PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT
Voluntary Integrated Management Plan

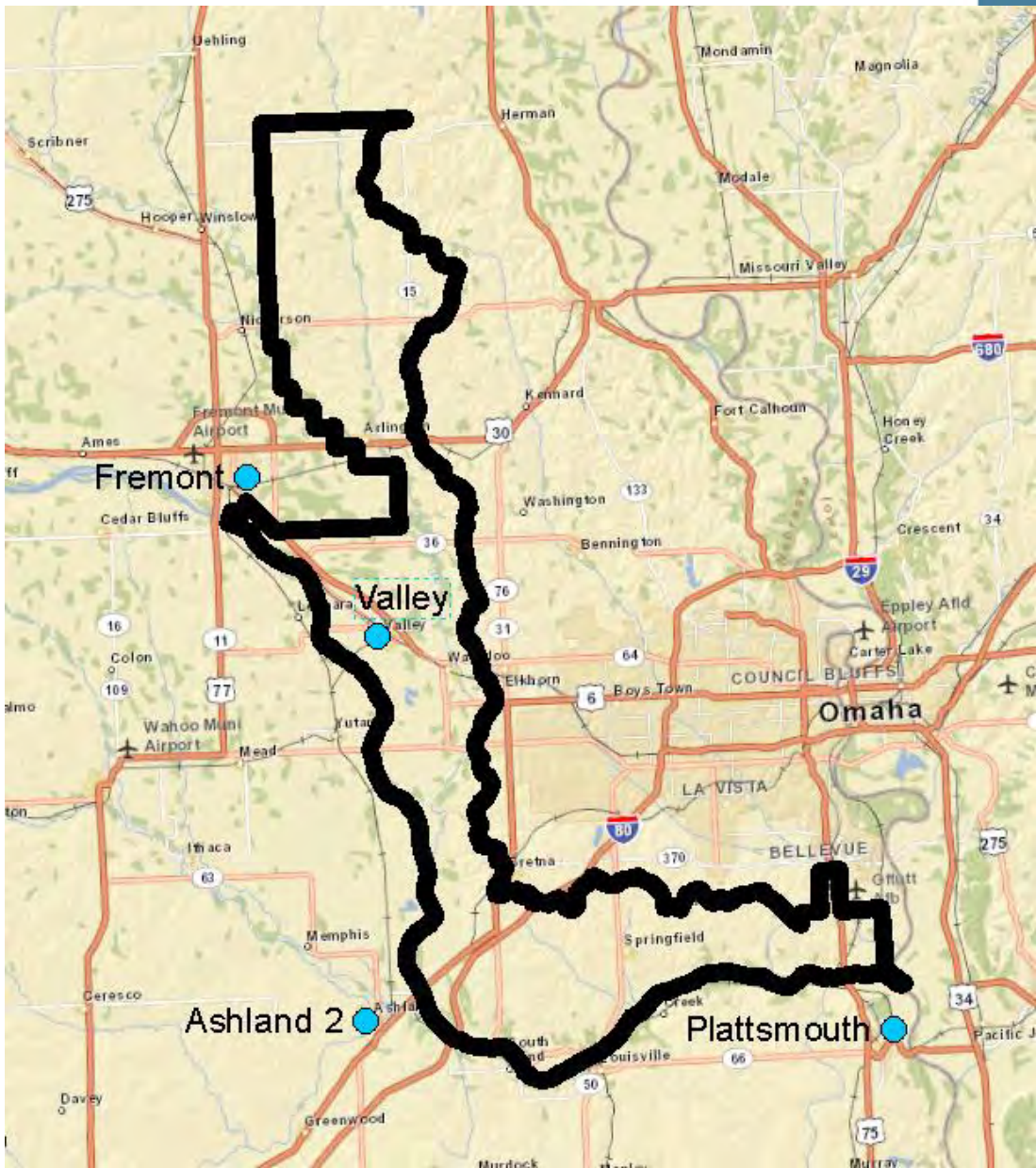
March 20, 2013
Stakeholder Advisory Meeting #2
Water Balance Study

