data Library and the Applied Remote Sensing Program at KU.

Drought Response

- KWO Director serves as committee chair of Governor's Drought Response Team.
- Advises the Governor when to assemble this team which represents 11 state and federal agencies.



Public Water Supply Program



Public Water Supply Programs

Water Marketing Program

- Long term contracts with Municipal & Industrial (M&I) customers (*24 current contracts*)

Water Assurance Program

- 3 Districts formed by M&I water right holders

Access District Program

- Voluntary, includes Irrigation & Recreation, M&I



Future Use Storage

- Storage that is not currently in service (controlled by the State)
- Water supply contracts between the Corps and the KWO allow the State to defer payments on a portion of the contracted storage until the end of the payment term
- KWO was provided \$80 million from SGF funds in FY 2022 to pay off principal and interest associated with contracts at Hillsdale Lake, Clinton Lake, and Big Hill Lake

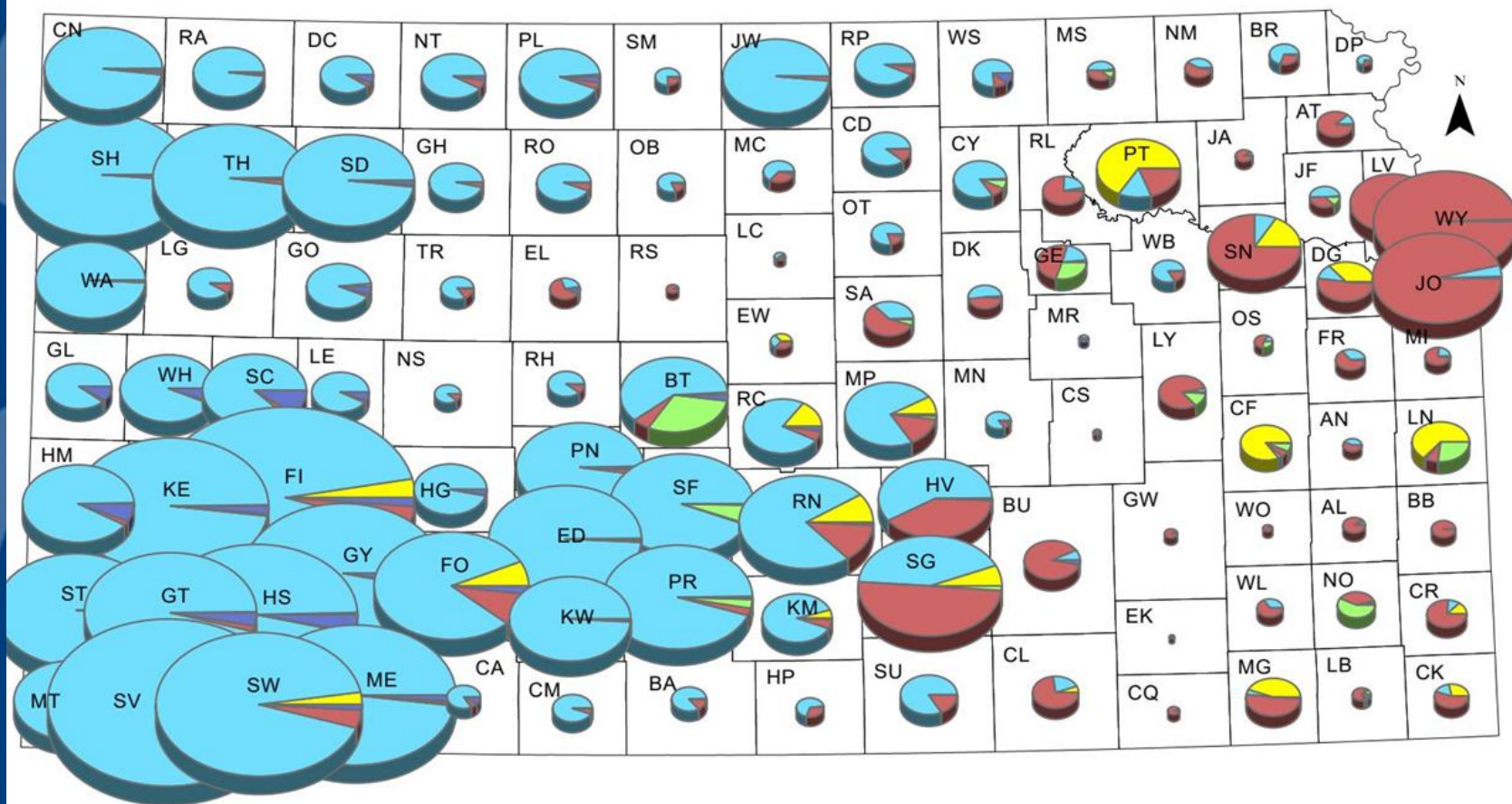


Future Use Storage

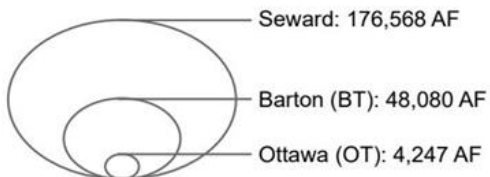
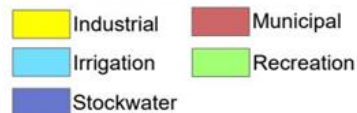
Remaining water supply storage debt in Milford Lake and Perry Lake

