

## System Administrator

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**From:** Barfield, David <David.Barfield@KDA.KS.GOV>  
**Sent:** Thursday, September 30, 2010 11:51 AM  
**To:** Aaron Thompson  
**Subject:** PowerPoint  
**Attachments:** Kansas Republican River Presentation to Bureau Sept 30 2010 final.pdf

Aaron,

Attached is a copy of the PowerPoint requested.

Thanks again.

*David W. Barfield*

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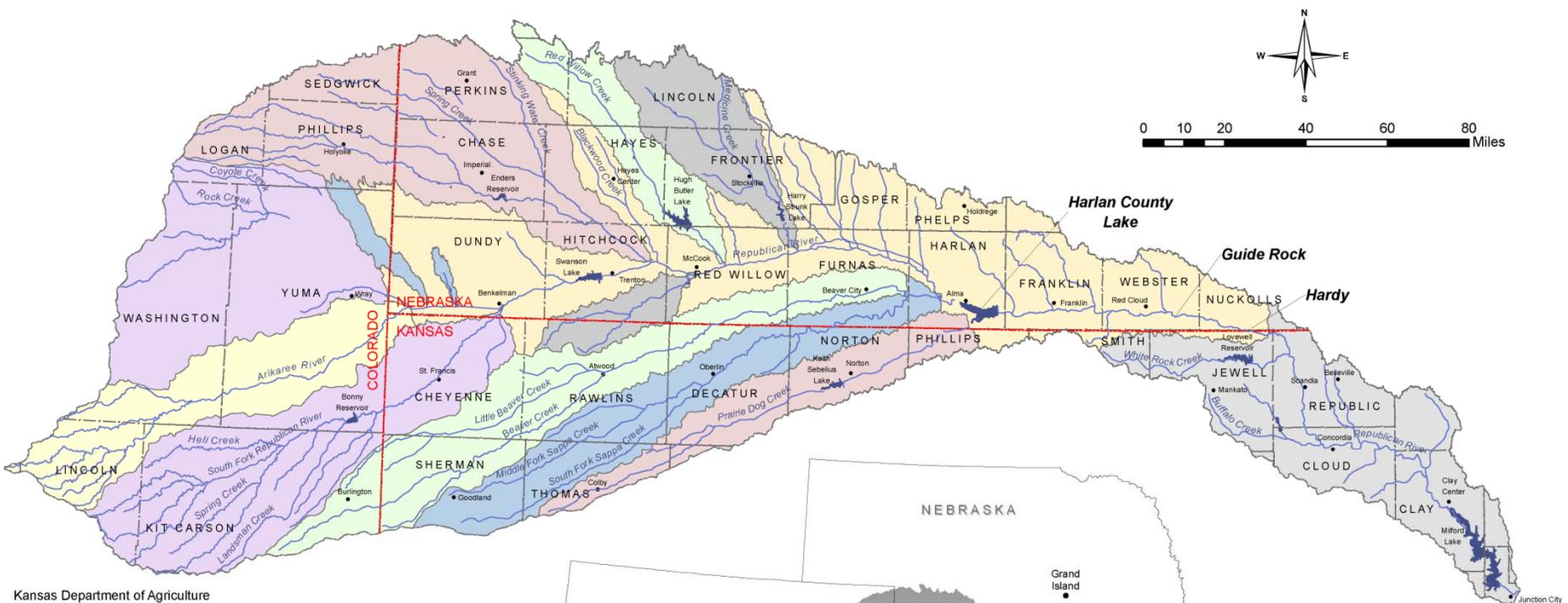
# Republican River Compact Enforcement

David Barfield, Kansas Chief Engineer  
John Draper, Kansas Counsel

Presentation to the Bureau of Reclamation

September 30, 2010

# Republican River Basin



Kansas Department of Agriculture  
 Administrative Services, GIS  
 April 15, 2010

- Legend**
- County Seats
  - Streams
  - State Lines
  - Lakes
  - County Boundaries
  - Basin Boundaries



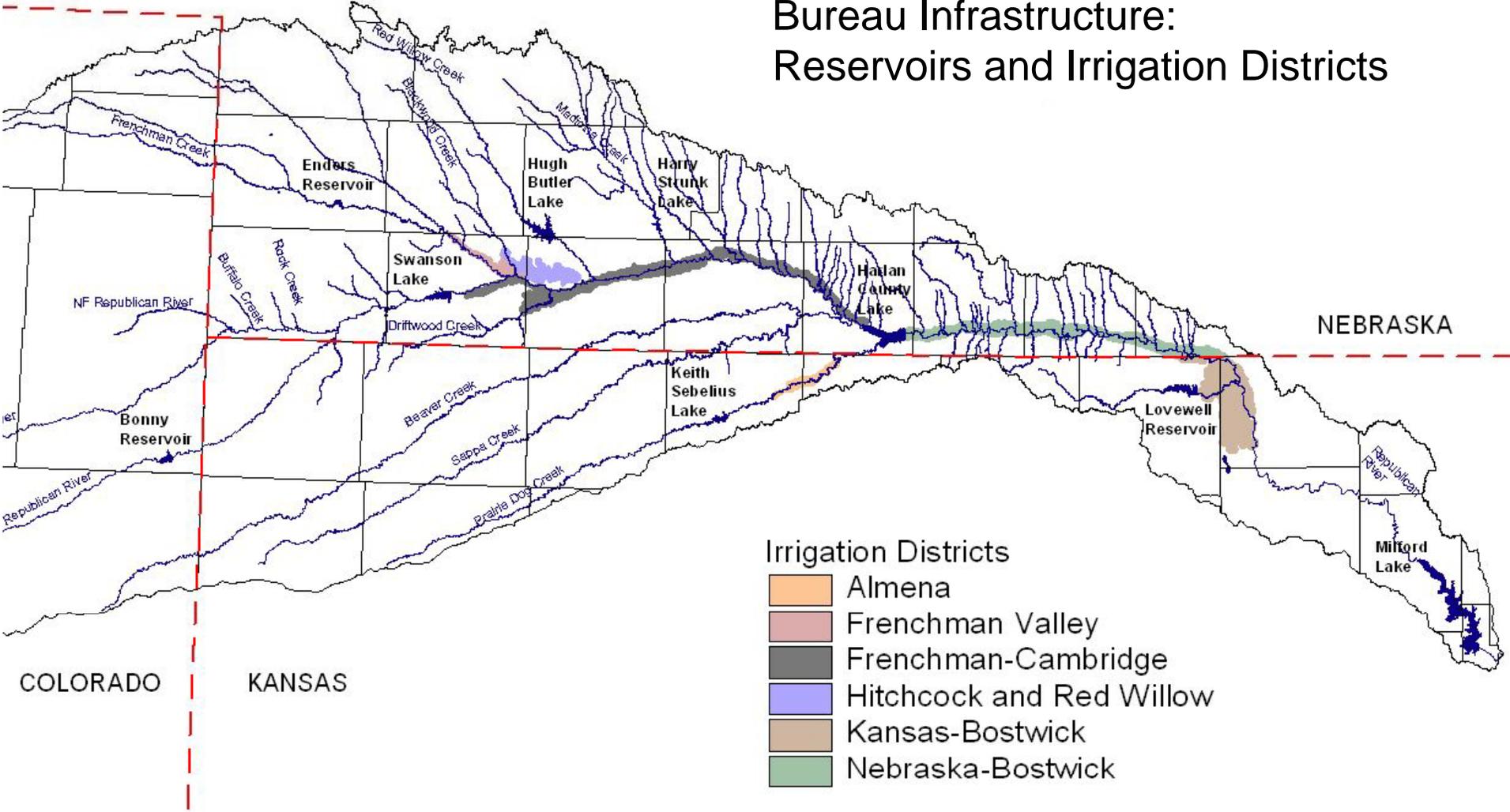
Appendix 1  
 Kansas Brief in Support of Motion  
 for Leave to File Petition



