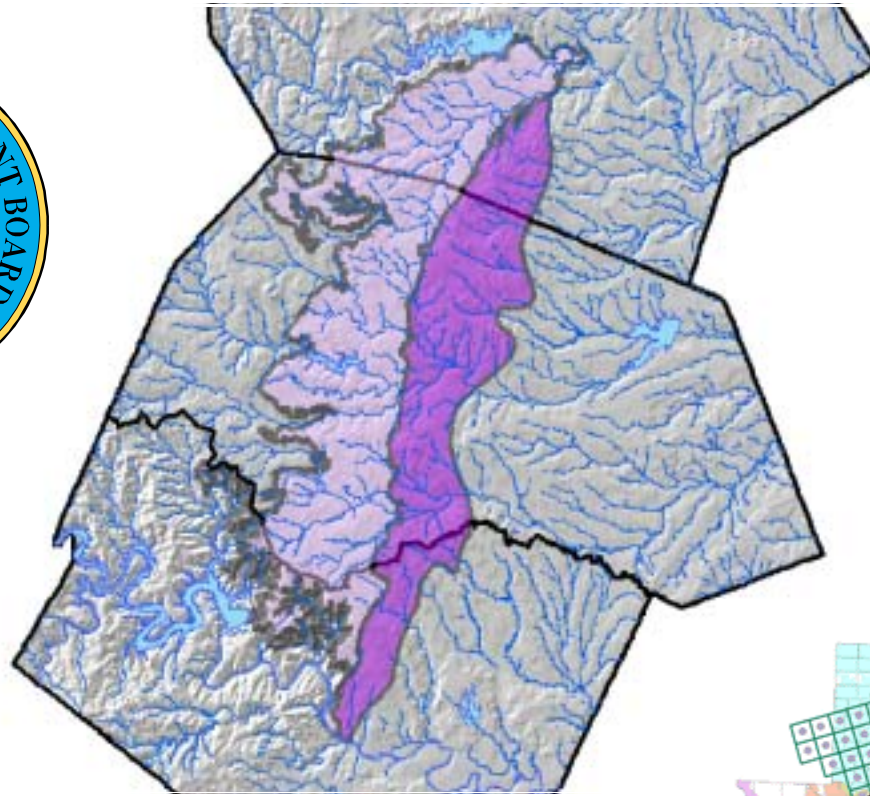
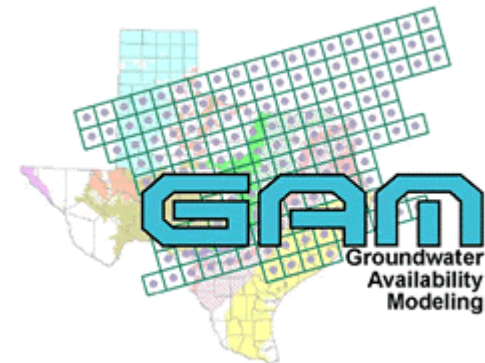