	Contract Interest Rate	Contract Capital Costs Due Date	Balance on Due Date	Current Balance
Milford Lake	2.632%	2034	\$37.9 million	\$27.8 million
Perry Lake	3.046%	2041	\$44.2 million	\$24.9 million
TOTAL			82.1 million	\$52.7 million
<i>Potential State Interest Savings from Early Debt Payoff (Balance on Due Date – Current Balance): \$29.4 million</i>				

2020 Reported Water Use for Kansas Counties

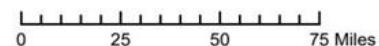


Use Made of Water



Features on this map represent conditions as of the date of the map and are subject to change. The user is referred to specific policies, regulations and/or orders of the Chief Engineer.

Uses of water for artificial recharge, contamination remediation, dewatering, domestic, fire protection, hydraulic dredging, sediment storage, thermal exchange and water power are not shown on the charts.



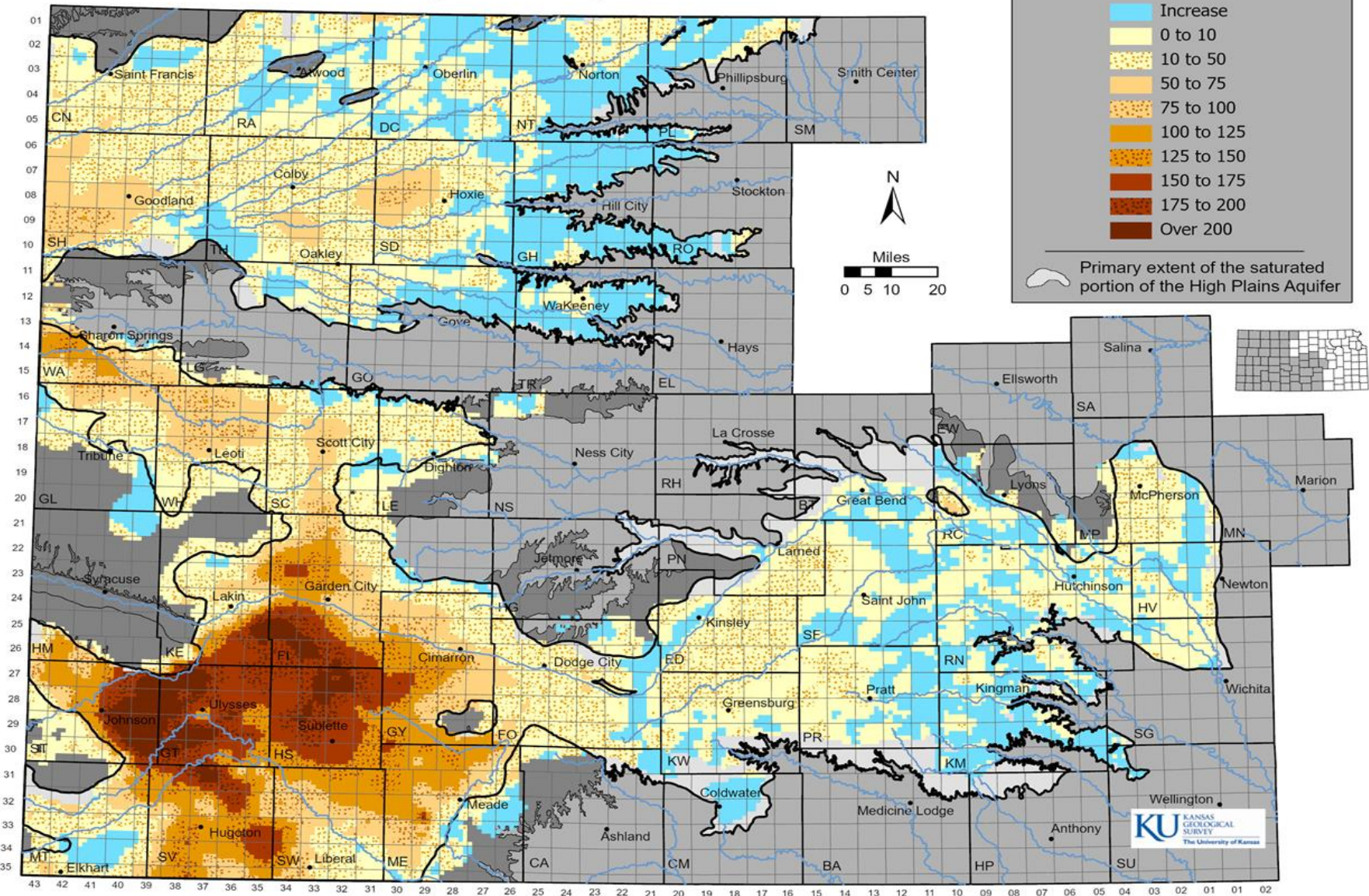
Priority Kansas Water Issues

- High Plains Aquifer Declines
- Reservoir Sedimentation
- Water Quality Concerns
- Extreme Events: Drought & Flood



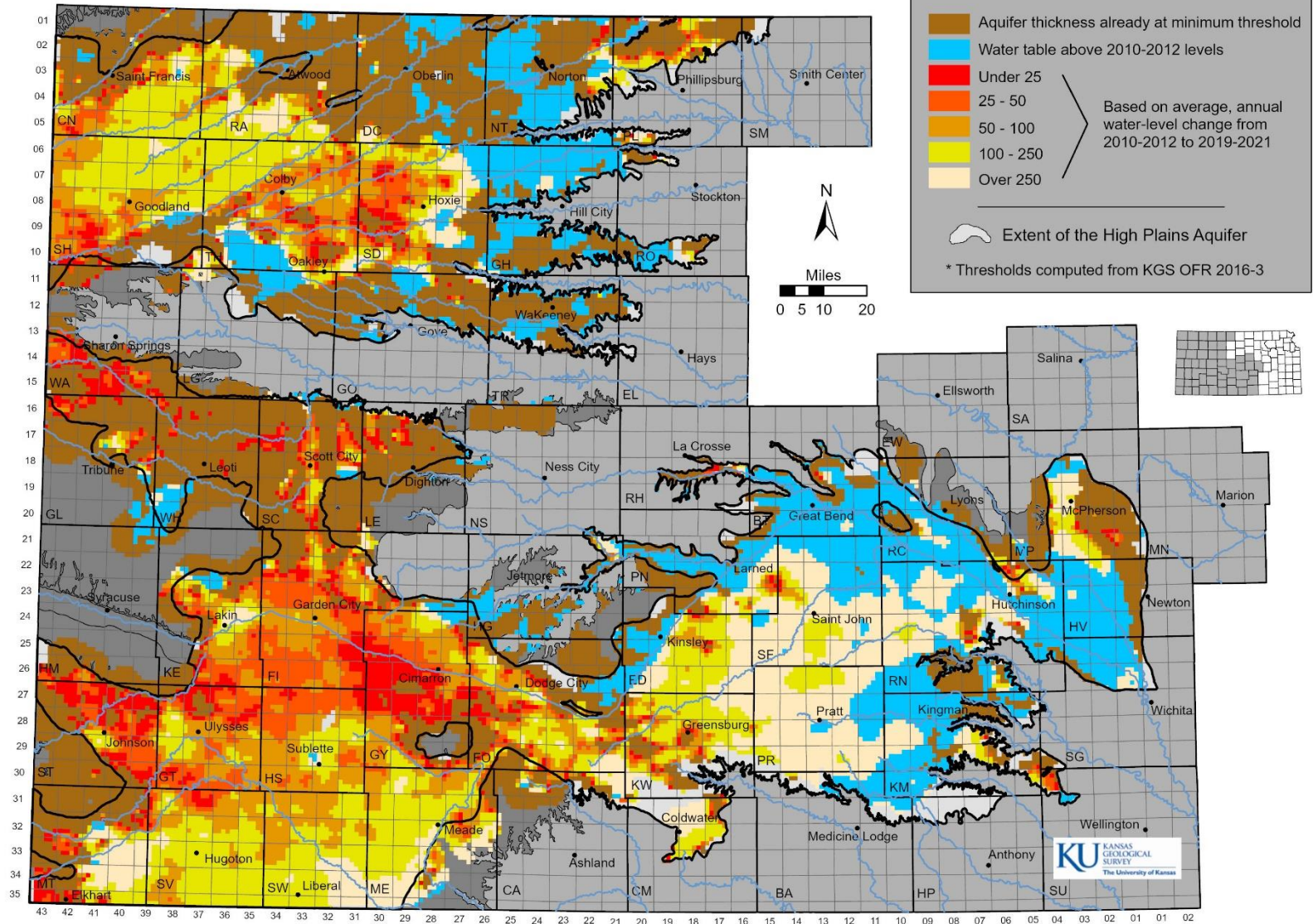
High Plains Aquifer Declines

Change in Aquifer Thickness, Predevelopment to Average 2019-2021, Kansas High Plains Aquifer