OLSSON ASSOCIATES

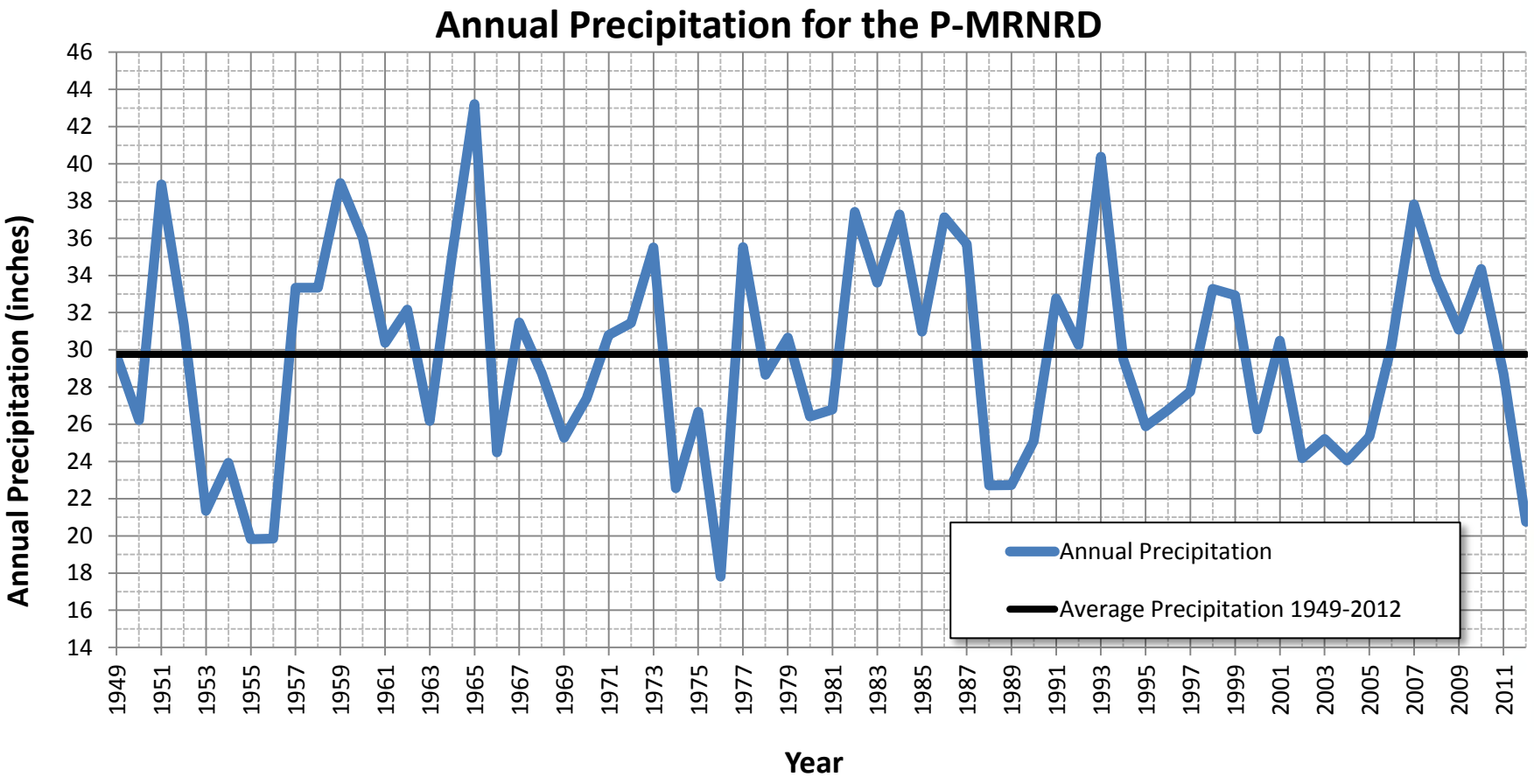
Brown and Caldwell and H_2Options, LLC

Integrated Management Plan Area