NORTHERN EDWARDS AQUIFER



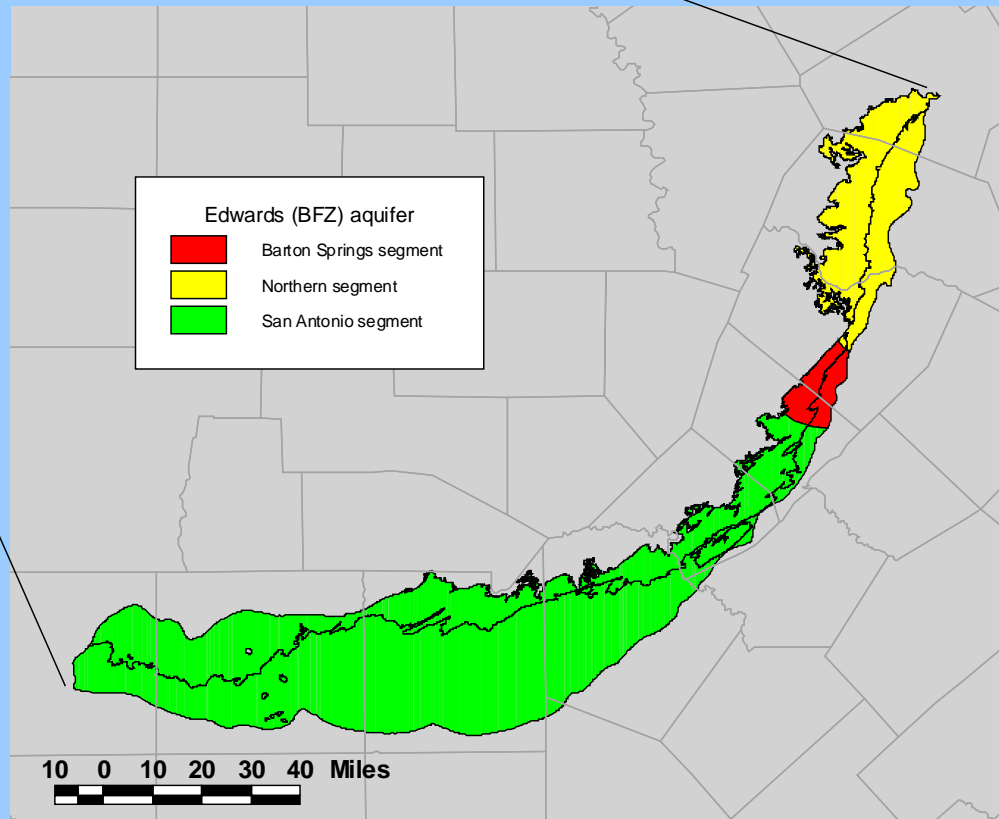
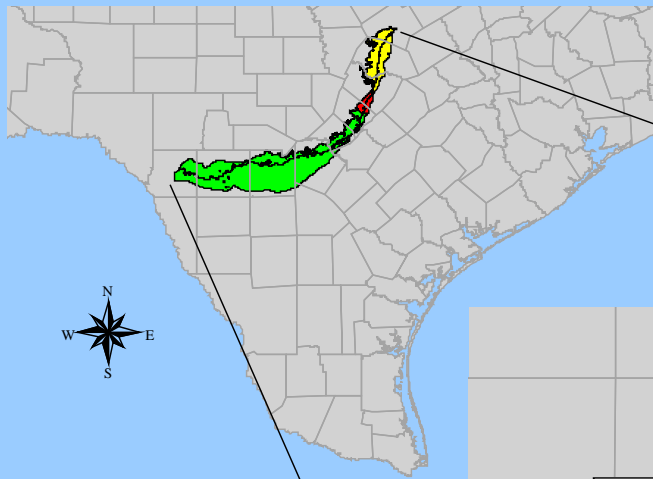
Third Stakeholder Advisory Forum
September 26, 2002