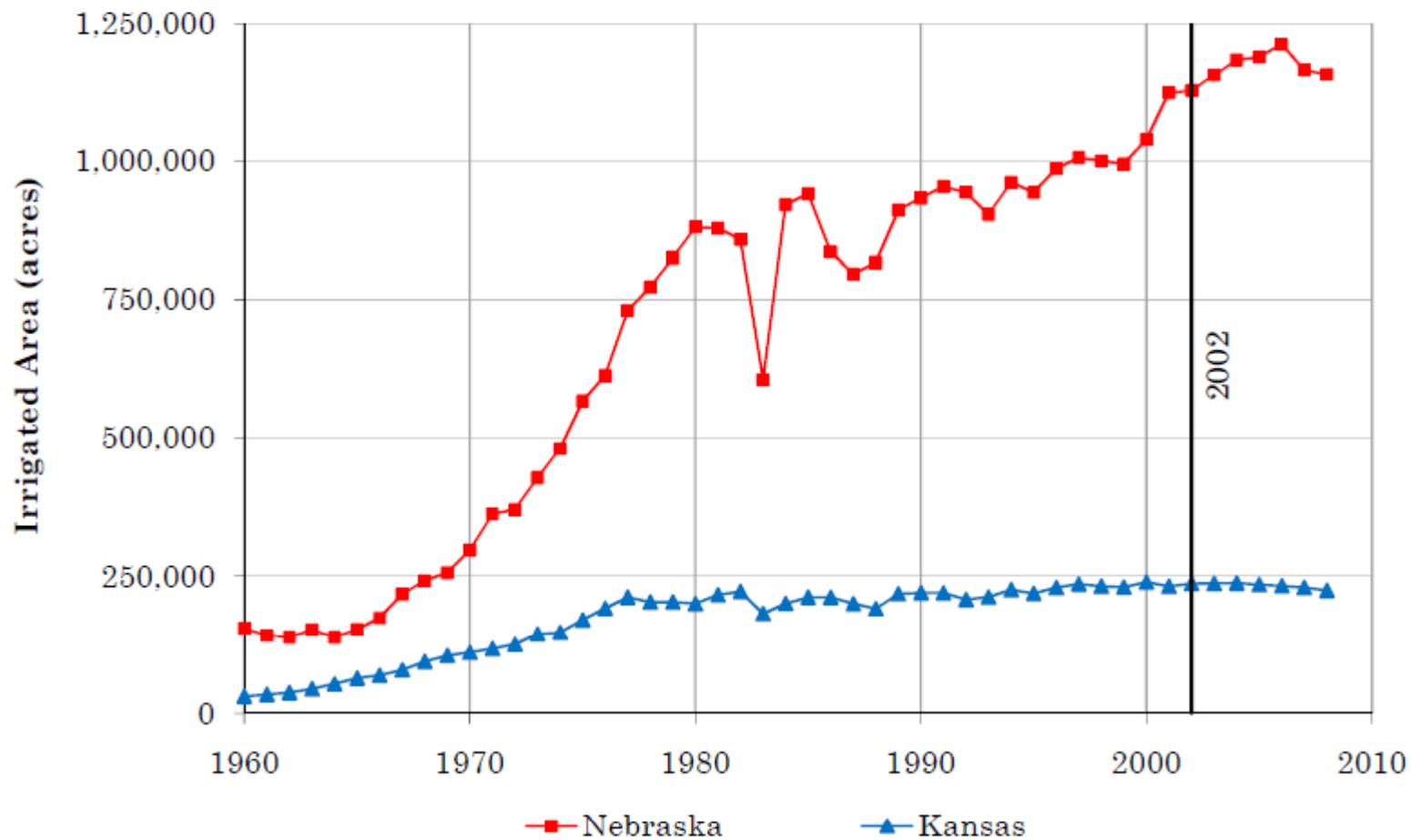
## Republican River Compact (1943)

- Compact was formed as a prerequisite for federal flood control and irrigation projects
- Three States: Kansas, Colorado and Nebraska
- Approved by the States, Congress and the President
- Allocates 100 percent of the basin's water supply among the states.
- If one state uses too much, the downstream state is shorted

