

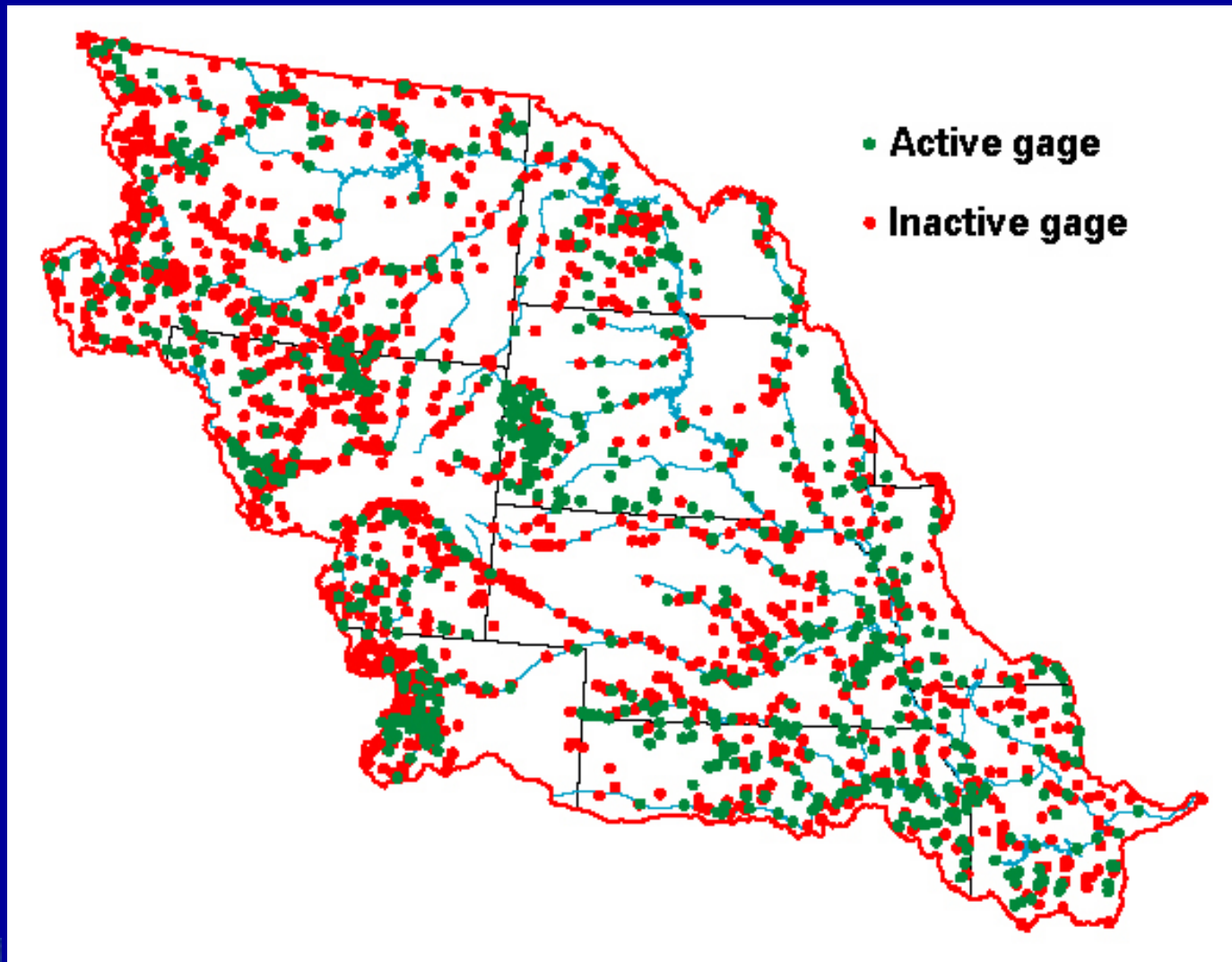
Use of Stream-Gage Information to Assess Changes in River-Channel Morphology