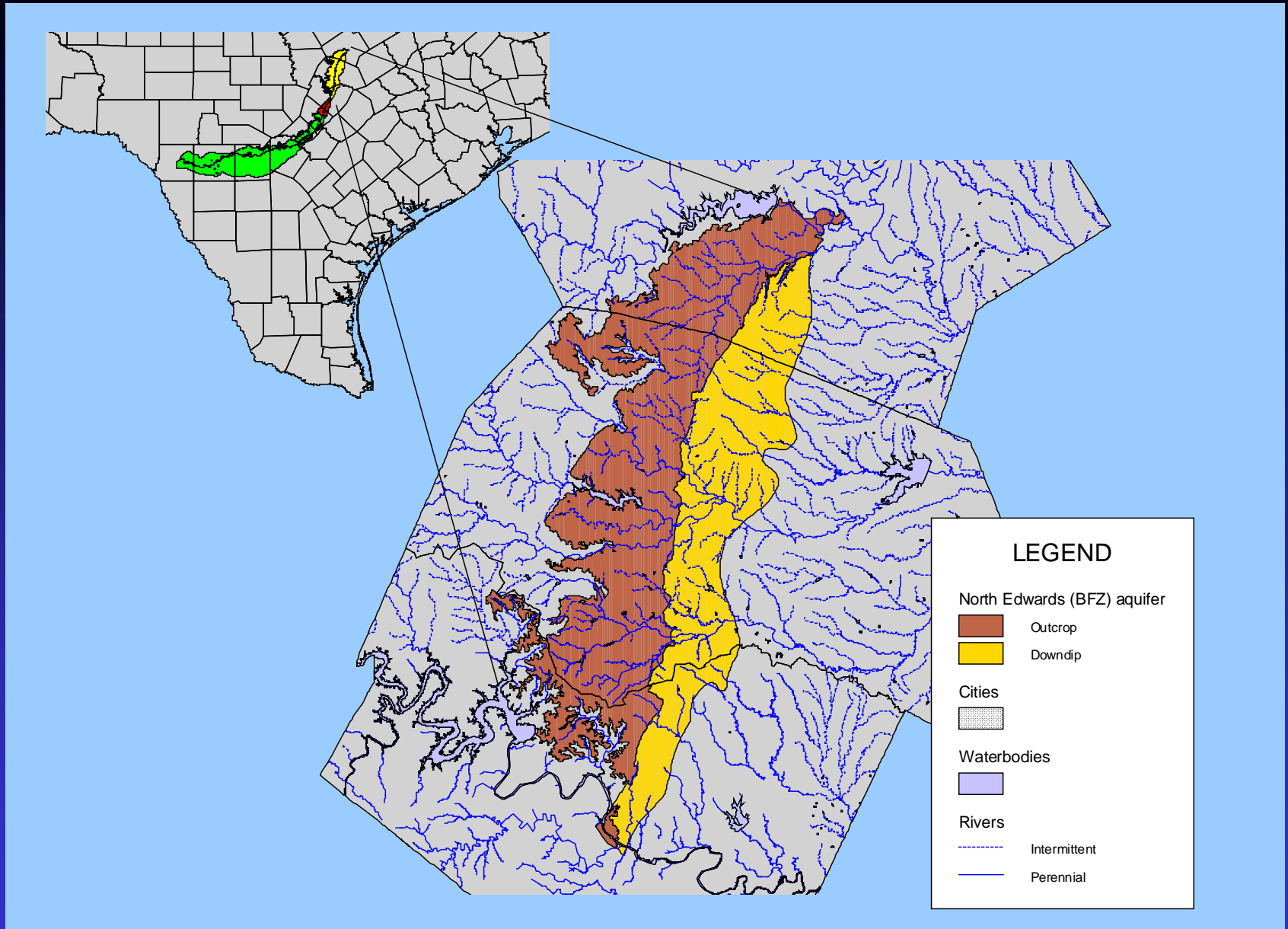
texas water development board

OUTLINE

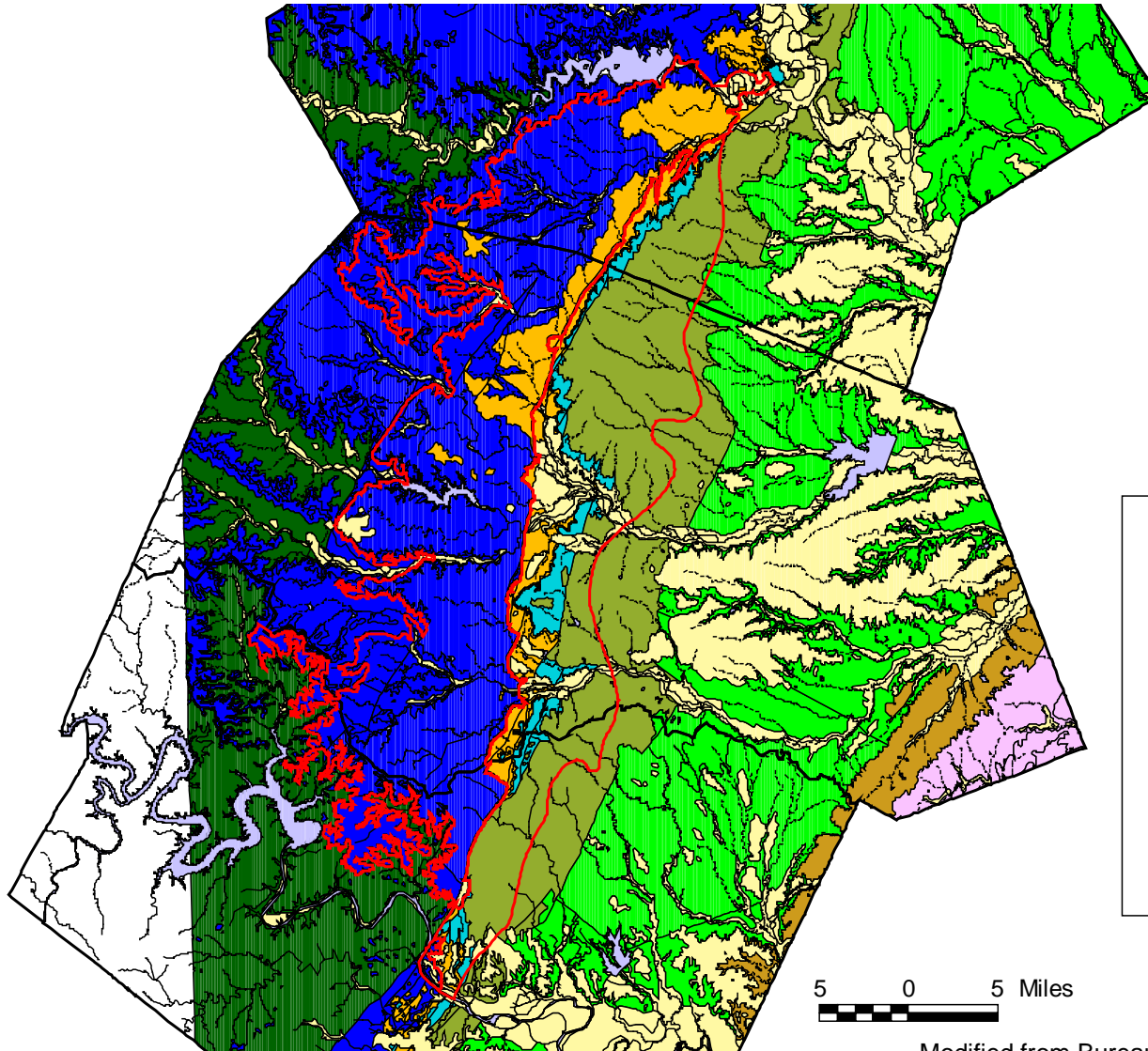
- Review of geology and hydrology of aquifer
- Model input data
- GAM schedule