High Plains Aquifer Declines

Estimated Usable Lifetime for the Kansas High Plains Aquifer (based on groundwater trends from 2010-2012 to 2019-2021 and the minimum saturated thickness required to support well yields at 200 gpm under 90 day of pumping scenario with 200 gpm wells on 1/4 sections)



Reservoir Sedimentation

Remaining Storage within Kansas Reservoirs

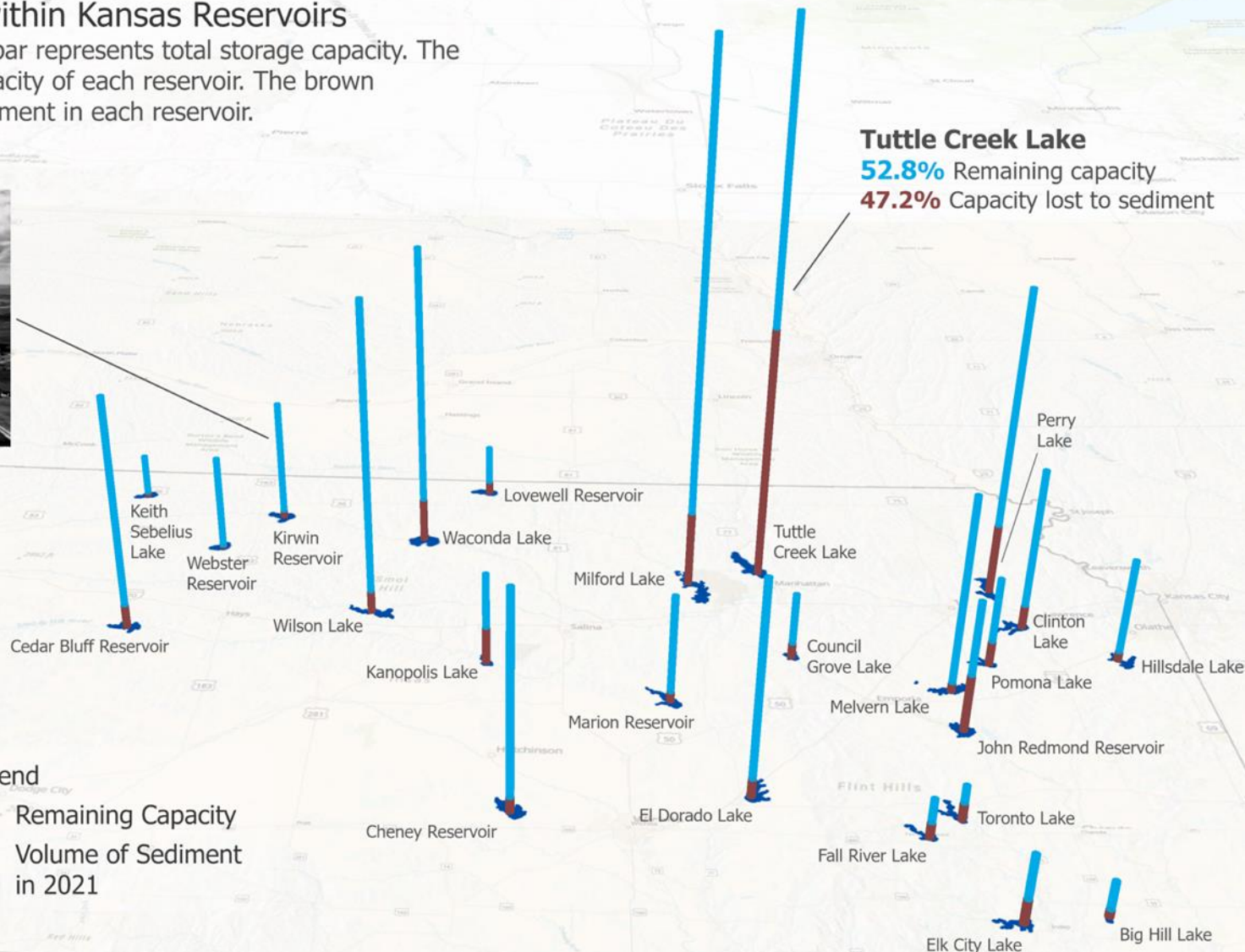
The vertical height of each bar represents total storage capacity. The blue indicates the 2021 capacity of each reservoir. The brown indicates the volume of sediment in each reservoir.