Kyle Juracek
U.S. Geological Survey
Lawrence, KS

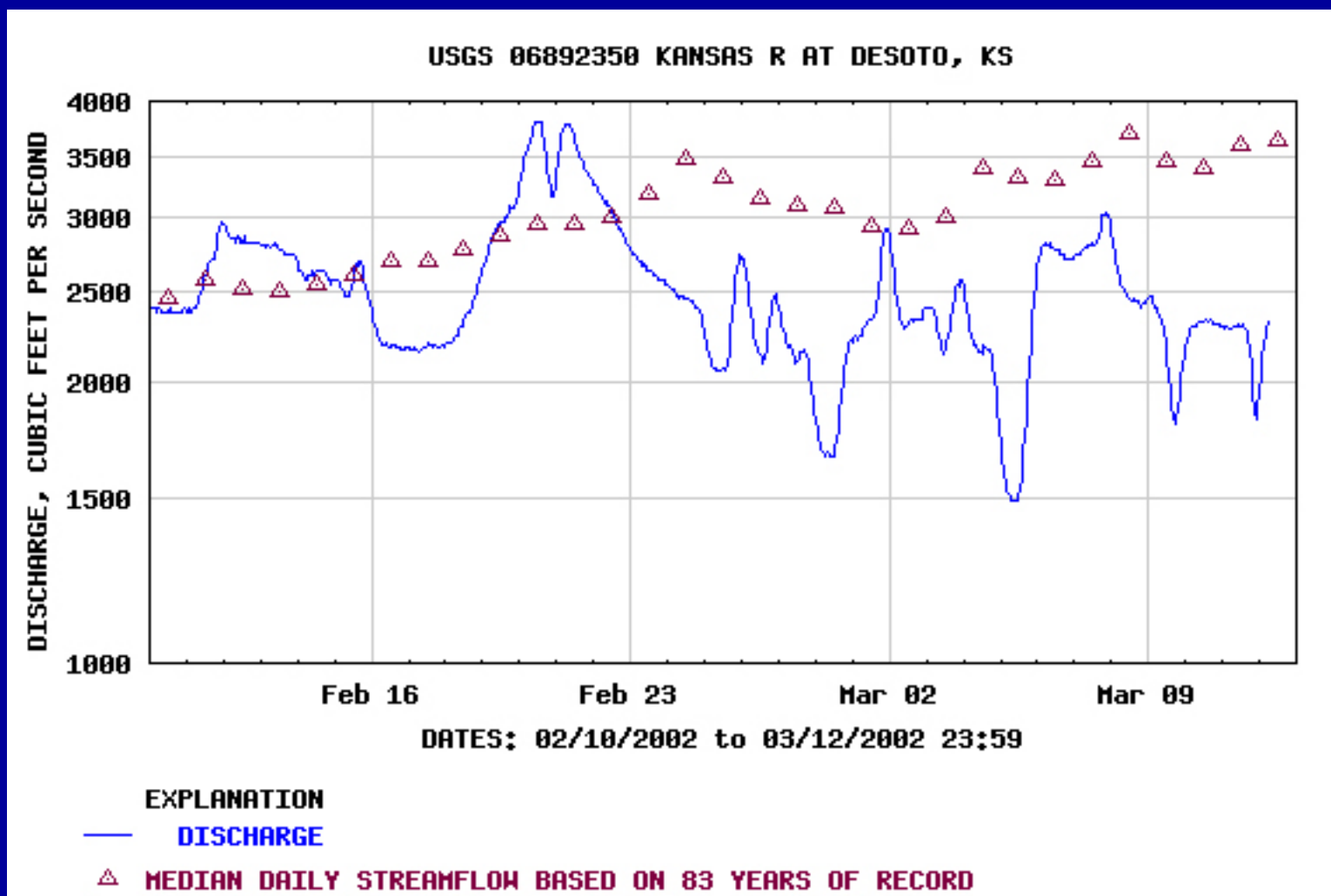
Missouri River Basin



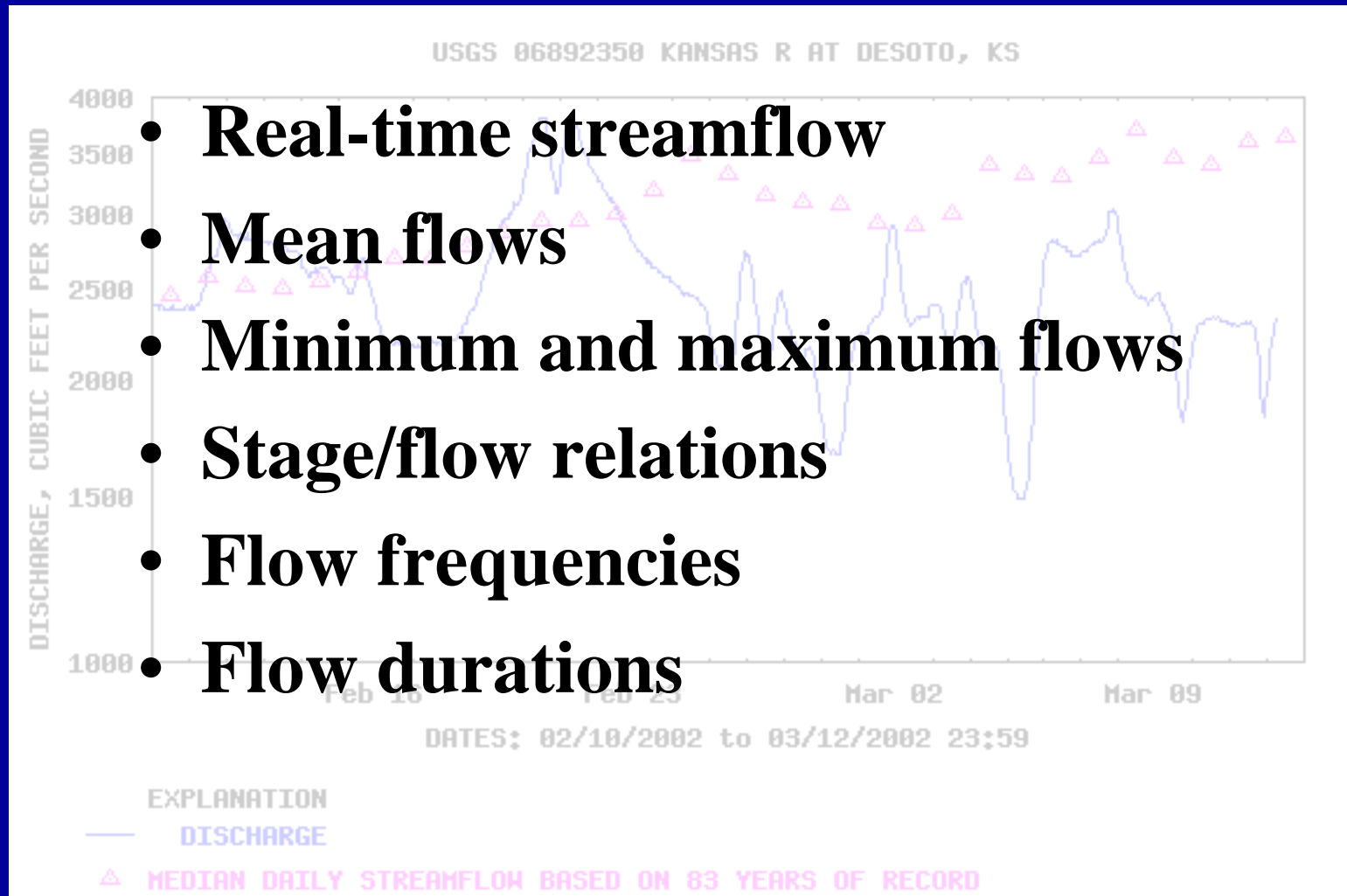
Missouri River Basin



Streamflow Information from Gages



Streamflow Information from Gages



Geomorphic Information from Gages

- Channel width
- Channel depth
- Channel area
- Flow velocity

Geomorphic Applications