EDWARDS AQUIFER



LOCATION MAP



Stratigraphic Units

	Alluvium
	Wilcox
	Midway
	Igneous
	Taylor
	Austin
	Eagle Ford
	Washita
	Fredericksburg
	Trinity

5 0 5 Miles

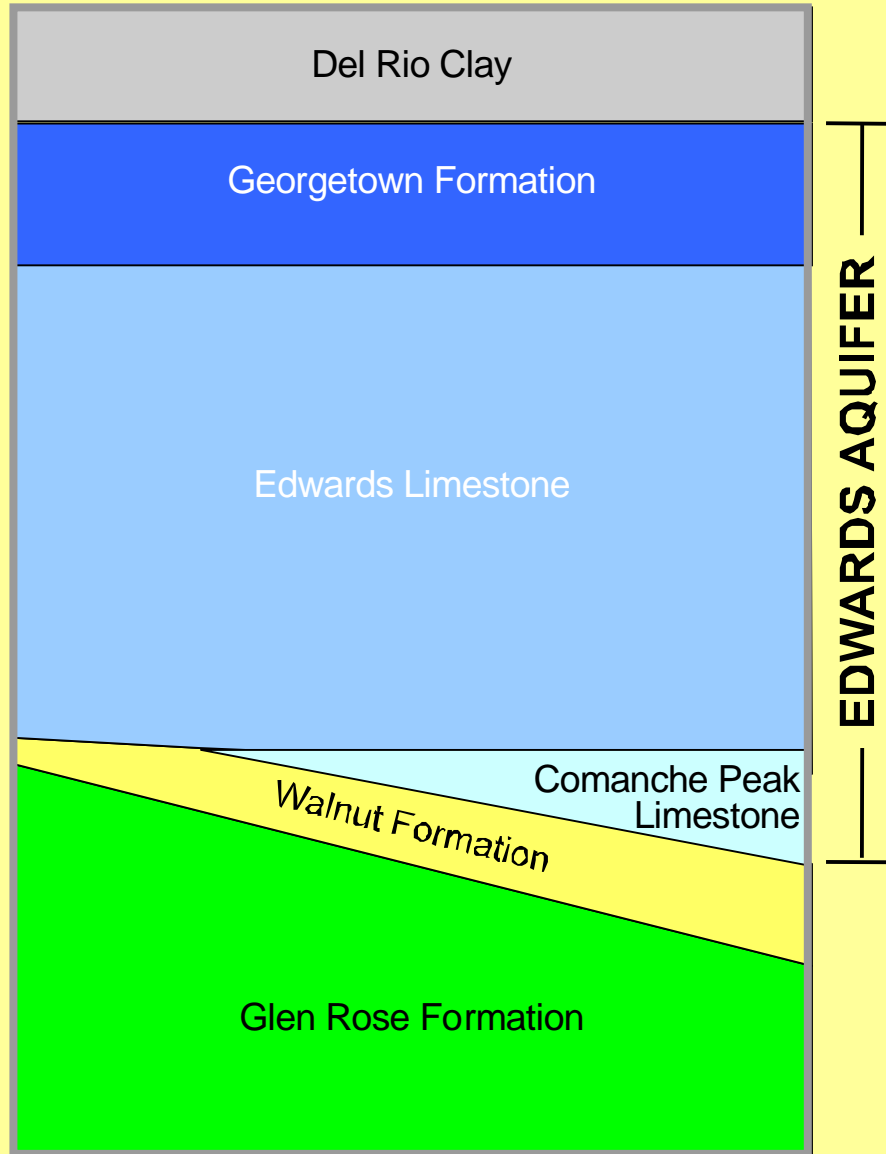


Modified from Bureau of Economic Geology
Geologic Atlas of Texas