# Bureau Infrastructure: Reservoirs and Irrigation Districts

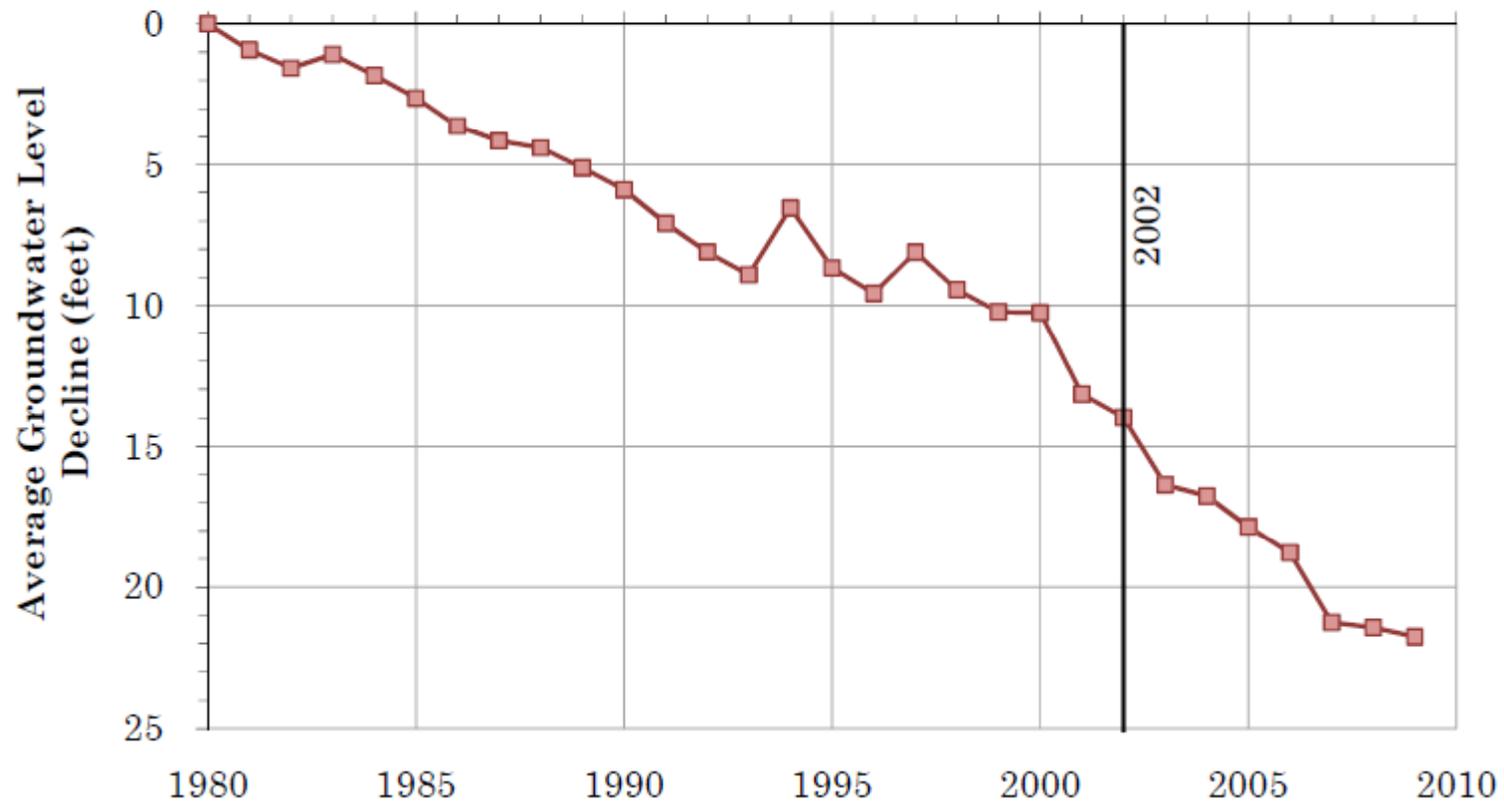


**Figure 5**  
Groundwater Irrigated Area  
Republican River Basin, Nebraska and Kansas



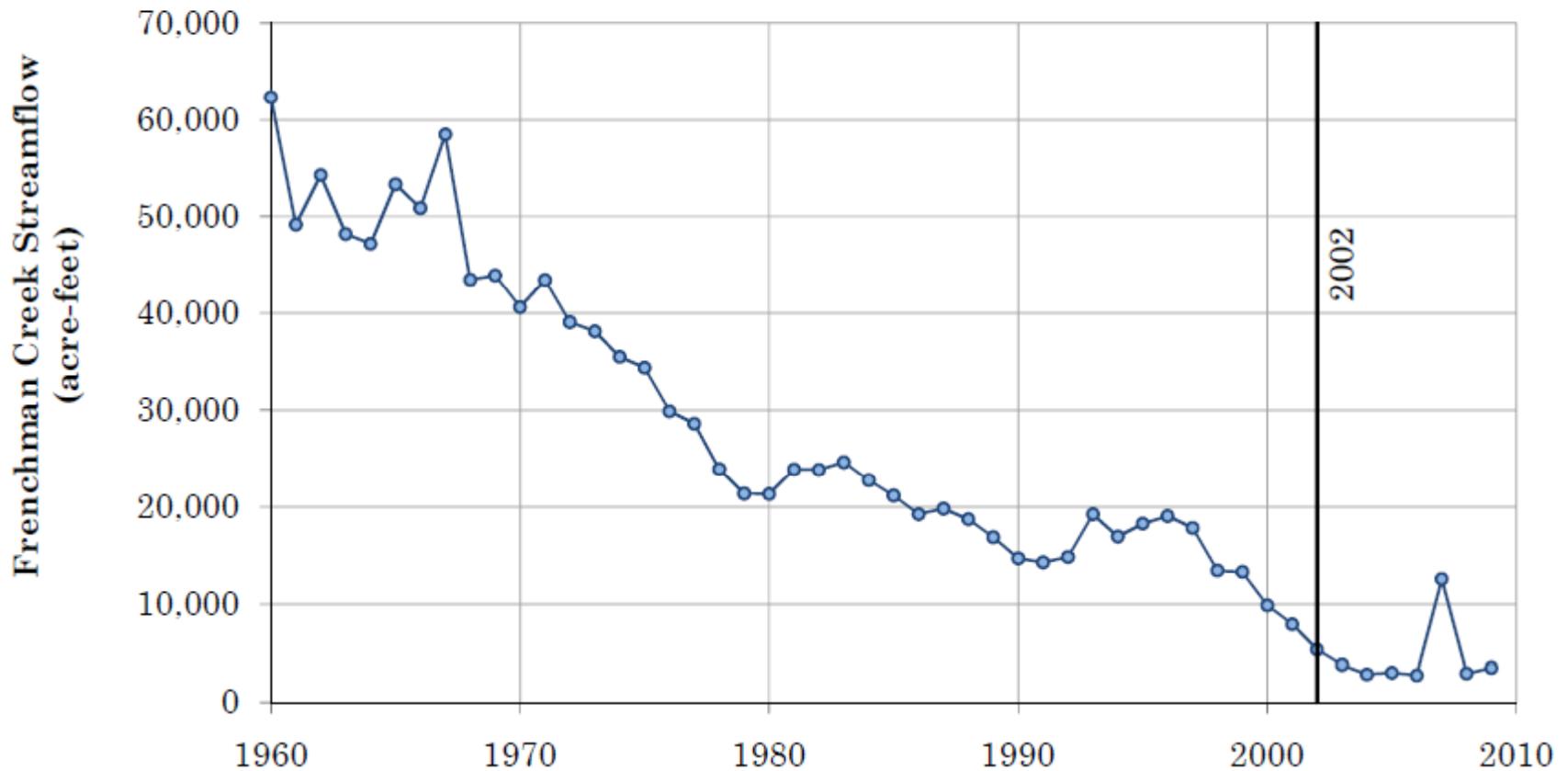
Source: Republican River Compact Administration Groundwater Model data.