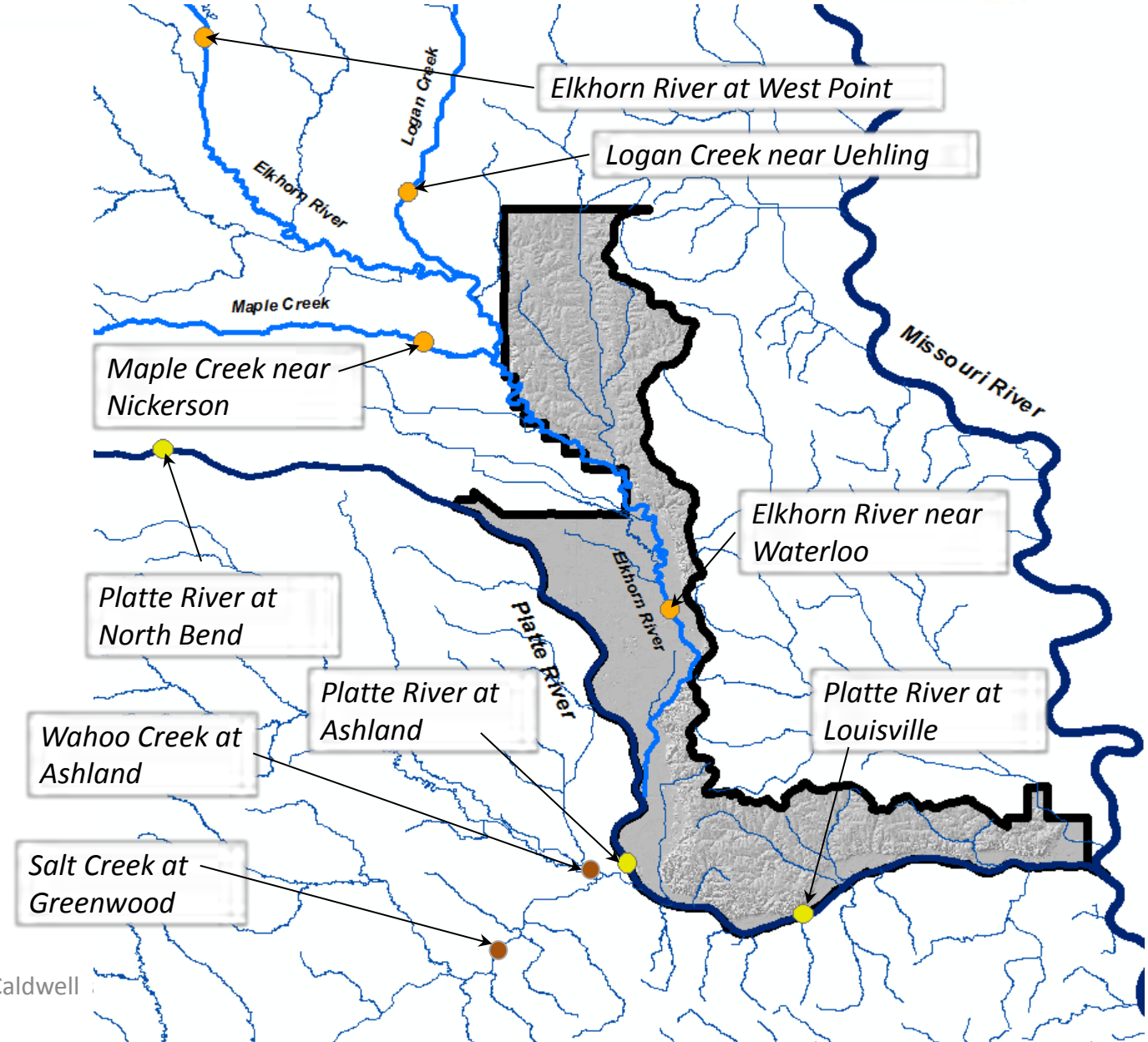
Papio-Missouri NRD is currently developing a Voluntary Integrated Management Plan in cooperation with the NDNR.