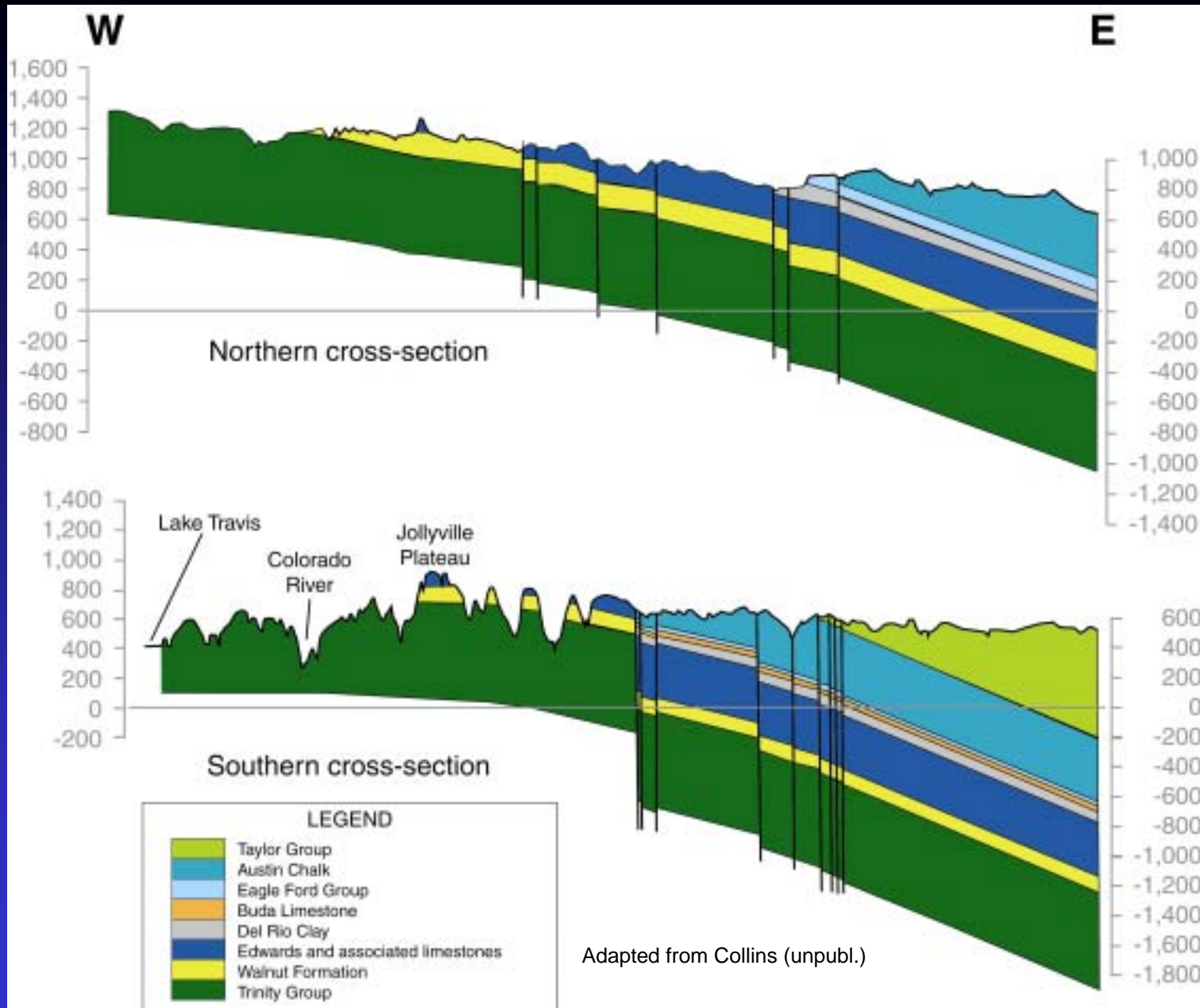
SURFACE GEOLOGY

S

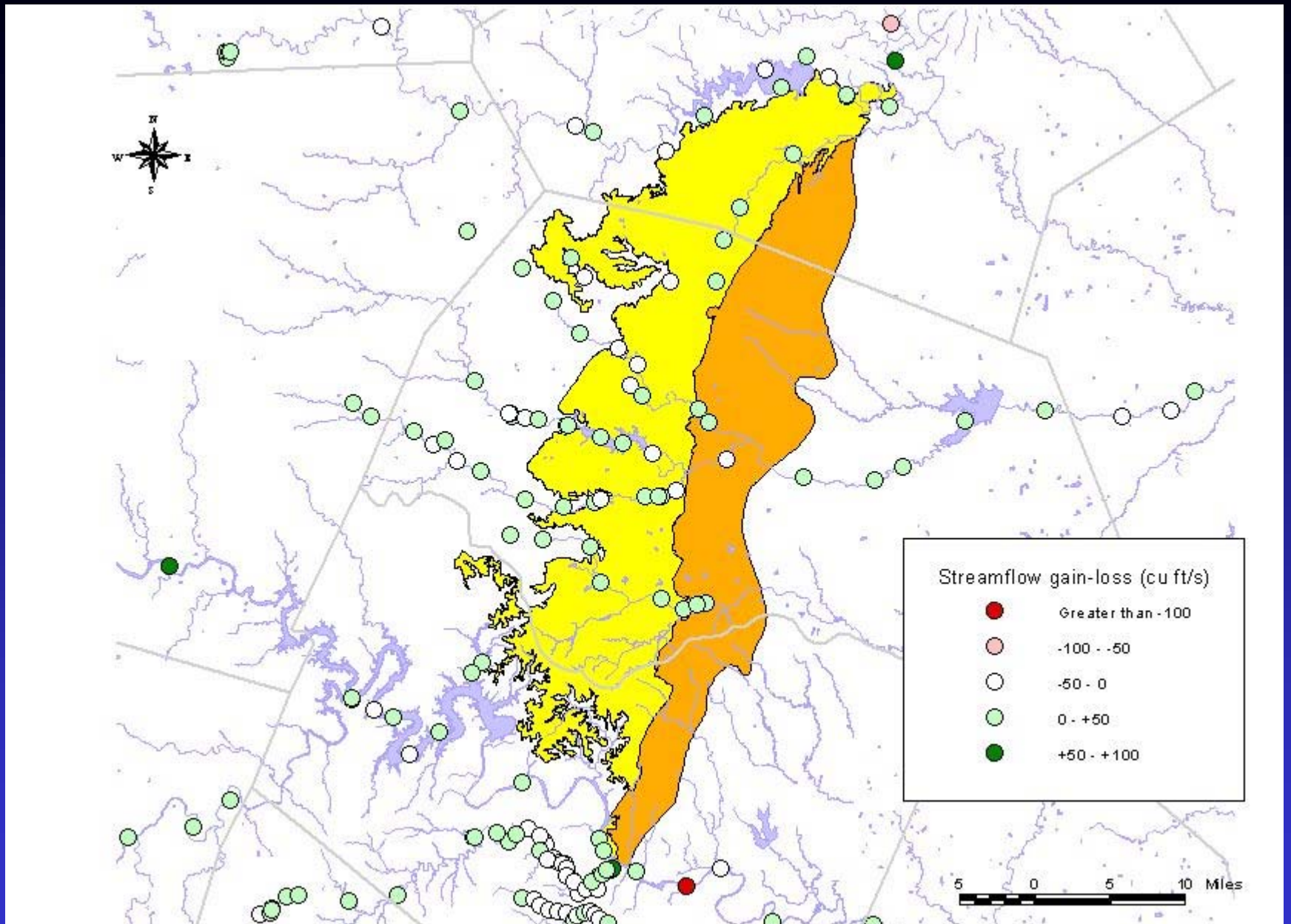
N



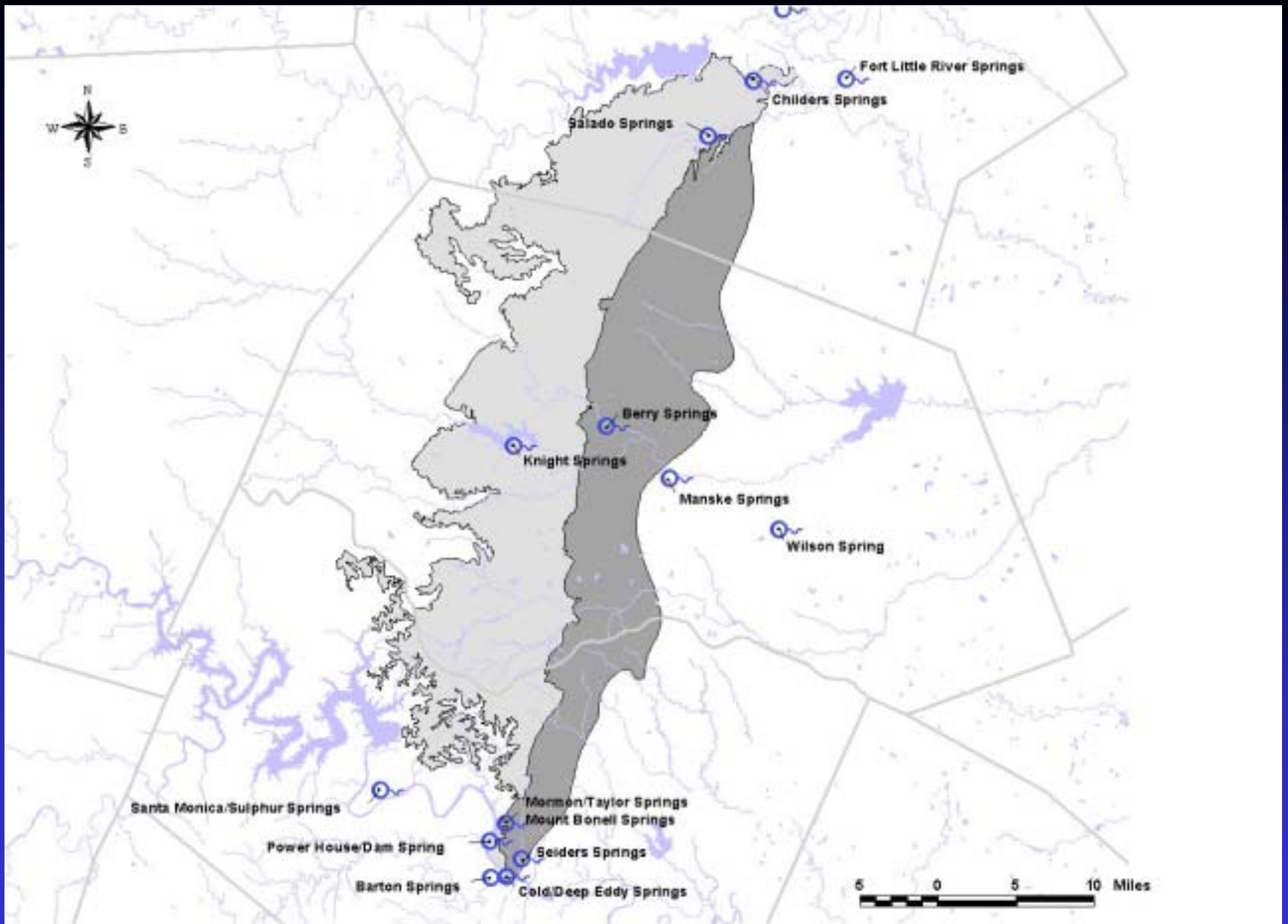