**Figure 2**  
Average Groundwater Level Decline  
Upper Republican Natural Resources District, Nebraska



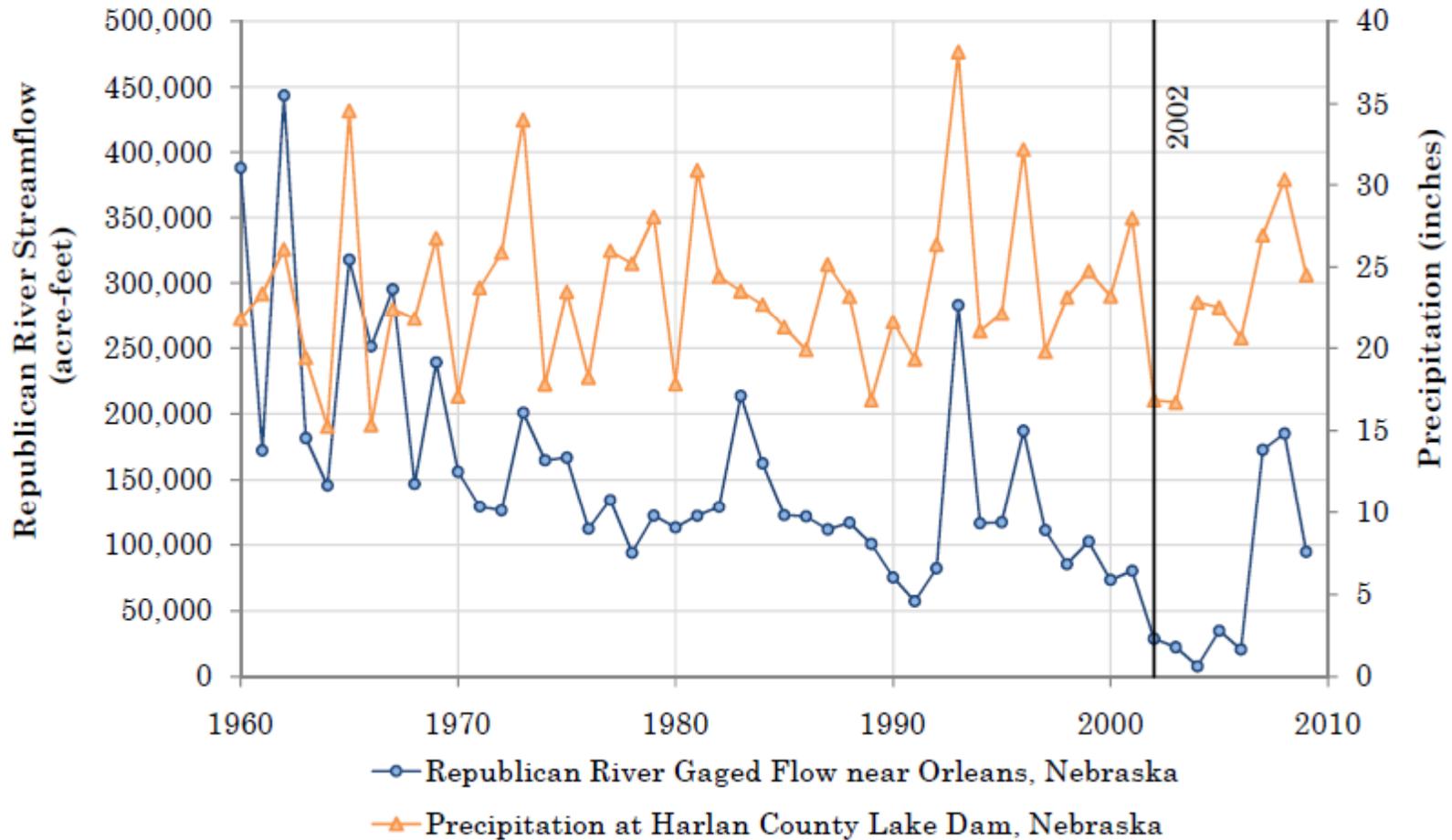
Source: United States Geological Survey National Water Information System  
Note: Each data point represents the average for wells with data in 1980 and each corresponding year. Number of observations included in each average value varies from 190 to 238.