Average of 30 inches of Precip/Yr



Stream Data Reviewed



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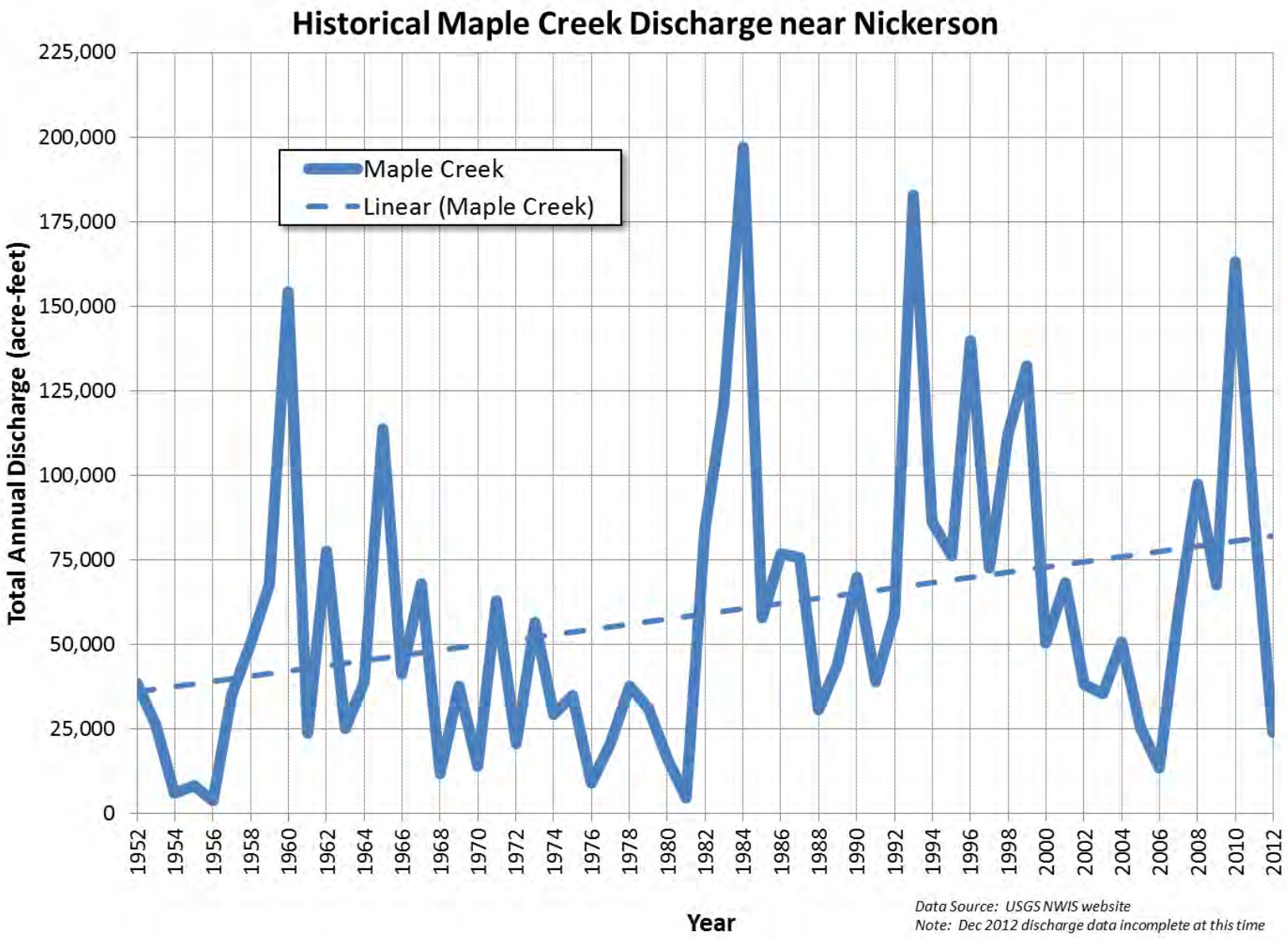
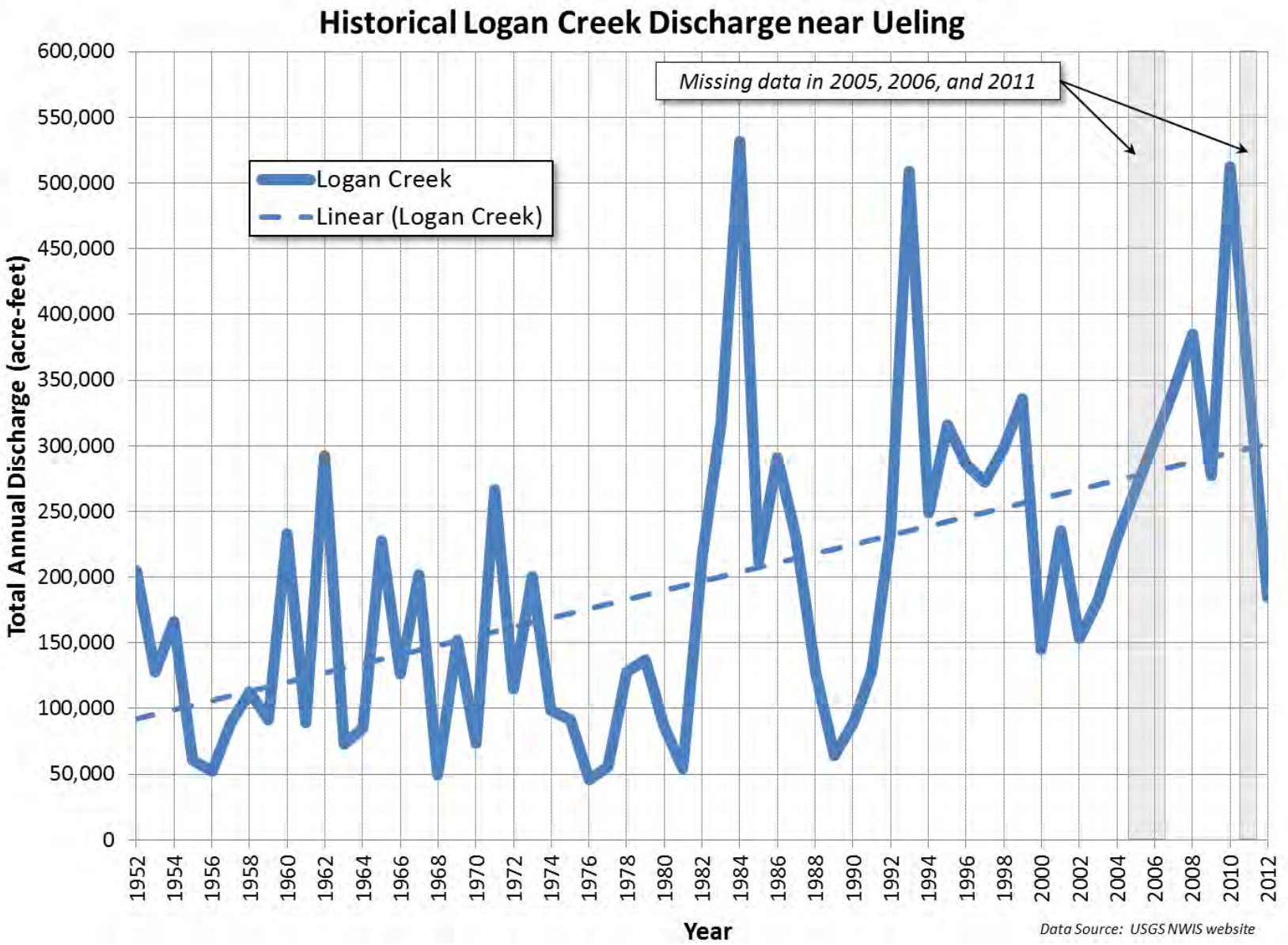
Maple Creek near Nickerson