- **Document channel changes**
- **Partly reconstruct historical conditions**
- **Infer causes of channel change**
- **Estimate future channel changes**

Neosho River

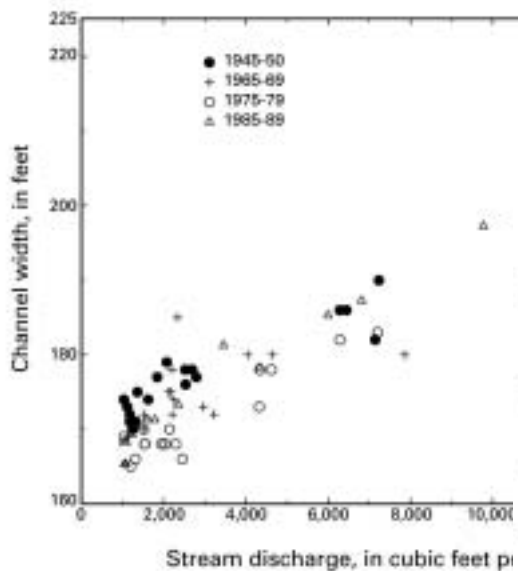
Issue: Channel Widening



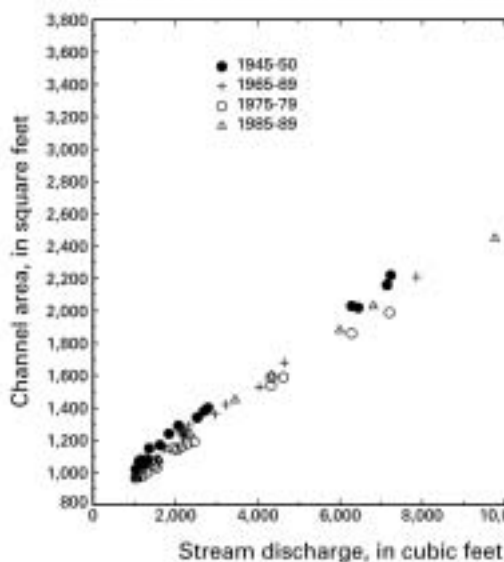
Neosho River

Issue: Channel Widening

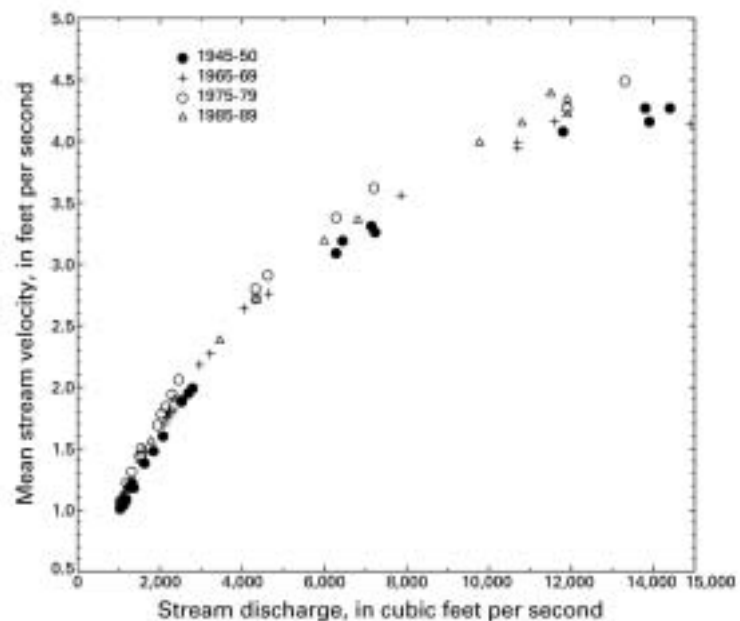
Discharge-width relations at lola, Kansas