GEOLOGIC AND HYDROGEOLOGIC UNITS



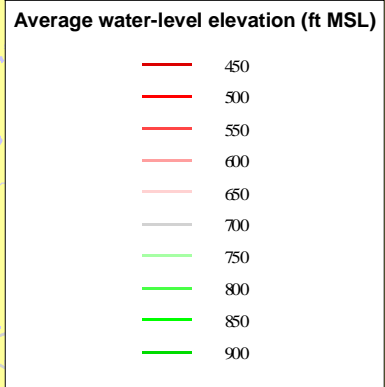
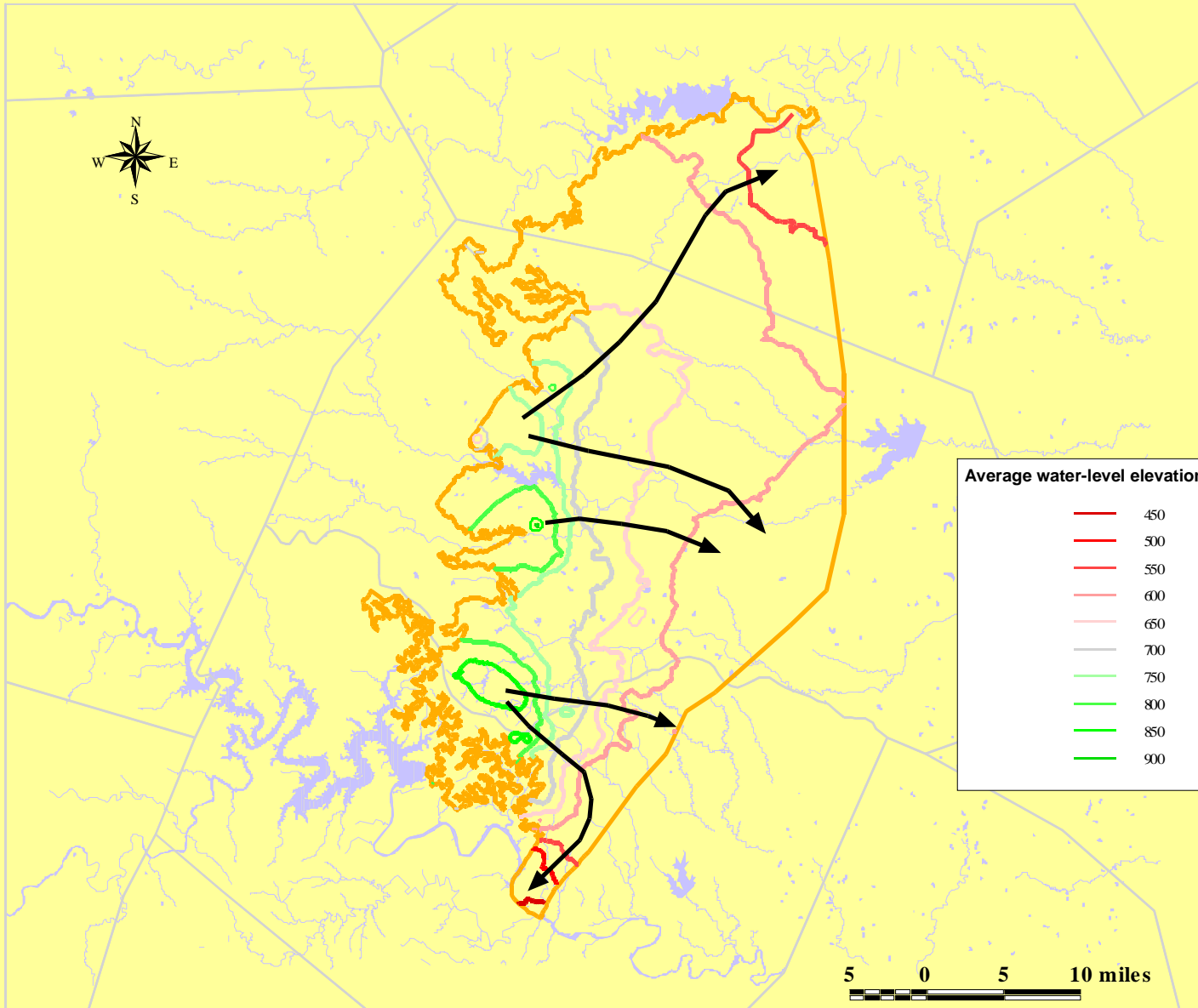
CROSS SECTIONS