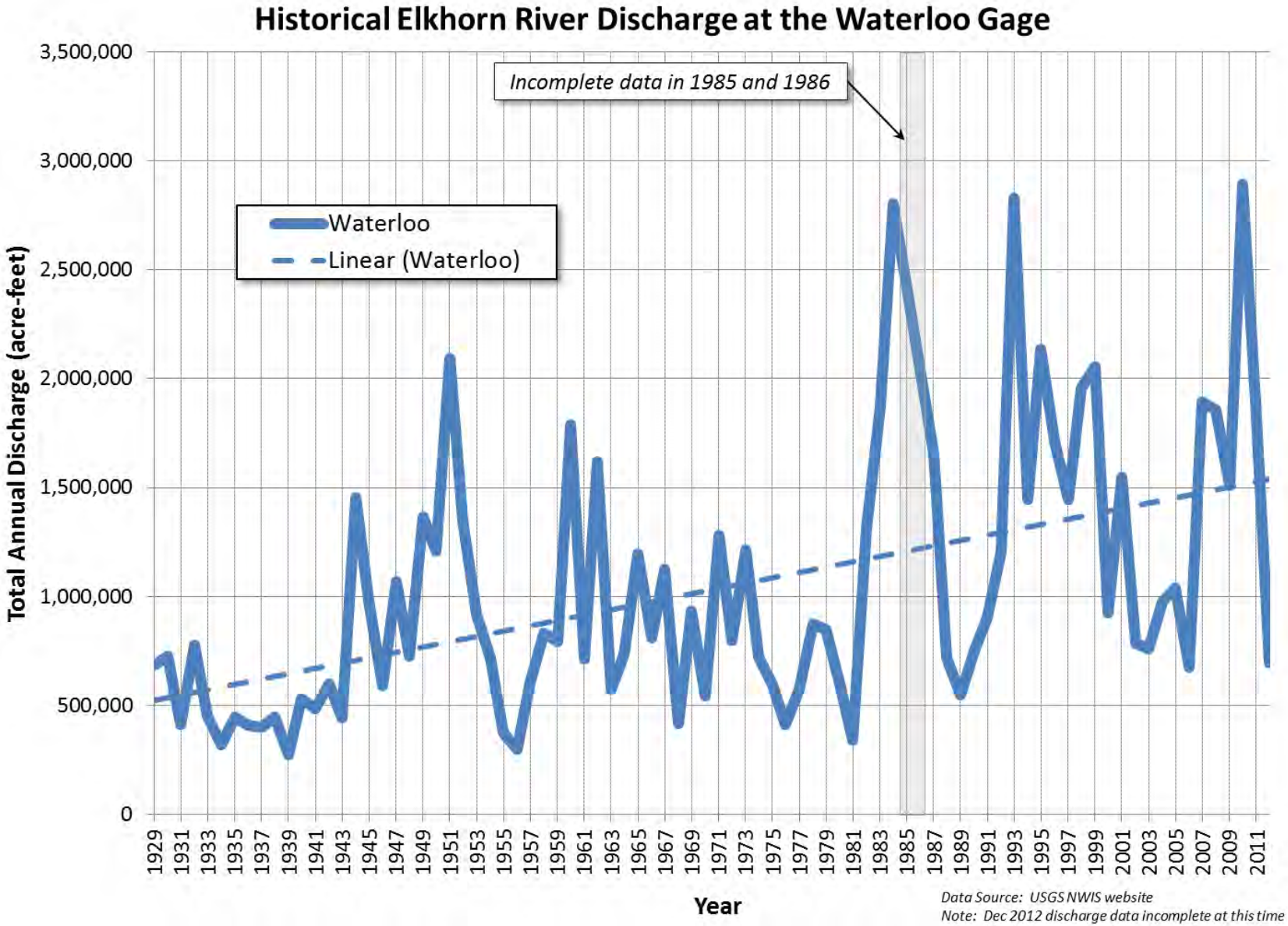


Data Source: USGS NWIS website
Note: Dec 2012 discharge data incomplete at this time

