

*Kansas v. Nebraska & Colorado*  
No. 126, Orig., U.S. Supreme Court

Rebuttal Report

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## Introduction

This rebuttal report responds to the concluding analysis of Dr. James Schneider disclosed in his expert report, titled Nebraska Responsive Expert Report Concerning Nebraska's Future Compliance, dated March 15, 2012 ("Neb. Responsive Report"). Specifically, this rebuttal report responds to the portion of the concluding section of the Neb. Responsive Report in which Dr. Schneider asserts that recent accounting results illustrate the effectiveness of Nebraska's Integrated Management Plans ("IMPs"). Dr. Schneider has chosen two five-year periods that had similar average allocations for Nebraska but which had very different amount of precipitation. See Table 6 on page 29 of the Neb. Responsive Report. Table 6 shows that average 1997-2001 Nebraska Net Impacts (computed beneficial consumptive use – imported water supply credit) is approx. 283,000 acre-feet per year, whereas the figure for 2007-2011 is approx. 239,000 acre-feet per year. Dr. Schneider then states:

*"Most significantly, Nebraska's Net Impacts during 2007-2011 have remained approximately 44,000 acre-feet less than those experienced during 1997-2001, even though Nebraska's average allocations during 2007-2011 and 1997-2001 were very similar. This demonstrates the effectiveness of Nebraska's management plans in achieving a lasting, significant reduction in Nebraska's Net Impacts."*

The analyses below demonstrate that Dr. Schneider's allegation is not well founded.

### Differing water supply conditions and related irrigation use

While the two periods do have similar allocation amounts for Nebraska, looking at the allocation only is misleading. Table 1 shows the precipitation averages for each State's portion of the Republican River basin and for the entire basin over the two periods as well as the differences in average irrigation depths (groundwater pumping divided by acres irrigated) over the five year periods.

Table 1. Average precipitation and groundwater irrigation depths in selected periods

Period	Average precipitation (inches)				Average groundwater irrigation depth (inches)			
	Colorado	Kansas	Nebraska	Basin	Colorado	Kansas	Nebraska	Basin
1997-2001	16.31	19.19	20.90	19.04	14.42	11.92	14.01	13.73
2007-2011	18.10	21.99	26.48	22.65	14.39	11.87	9.19	10.72

As is shown, precipitation in the later period is much greater than the former period. The average precipitation in the Nebraska portion of the basin for 1997-2001 is 20.90 inches; the average for 2007 to 2011 is 26.48 inches (approximately 27 % higher).

Figure 1 below is an updated version of Figure 8 in my Statement, which was attached as Appendix C to Kansas' Motion for Leave to File Petition, Petition, and Brief in Support (p. C21), adding more recent years. Figure 1 uses the values from Table 1 for Nebraska and shows that the sum of annual precipitation and average irrigation depth in Nebraska has not changed between the 1997-2001 period and the 2007-2011 period.