Tuttle Creek Lake
52.8% Remaining capacity
47.2% Capacity lost to sediment

Legend

- Remaining Capacity
- Volume of Sediment in 2021



Reservoir Sedimentation

Remaining Storage within Kansas Reservoirs

The vertical height of each bar represents total storage capacity. The blue indicates the 2070 capacity of each reservoir. The brown indicates the volume of sediment in each reservoir.

Legend

- Remaining Capacity
- Volume of Sediment by 2070

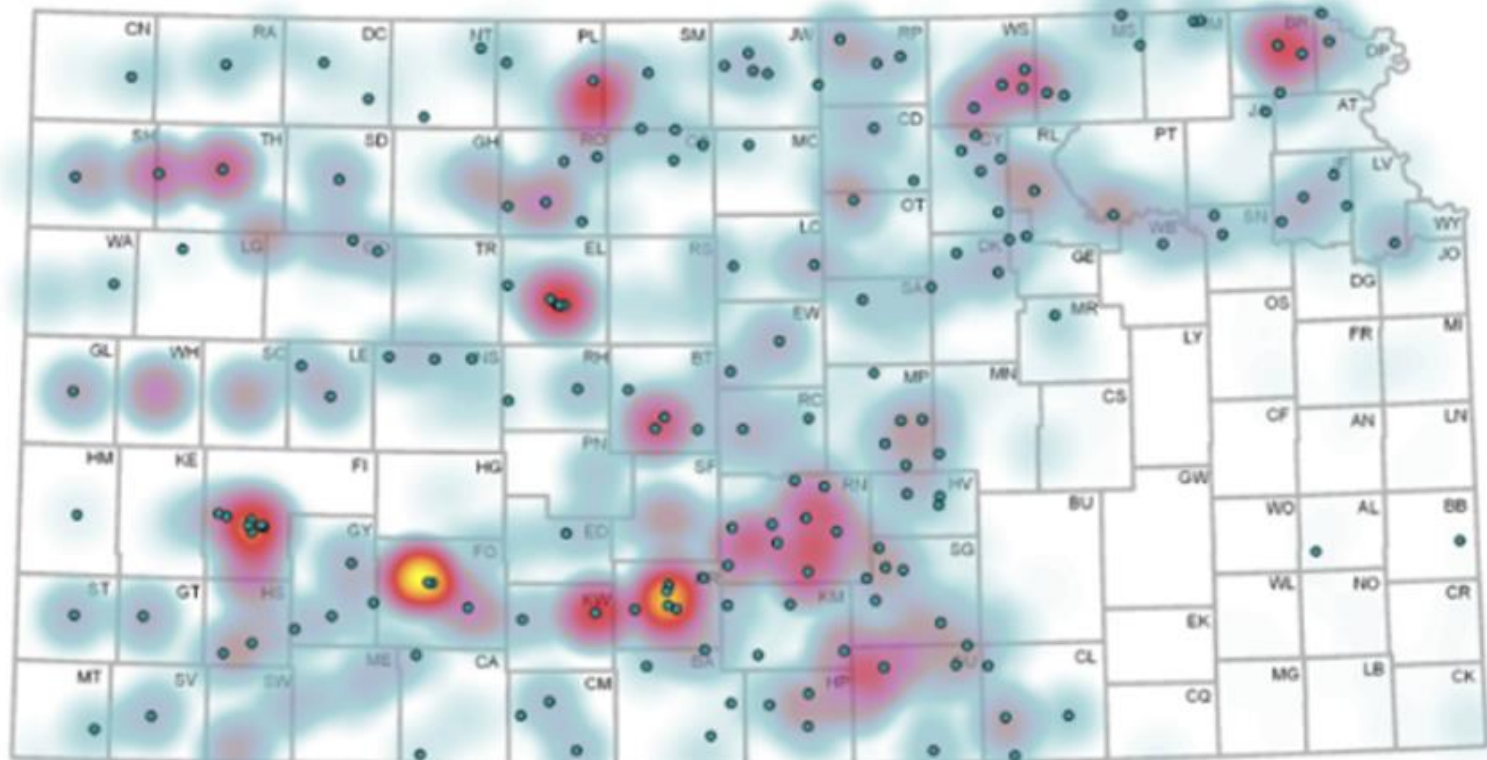