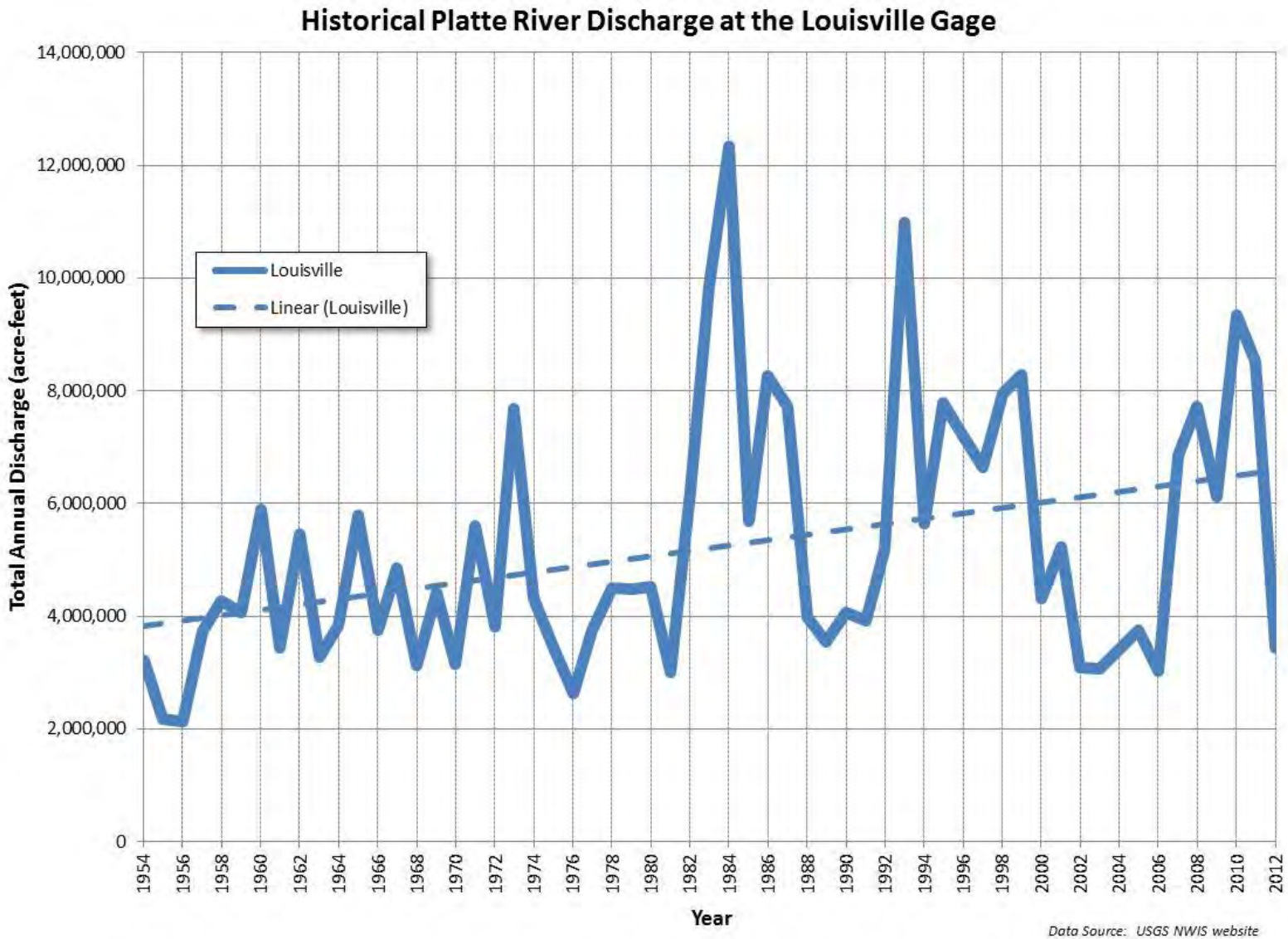
Logan Creek near Uehling



Elkhorn River at Waterloo



Platte River Discharge at Louisville



USGS Documentation of Increase

GEOPHYSICAL RESEARCH LETTERS, VOL. 29, NO. 24, 2185, doi:10.1029/2002GL015999, 2002

A step increase in streamflow in the conterminous United States

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Received 29 July 2002; revised 17 October 2002; accepted 17 October 2002; published 24 December 2002.

From Anderson, M.T. and Norton, P.A.