**Figure 3**  
**Frenchman Creek Annual Streamflow**  
**Upper Republican Natural Resources District, Nebraska**



Source: United States Geological Survey (1960 - September, 1994) and Nebraska Department of Natural Resources (October, 1994 - 2009), Gage 06831500 Frenchman Creek near Imperial, Nebraska

**Figure 4**  
**Annual Republican River Streamflow <sup>(1)</sup> and Local Precipitation <sup>(2)</sup>**  
**Harlan County Lake, Nebraska**



Source:

(1) United States Geological Survey Gage 06844500 Republican River near Orleans, Nebraska

(2) United States Bureau of Reclamation precipitation at Harlan County Lake Dam

# Compact Enforcement History

Year	Issue
1980s - 1990s	Nebraska begins to overuse its share. Kansas seeks to address concerns via the Compact Administration
1998	Kansas files suit in U.S. Supreme Court. Nebraska asserts that the Compact does not include groundwater.
2000-2002	Court rules that groundwater pumping must be accounted for; States negotiate comprehensive settlement
2003	U.S. Supreme Court approves settlement
Settlement includes clear compact compliance requirements and jointly developed groundwater model/accounting methods	



# The Final Settlement Stipulation (FSS)

- Kansas waives damages for pre-2003 violations of the Compact
- Provides methods for quantifying and allocating the water supplies of the Basin, using the RRCA groundwater model
- RRCA Groundwater model cooperatively developed
- Provides calendars of compliance:
  - Normal years: five-year test
  - Water-short years: two-year average test



# Nebraska's water management

- Nebraska regulates surface water at the state level, but leaves groundwater to local natural resource districts, or NRD's.
- Under Nebraska law, it is difficult to curtail groundwater pumping to protect senior surface rights (such as the Bureau's).
- Groundwater interests appear to be more powerful than surface water interests in Nebraska, so political reform seems unlikely.



# Nebraska's Integrated Management Plans ("IMPs")

- Nebraska is now developing its third round of IMPs.
- Nebraska's latest IMPs continue to protect groundwater pumping.
- Surface water users face curtailment by the State, while groundwater users enjoy a range of options to avoid curtailment.
- IMPs provide that the state may call water through the federal reservoirs to the detriment of the Bureau's projects and Kansas.

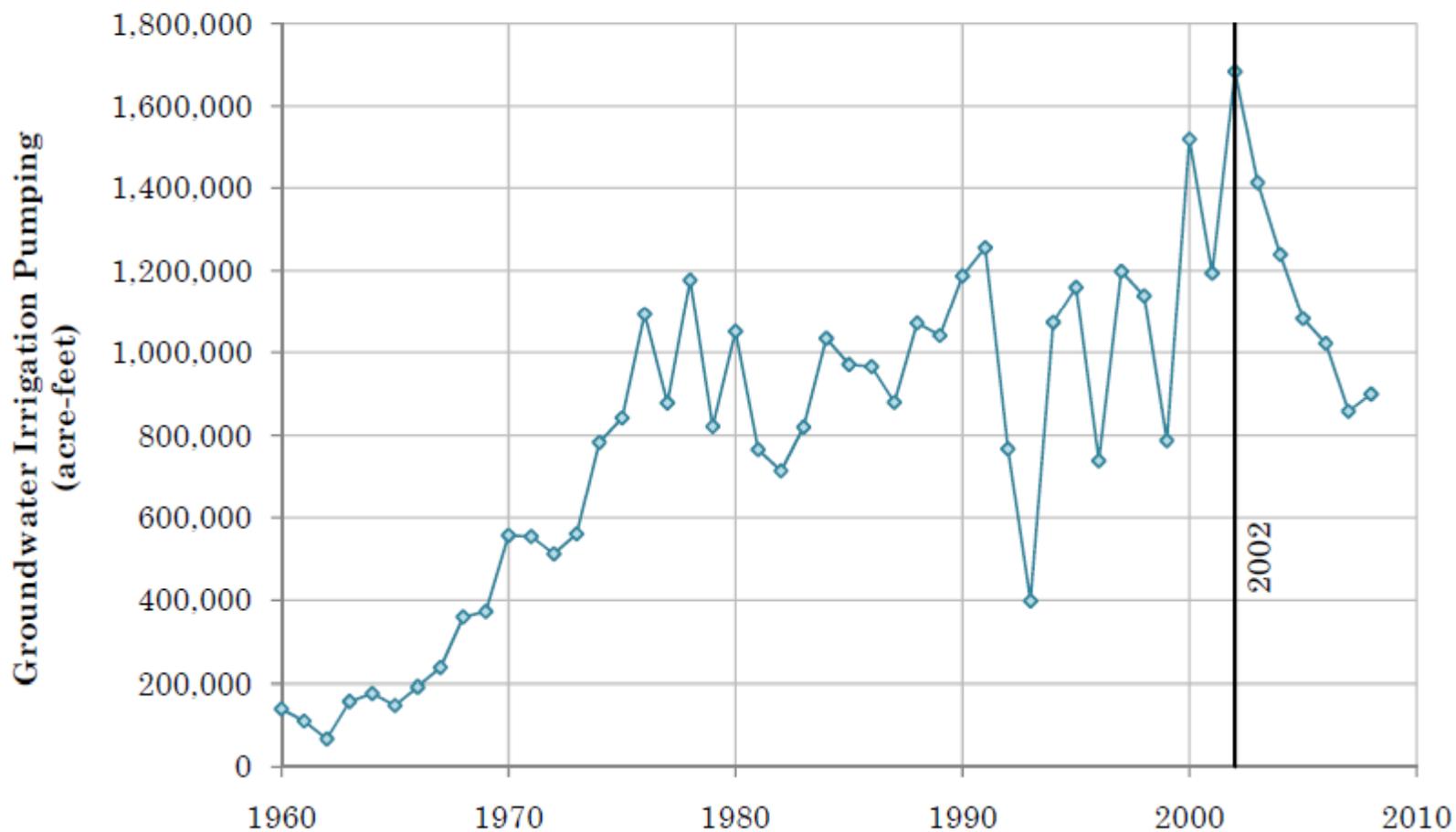
## Nebraska violated its first three compliance tests under the FSS:

Year	Nebraska's Overuse
2005	42,860 acre-feet
2006	36,100 acre-feet
Total	78,960 acre-feet