Discharge-area relations at lola, Kansas

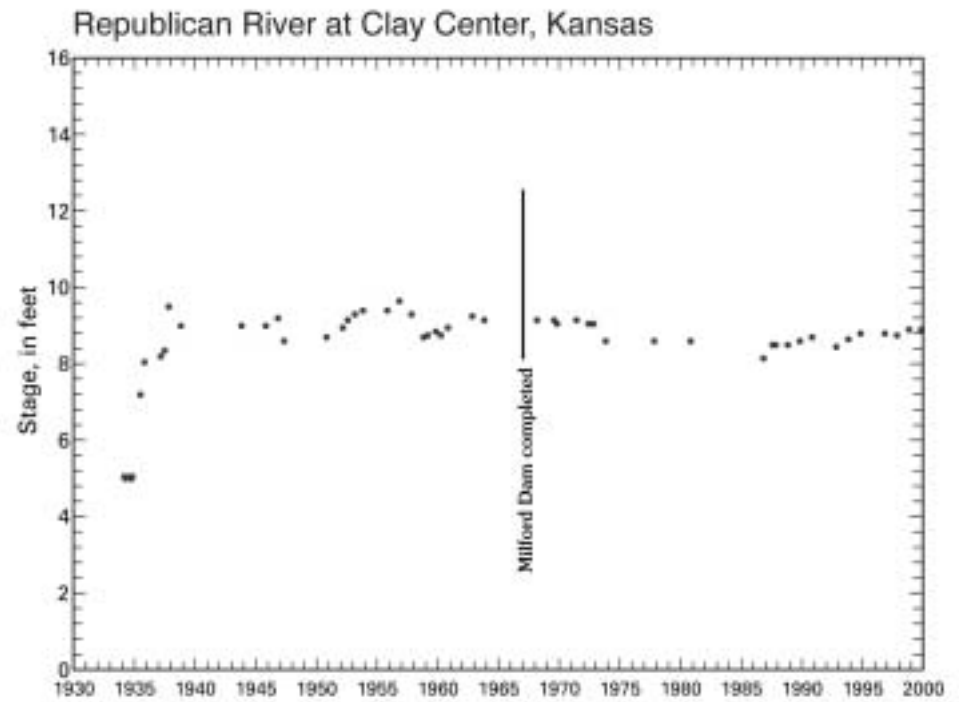
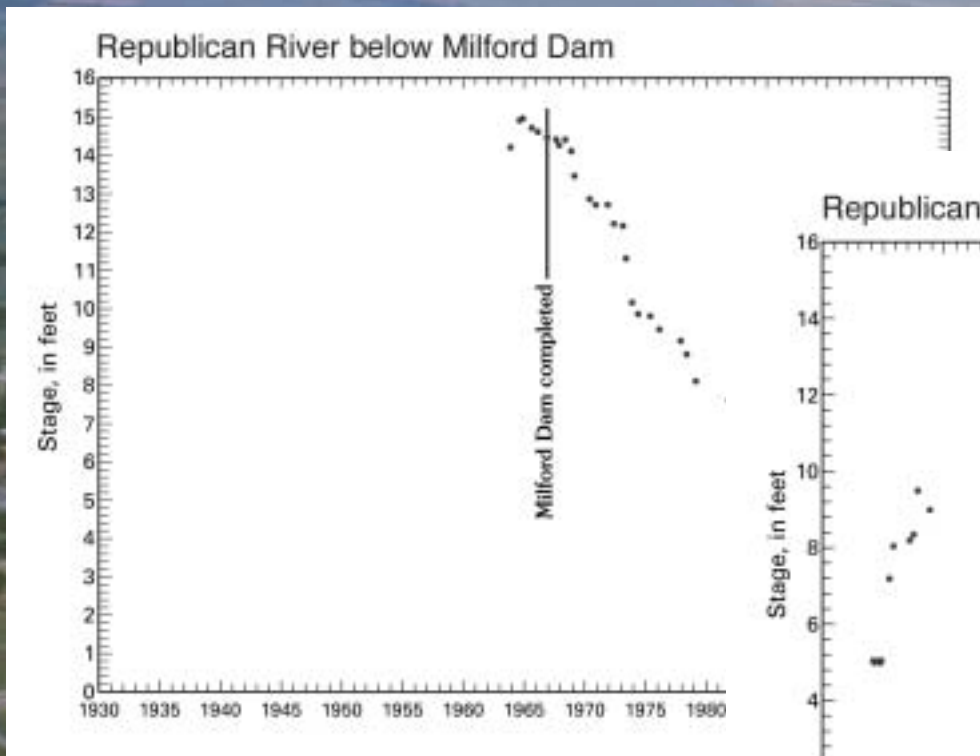