Figure 1. Updated Nebraska Groundwater Irrigation and Precipitation

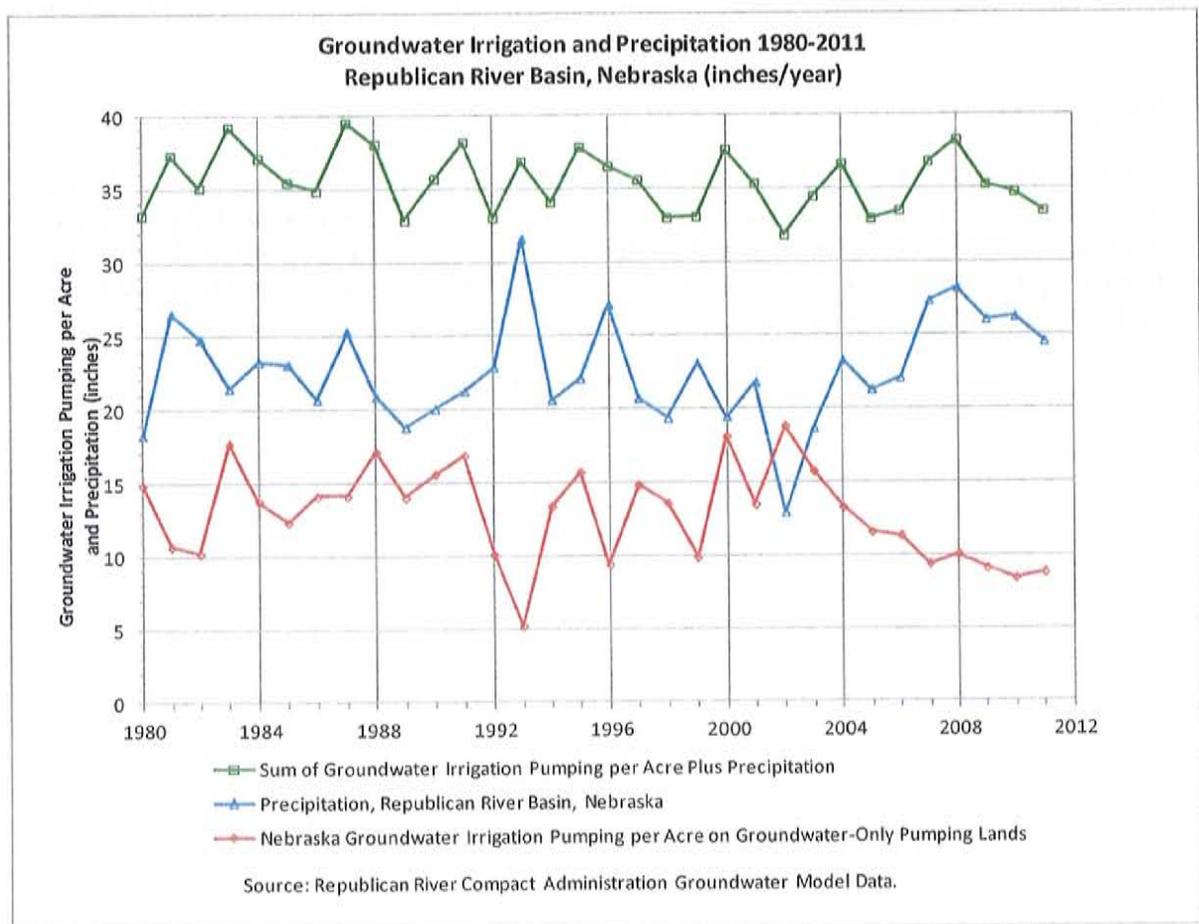


Figure 1 demonstrates that the sum of precipitation and irrigation depth continued during 2007-2011 at about the 35 inches level that has occurred over the last 30 years. Thus, there is no evidence that the IMPs are slowing use to any significant degree. In fact, Dr. Schneider's own figures show that groundwater computed beneficial consumptive use increased from an average of 194,000 acre-feet per year to an average of 217,000 acre-feet per year between the two periods.

## **Conclusion**

Thus, a fuller review of the data for these periods discredits Nebraska's conclusion that the record substantiates the effectiveness of the IMPs. The water supply conditions between the two periods chosen by Dr. Schneider were not comparable. The wet conditions of recent years have suppressed irrigation needs to such a degree as to preclude any credible conclusions of the effectiveness of the IMPs in reducing use.

## **Reference:**

1. Nebraska Responsive Expert Report Concerning Nebraska's Future Compliance, Dr. James C. Schneider, March 15, 2012.

## **Sources:**

Table 1: rppf\_1940-2011\_v520.xls, sheet compare\_97-01\_vs\_07-11; five-year averages are based on annual values in sheet 1980-2011.log (precip: cols. m:p, gw irrigation: cols. bq:bt). Data in sheet 1980-2011.log imported from log files written by program rppf\_v520, which interpolated RRCA station values of annual precipitation to each model grid cell. Spatial averages were taken over model grid cells within each state. 2011 data is provisional.

Figure 1: file rppf\_1940-2011\_v520.xls, sheet 1980-2011.log, chart at cg6