Nebraska Water Short Year Test for 2006

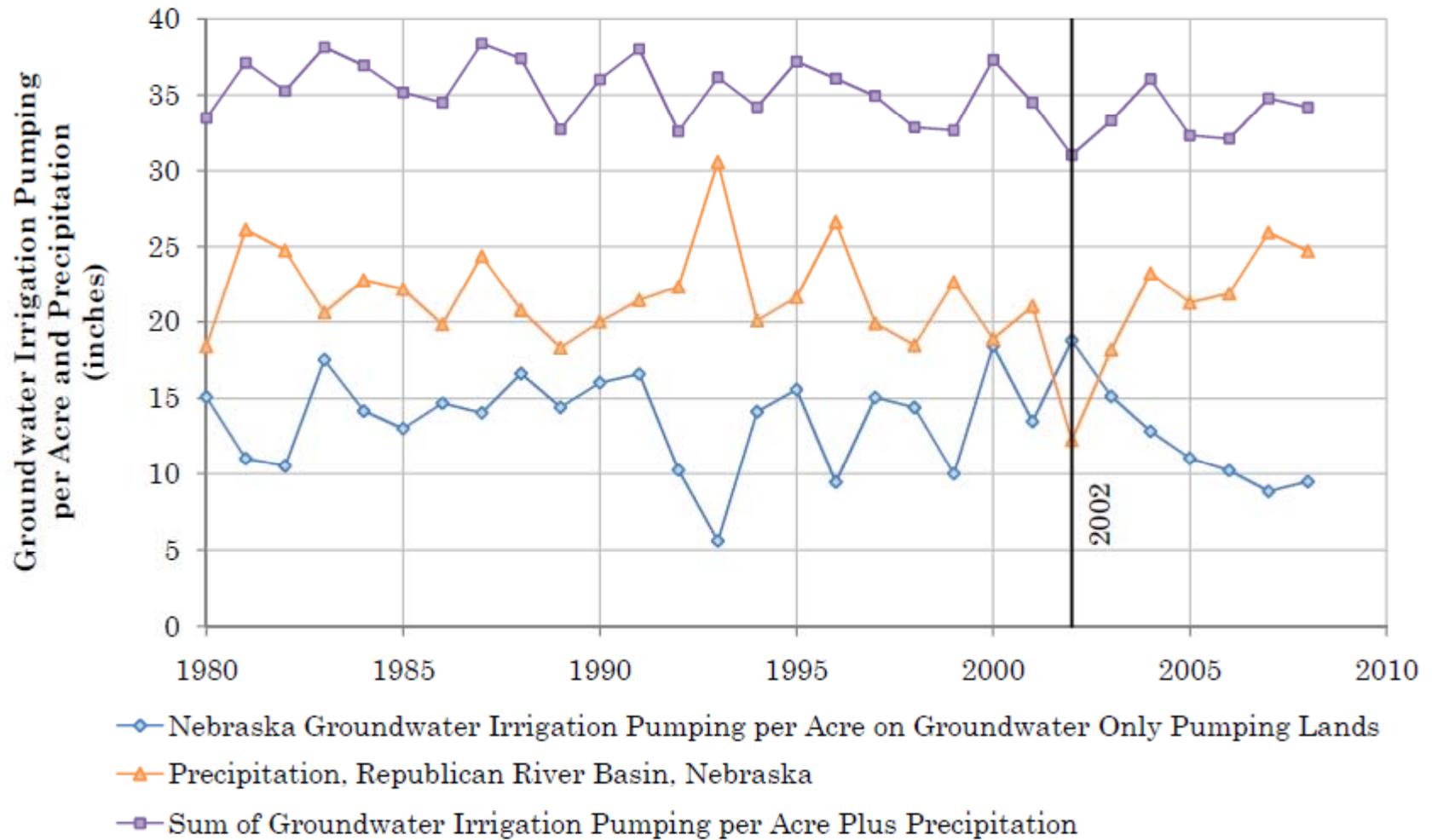
- Nebraska also failed its second water-short year test (2006-2007).
- Nebraska has failed its first five-year test as well (2003-2007) .
- Nebraska had four years to respond to the FSS, but took very limited action despite clear indications of overuse.

**Figure 6**  
Groundwater Irrigation Pumping by Nebraska  
Republican River Basin, Nebraska



Source: Republican River Compact Administration Groundwater Model data.