Discharge-velocity relations at lola, Kansas



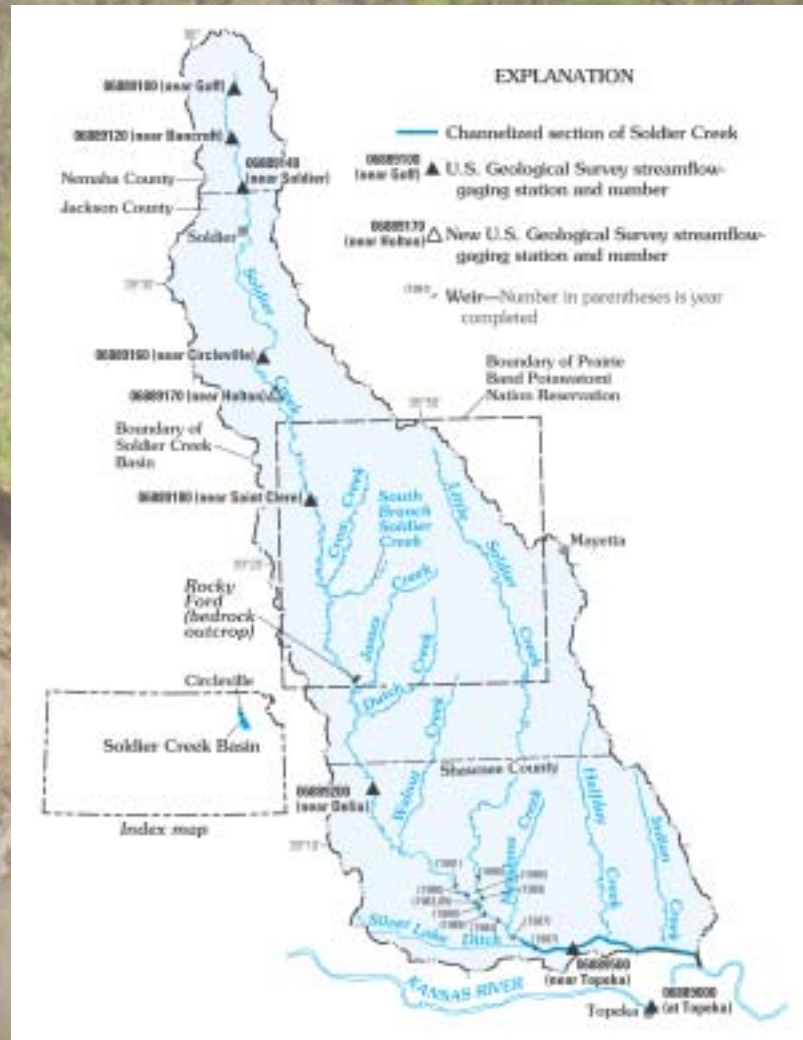
Reservoirs

Issue: Channel-Bed Degradation



Soldier Creek

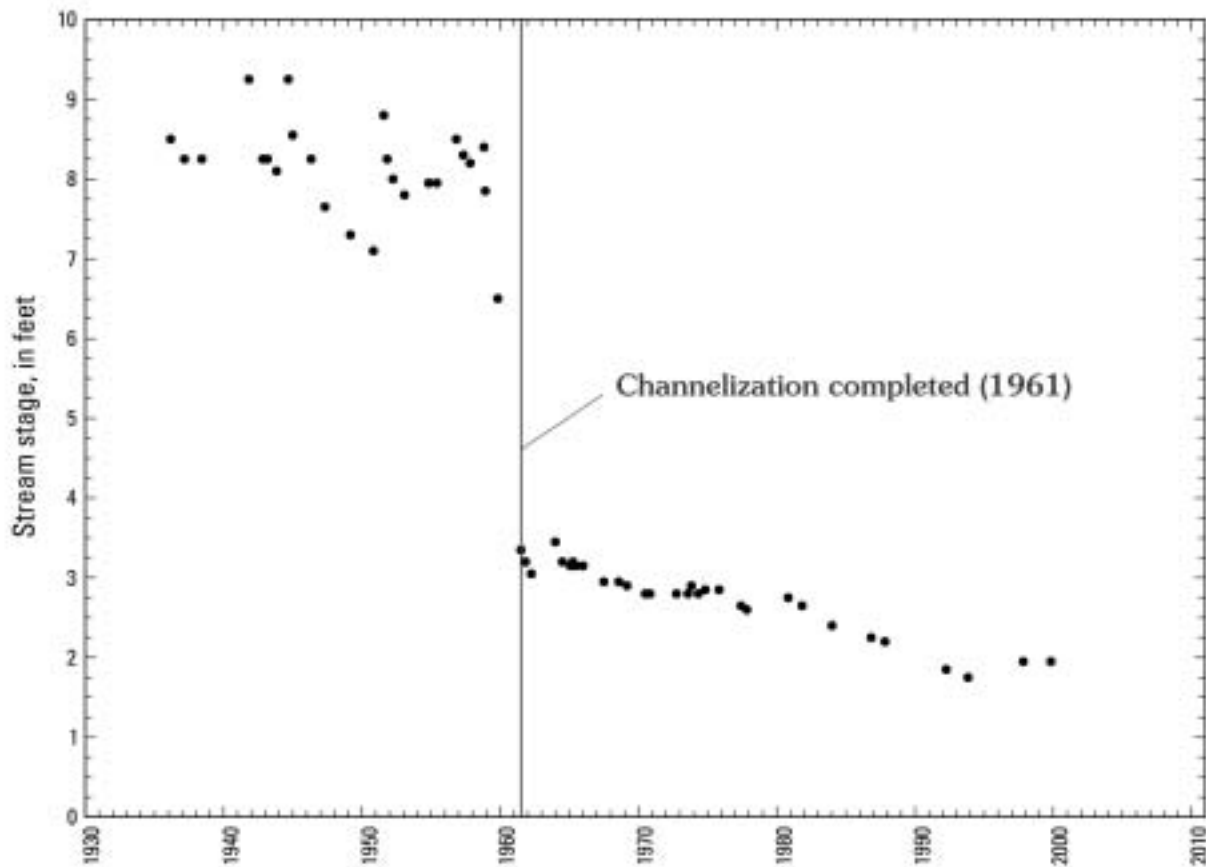
Issue: Channel Change due to Multiple Disturbances