Tuttle Creek Lake

10.1% Remaining capacity
89.9% Capacity lost to sediment



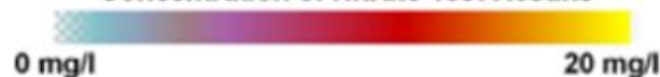
Water Quality Concerns

Nitrate Test Results, Dec 2010 to Mar 2019 in Public Water Supply Systems



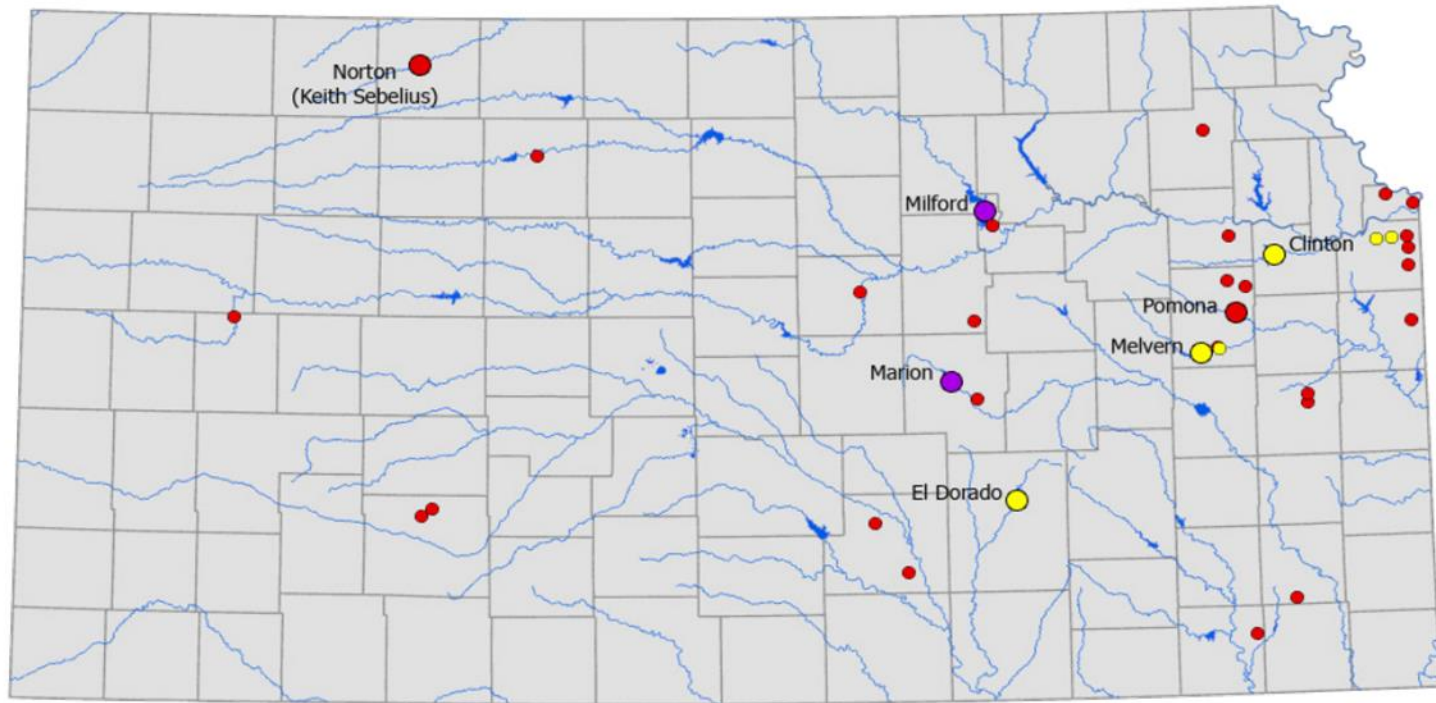
• PWS with Nitrate Increase

Concentration of Nitrate Test Results



Water Quality Concerns

Public Lakes Confirmed with Harmful Blue-Green Algae Blooms (HABs) in 2022



Maximum Advisory Level:

● Watch

● Warning

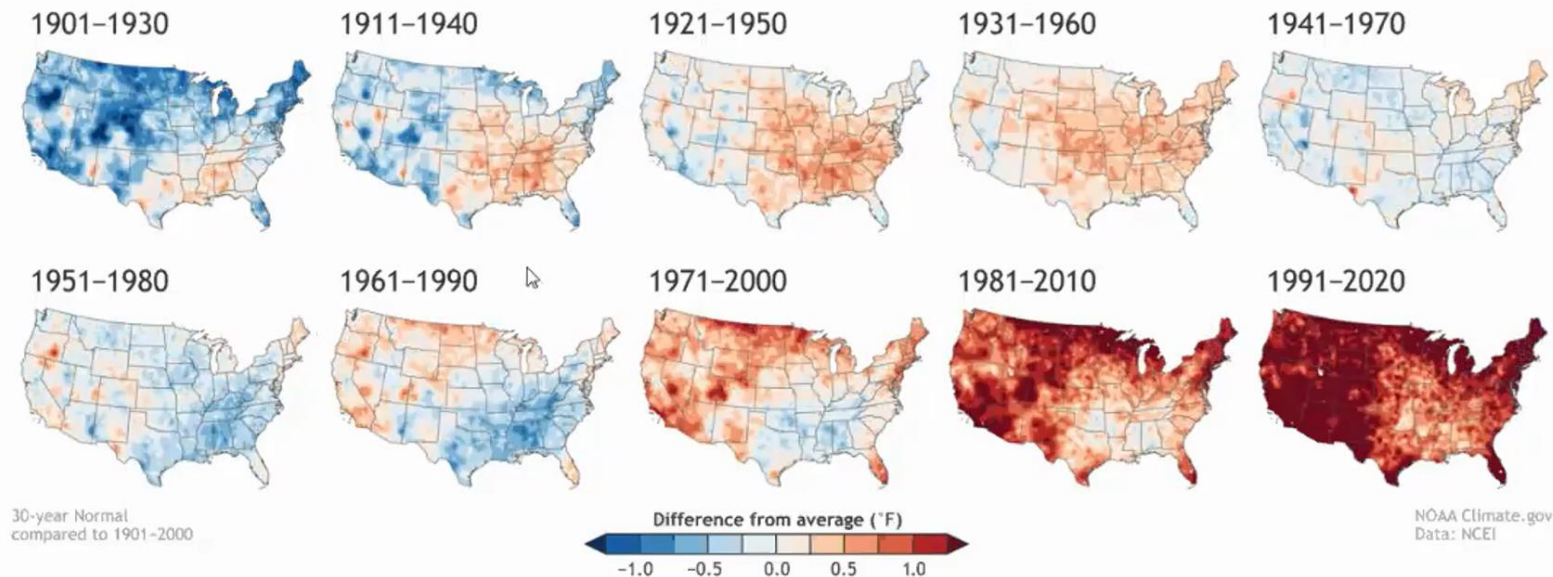
● Hazard

Source: Kansas Geological Survey

Vulnerability to Extreme Events



Annual Temperature Normals since 1901 Compared to the 20th Century Average



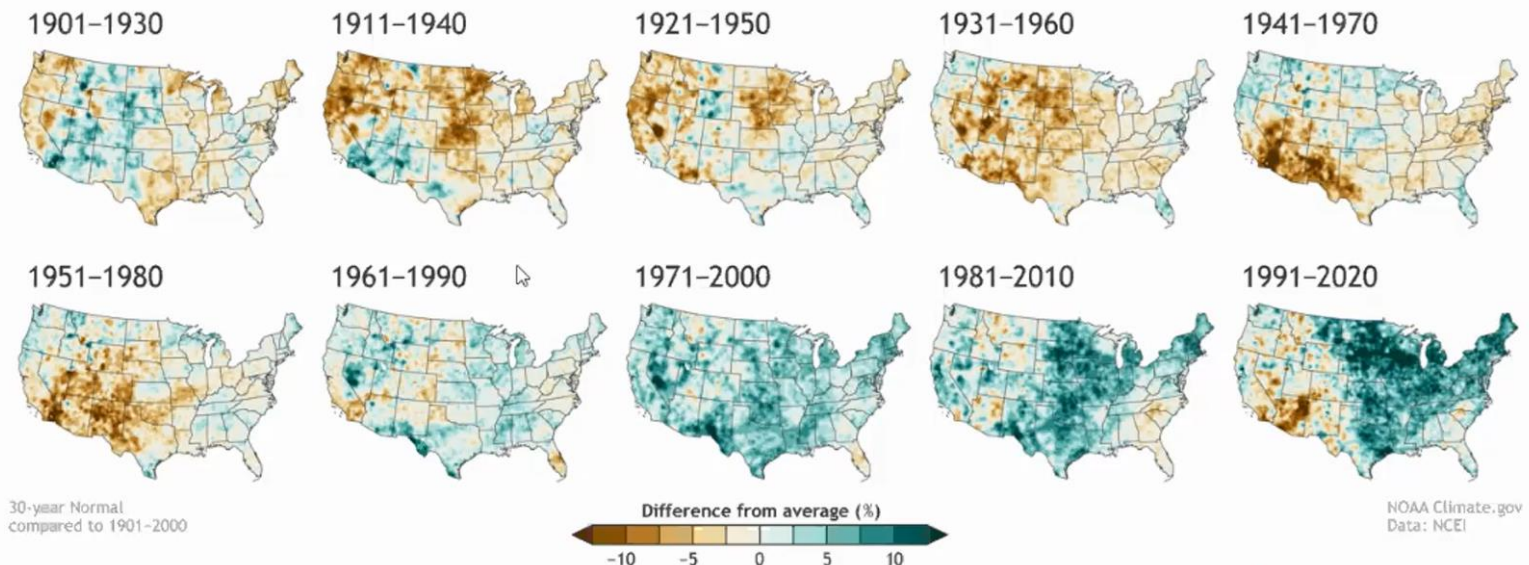
<https://www.climate.gov/news-features/understanding-climate/climate-change-and-1991-2020-us-climate-normals>

