Red River Basin Study

RRVA Annual Convention
February 19, 2015
TX WSC
Project Background

- USGS Water Science Centers Involved
  - Arkansas - 32
  - Louisiana - 50
  - Oklahoma - 25
  - Texas - 35
Project Background

- SECURE Water Act (2007)
  - National Science and Technology Council
  - Ongoing water census
Project Background

• USGS – Strategic Direction

“A water census for the US: Quantifying, Forecasting and Securing Freshwater for Americas Future.”
Study Goals

• One Strategy
• Focus on Water Availability
• Answer the Questions:
  – Is there adequate quantity of water, with sufficient quality and timing-characteristics, to meet both human and ecological needs?
  – Will this water be present to meet both existing and future needs?
Study Area

- Area - 93,200 mi$^2$
- Population – 4.3 million
- Precipitation – 30”-50”
- Estimated Water Use – 3.8 MGD
- USGS & Cooperators > $4 million
Issues

• Increasing Water Demands
• Drought in Texas
• Disruption of Aquatic Ecosystems
• Water Quality
  – Salinity
  – Natural Chloride
Planned Activities

1. Refine 2010 USGS Water-use Estimates
2. Groundwater/Surface Water Interaction
3. Estimate Daily Streamflows
4. Summarize Existing Aquatic Ecological Data
Planned Activities

1 - Refine 2010 USGS Water-use Estimates

- Downscale
- Irrigation
- Interbasin
- Consumptive use
Planned Activities

2 - Groundwater/Surface Water Interaction

• Develop a model (MODFLOW)
  – Upstream of Denison Damn
  – Additional withdrawals
  – Climate
Planned Activities

3 - Estimate Daily Streamflows

- Precipitation Runoff Modeling System (PRMS)
  - Predict flows in ungaged area
  - Future projections
  - Couple with GW model
Planned Activities

4 - Summarize Existing Aquatic Ecological Data

• Mainstem and select tributaries
• Compare to land-use changes
• Similar study on Canadian River
Select Stakeholders

- USGS
- US Fish & Wildlife Service
- US Army Corps of Engineers
- NRCS Earth Team
- State of Oklahoma Water Resources Board
- Texas Water Development Board
- U.S. Department of Agriculture
- U.S. Department of the Interior Bureau of Reclamation
- Red River Valley Association
- U.S. Department of Transportation
- Red River Compact Commission
Questions?

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