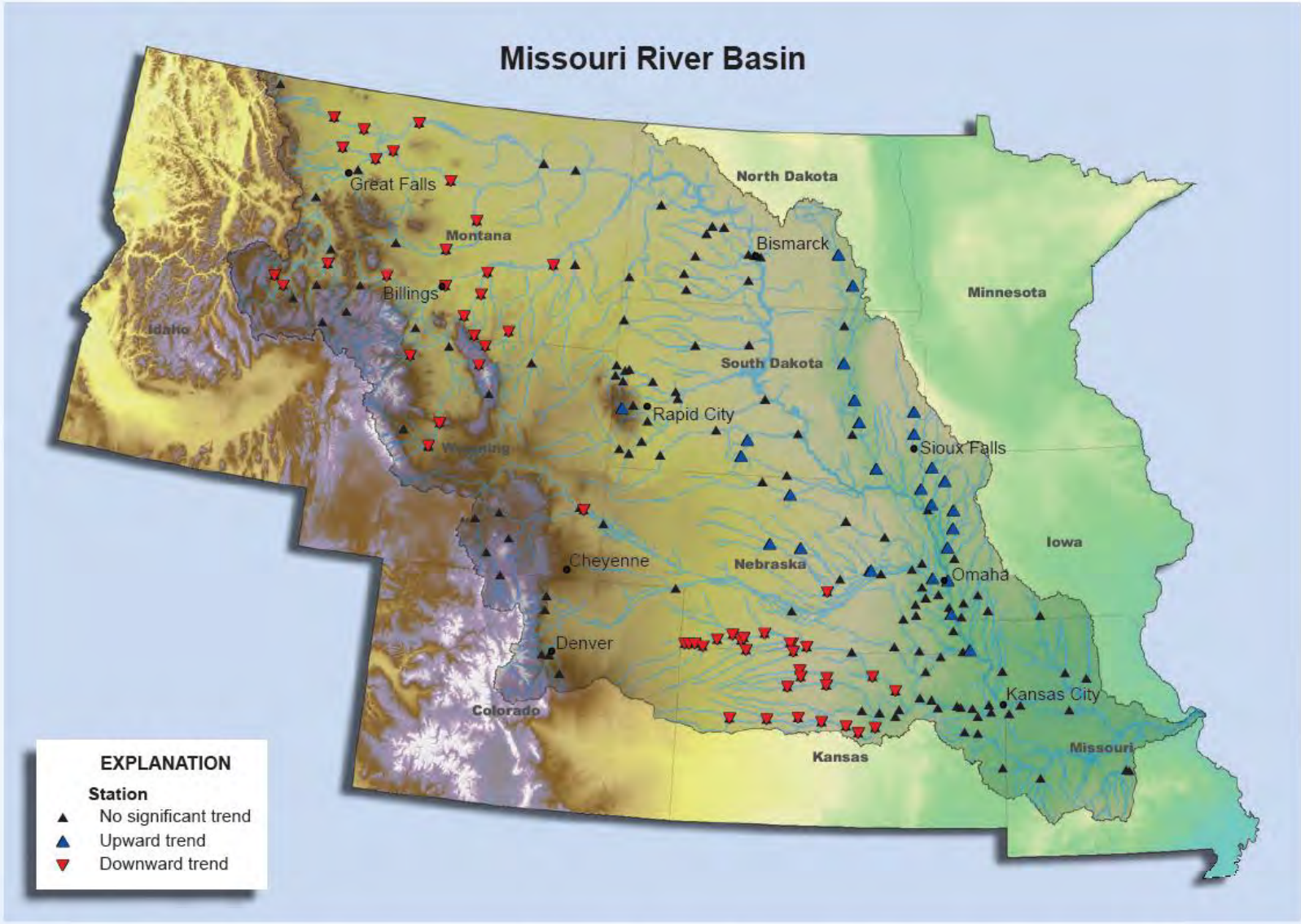

Figure 2. Annual streamflow trends for 205 stations with 50 years of record, 1957–2006.

AGU Fall 2007, Paper No. GC13A-0952

Pallid Sturgeon (photograph courtesy of U.S. Fish and Wildlife Service)

Implications

For much of the United States, the implications of changes in streamflow timing are most important for water-supply management and reservoir operations. For the MRB, water supply for communities has grown in importance because of the extensive construction of rural water pipelines in the Dakotas. Downward trends of streamflow for the mainstem reservoirs may have profound effects for endangered species such as the Pallid Sturgeon and the Least Tern. Downstream navigation on the Missouri River and the Mississippi River also depend upon sufficient flows and reservoir releases from the major upstream reservoirs such as Oahe.

Least Tern (photograph courtesy of U.S. Fish and Wildlife Service)

NGWMAC
Implications to NE Groundwater Recharge?

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