Soldier Creek

Issue: Channel Change due to Multiple Disturbances

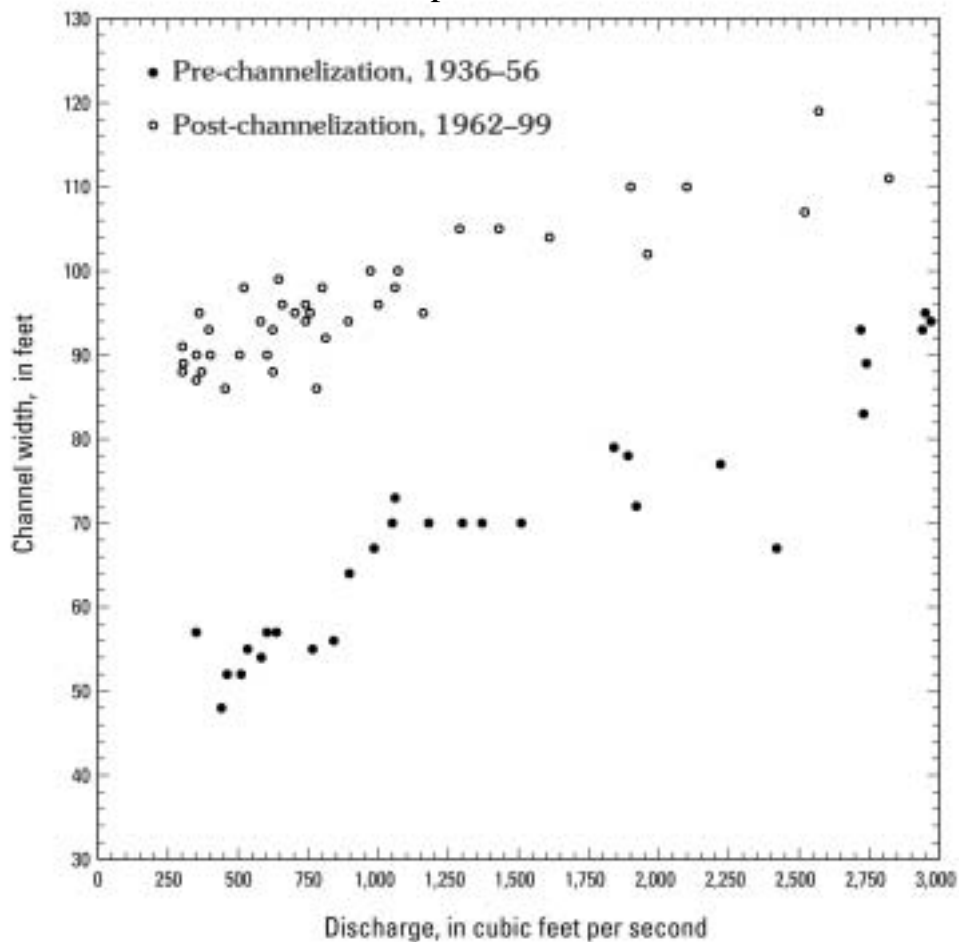
Soldier Creek near Topeka, Kansas



Soldier Creek

Issue: Channel Change due to Multiple Disturbances