**Figure 8**  
 Nebraska Groundwater Irrigation and Precipitation  
 Republican River Basin, Nebraska



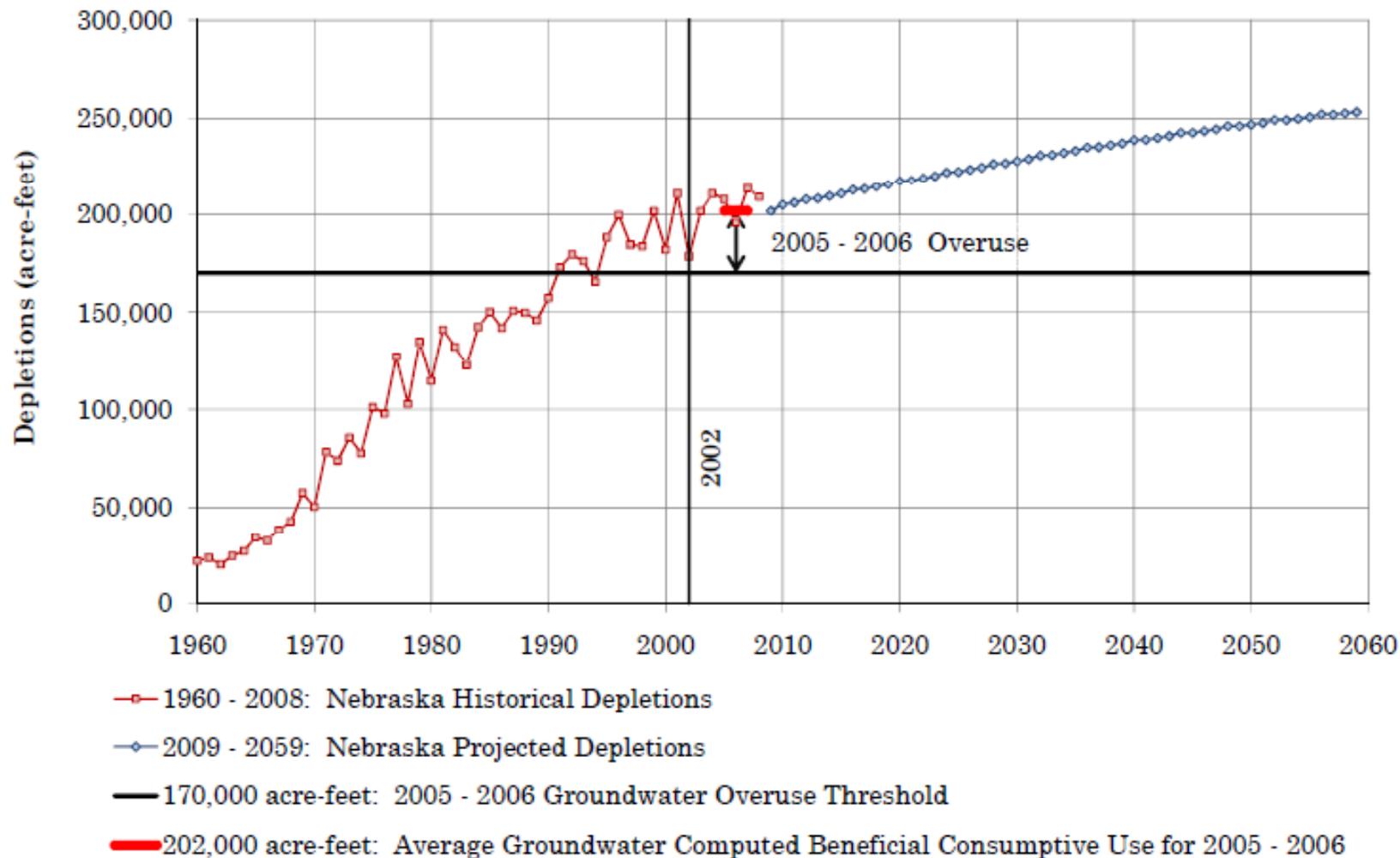
Source: Republican River Compact Administration Groundwater Model data.



## Current “compliance” is due principally to wet conditions

- Water supply and allocation have increased since 2006, disguising Nebraska’s increased water use.
- Reductions in pumping since the peak of 2002 correspond with increased precipitation, which has reduced irrigation requirements.
- Depletions to Basin water supply continue to grow.
- Consumptive use in Nebraska remains effectively unchecked.

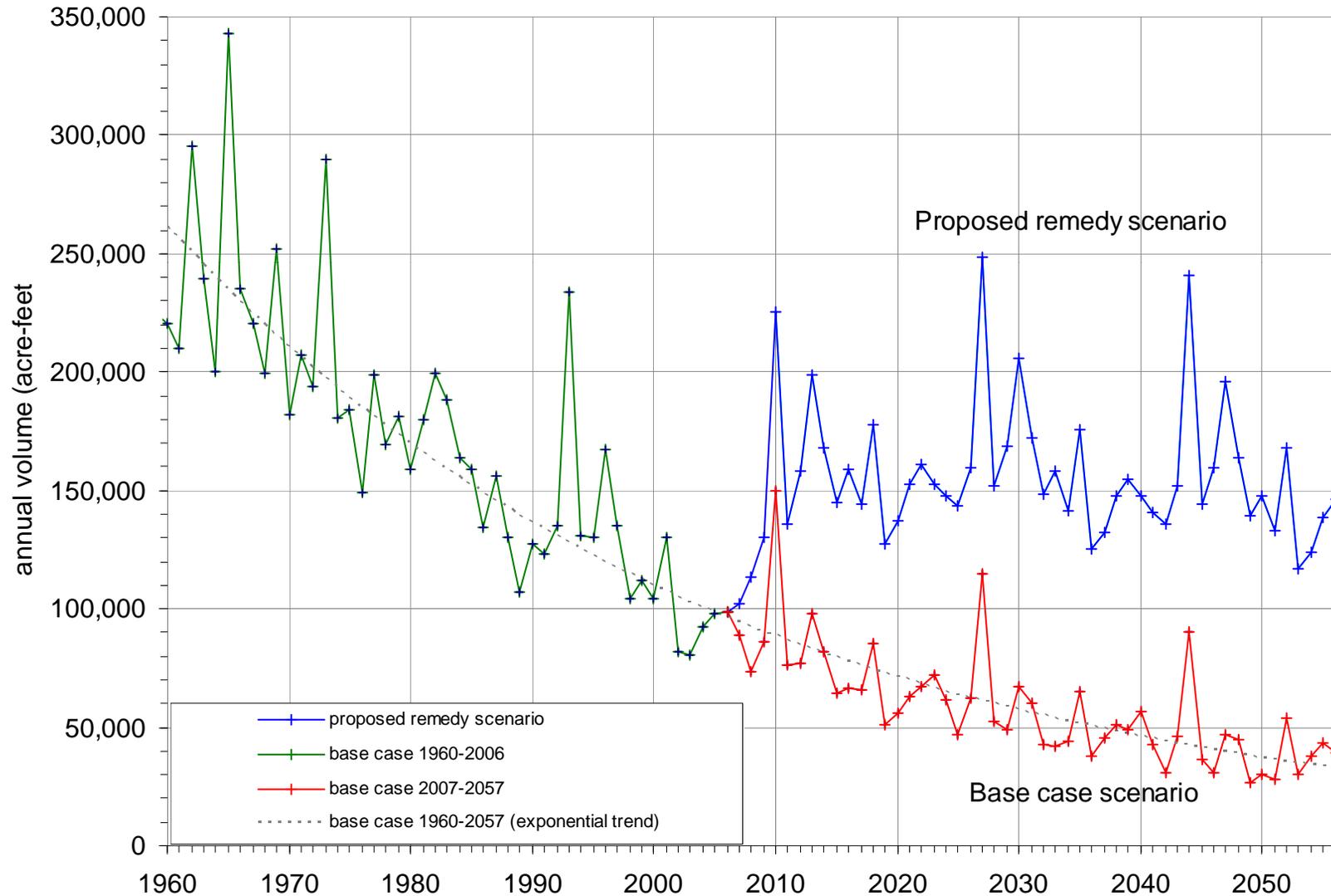
**Figure 7**  
**Depletions of Republican River Streamflow Above Guide Rock, Nebraska**  
**By Nebraska Groundwater Pumping**  
**Historical and Projected**



Source:

- (1) Historical Depletions - Republican River Compact Administration Groundwater Model results.
- (2) Projected Depletions - Republican River Compact Administration Groundwater Model results generally based on average conditions for years 1959 - 2008 and 2003 - 2008 average groundwater pumping per acre.