Doug Kluck Presentation: 2021 Governor's Water Conference

Vulnerability to Extreme Events



Annual Precipitation Normals since 1901 compared to the 20th Century Average

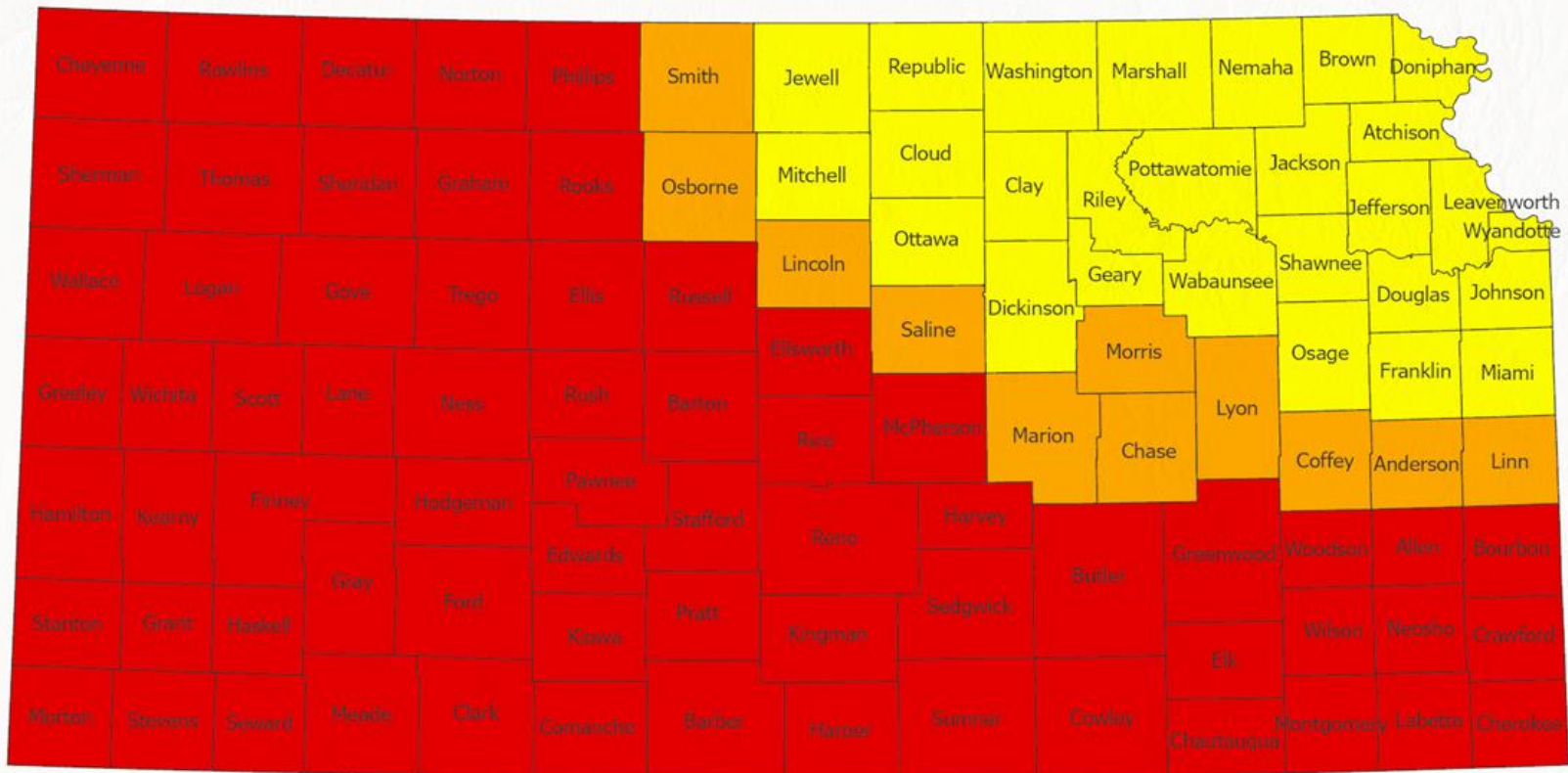


- Climate change is coming into focus in recent normals.

Doug Kluck Presentation: 2021 Governor's Water Conference

Governor Declares Drought Emergency, Warnings and Watches for Kansas Counties

September 30, 2022



Emergency Warning Watch

2023 ANNUAL REPORT

TO THE GOVERNOR AND LEGISLATURE

KANSAS WATER AUTHORITY





Questions?

Thank You!

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