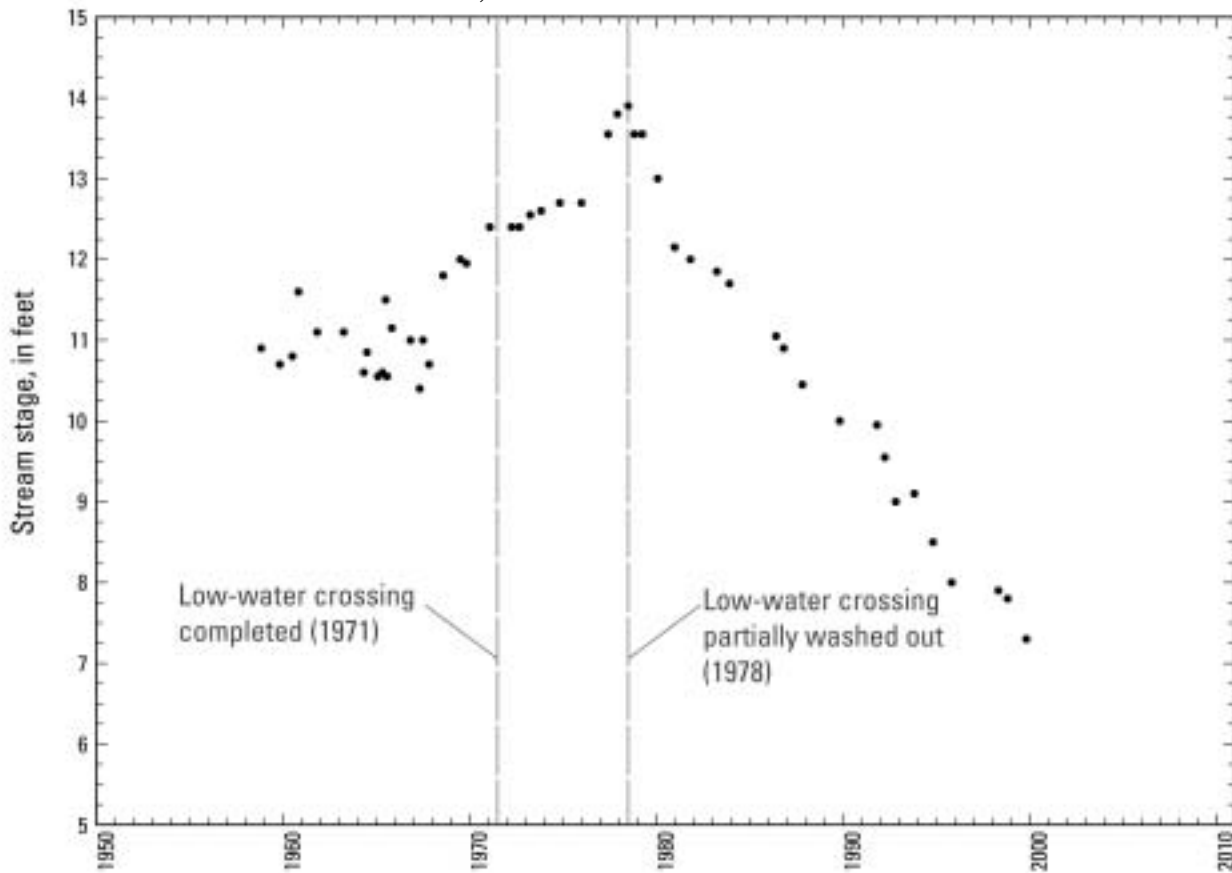
Soldier Creek near Topeka, Kansas



Soldier Creek

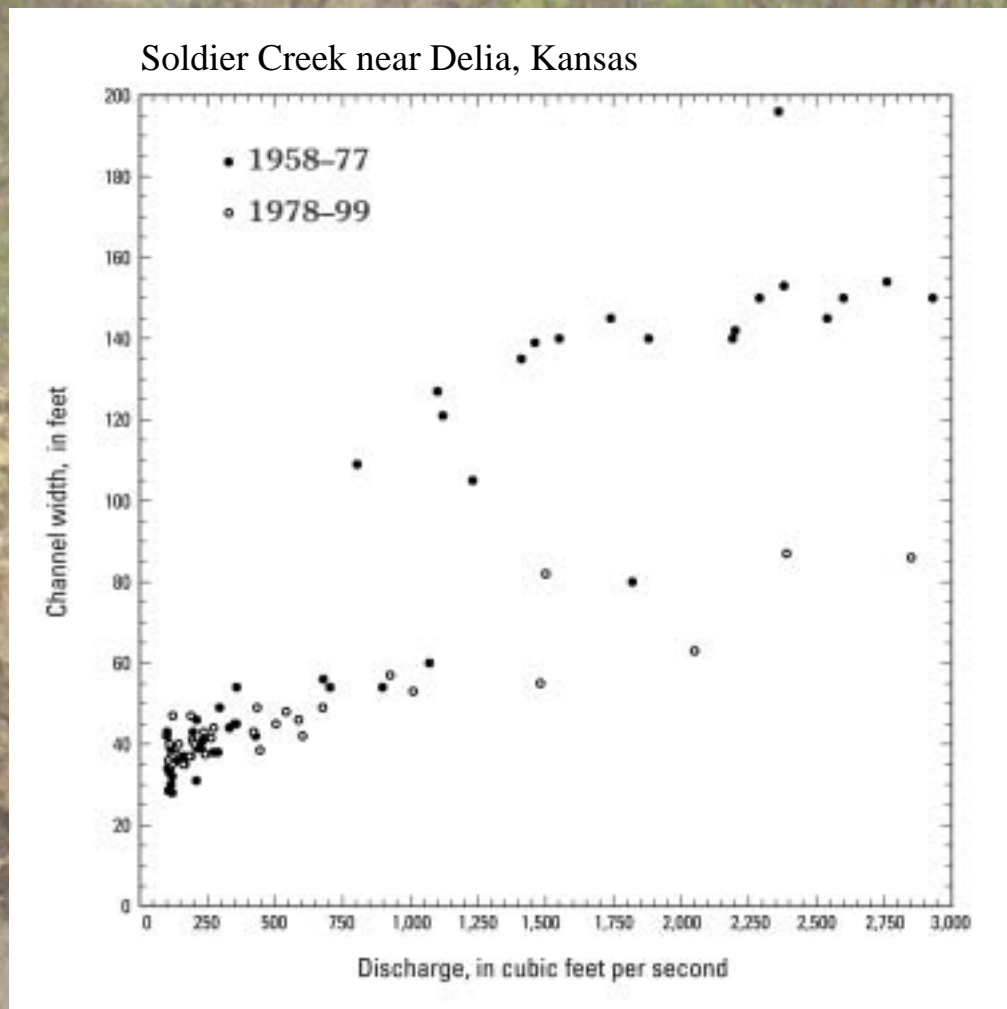
Issue: Channel Change due to Multiple Disturbances