# Baseflows - historic and future; with and without meaningful Nebraska action



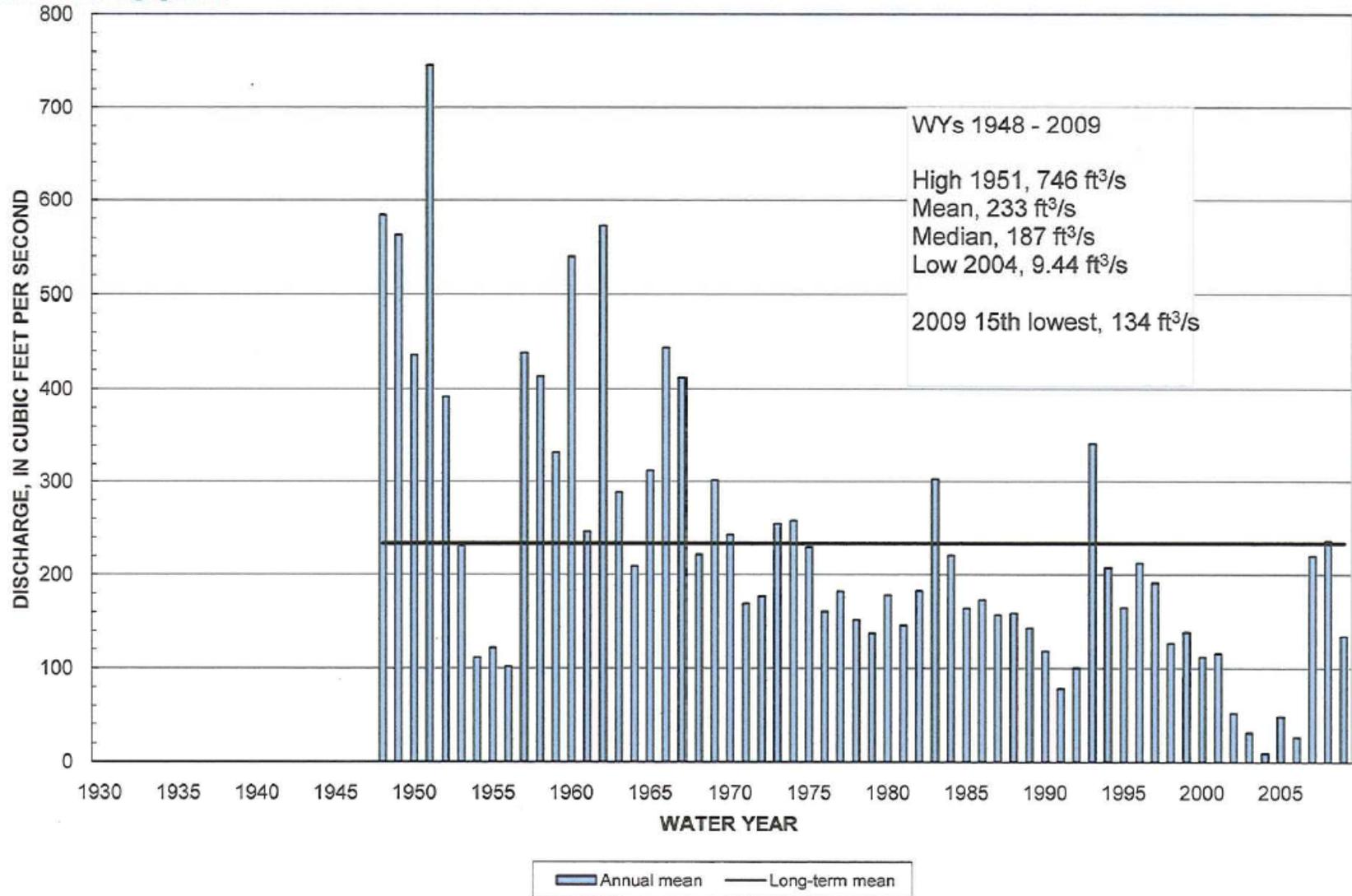


## The Consequences of noncompliance: Impacts to Basin surface water projects

- Consistent concerns of the Bureau, made most recently at the 2010 RRCA Meeting in Burlington, Colorado
- U.S. Geological Survey report at the 2010 RRCA meeting: despite higher precipitation throughout the Basin, streamflows remain below average
- Surface irrigation districts *in Nebraska* are concerned by Nebraska's plans to comply with Compact by depriving them of water in storage: Frenchman Cambridge Irrigation District, for example



06844500 Republican River near Orleans, NE





# Kansas actions to enforce the Decree

- December 2007 - Kansas begins dispute resolution process before the Republican River Compact Administration (RRCA)
- July 2009 - Non-binding arbitration concluded
- Filing before the US Supreme Court, May 2010



# What Kansas is seeking

- Contempt
- Injunction from further violations
- Damages
- Preset sanctions for further violations
- Significant reductions in groundwater pumping or the equivalent
- River Master



# Kansas and federal concerns are largely congruent

- Kansas is concerned with the viability of Bureau projects because they are the main means by which we obtain our Compact allocation.
- Kansas is opposed to Nebraska's efforts to bypass federal projects.



# Summary

- Nebraska's post-decree actions have been ineffective.
- Nebraska's current actions will not achieve compliance; rather, they will increase lagged depletions, harming Bureau projects and those who depend on them, in both Nebraska and Kansas.
- Litigation in the U.S. Supreme Court is the only option left for Kansas.



Questions?