Soldier Creek near Delia, Kansas



Soldier Creek

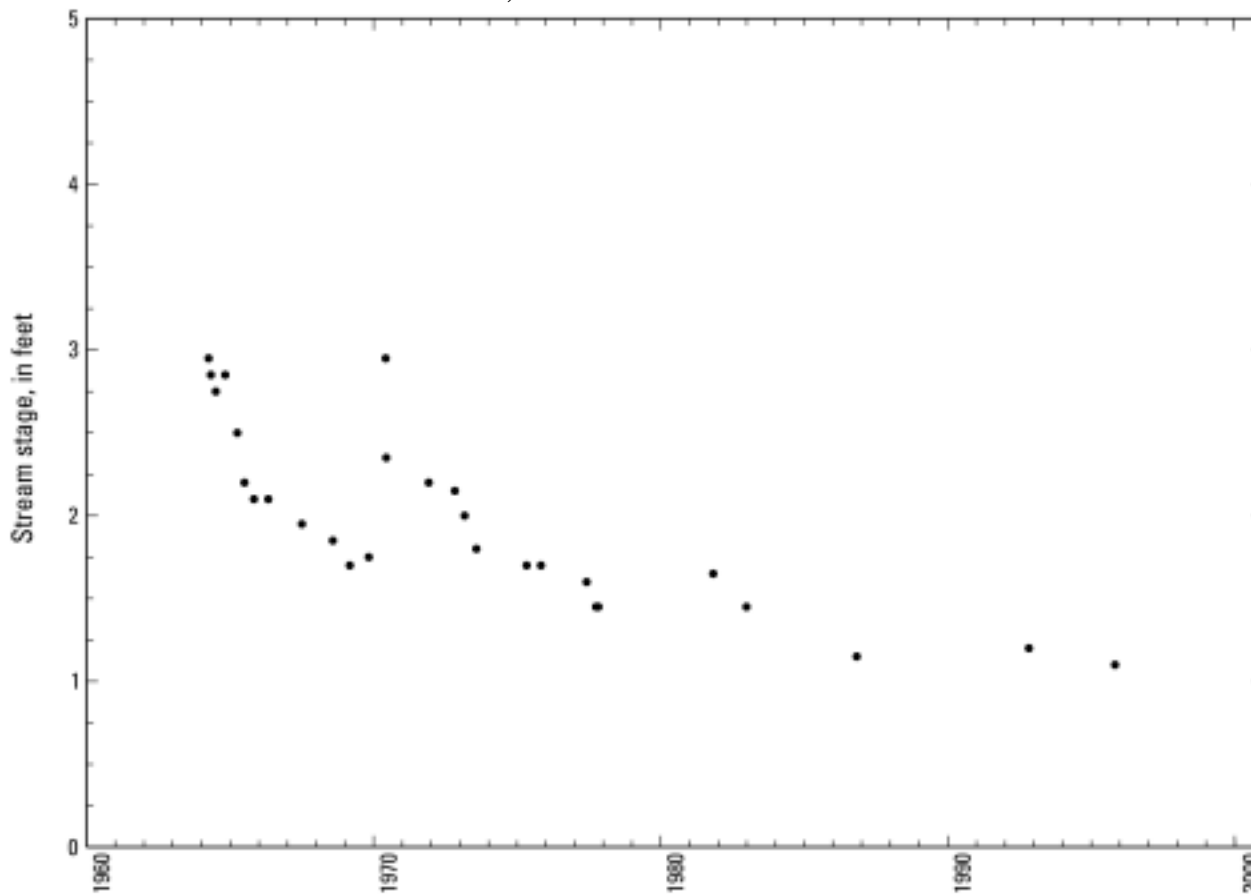
Issue: Channel Change due to Multiple Disturbances



Soldier Creek

Issue: Channel Change due to Multiple Disturbances

Soldier Creek near Soldier, Kansas



Limitations

- **Location**
- **Site conditions**
- **Time**

Conclusions

- **Long-term data**
- **Multiple applications**
- **Use it carefully**

And NOW...
AS an Added BONUS!

CAWKER CITY'S
BALL of TWINE
World's Largest
1988 CIRCUMFERENCE 40' 3"
14,827 lbs.

WORLD'S LARGEST
BALL of TWINE
Started by
FRANK STODER
in 1933
Contains
100,000
lbs. of
twine
THIRTY • PATIENCE • SUCCESS