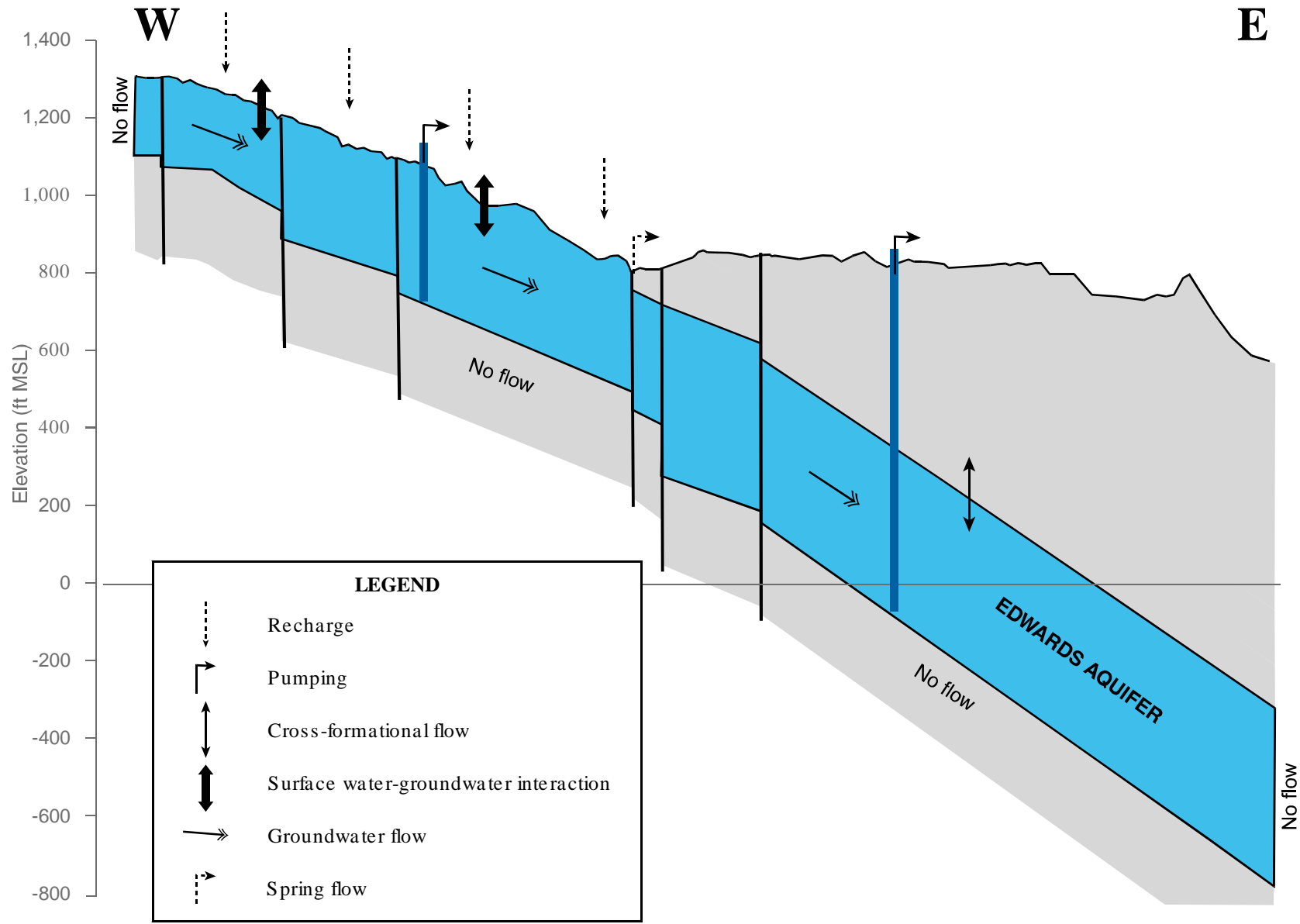
STREAMFLOW GAIN-LOSS



MAJOR SPRINGS



POTENTIOMETRIC SURFACE

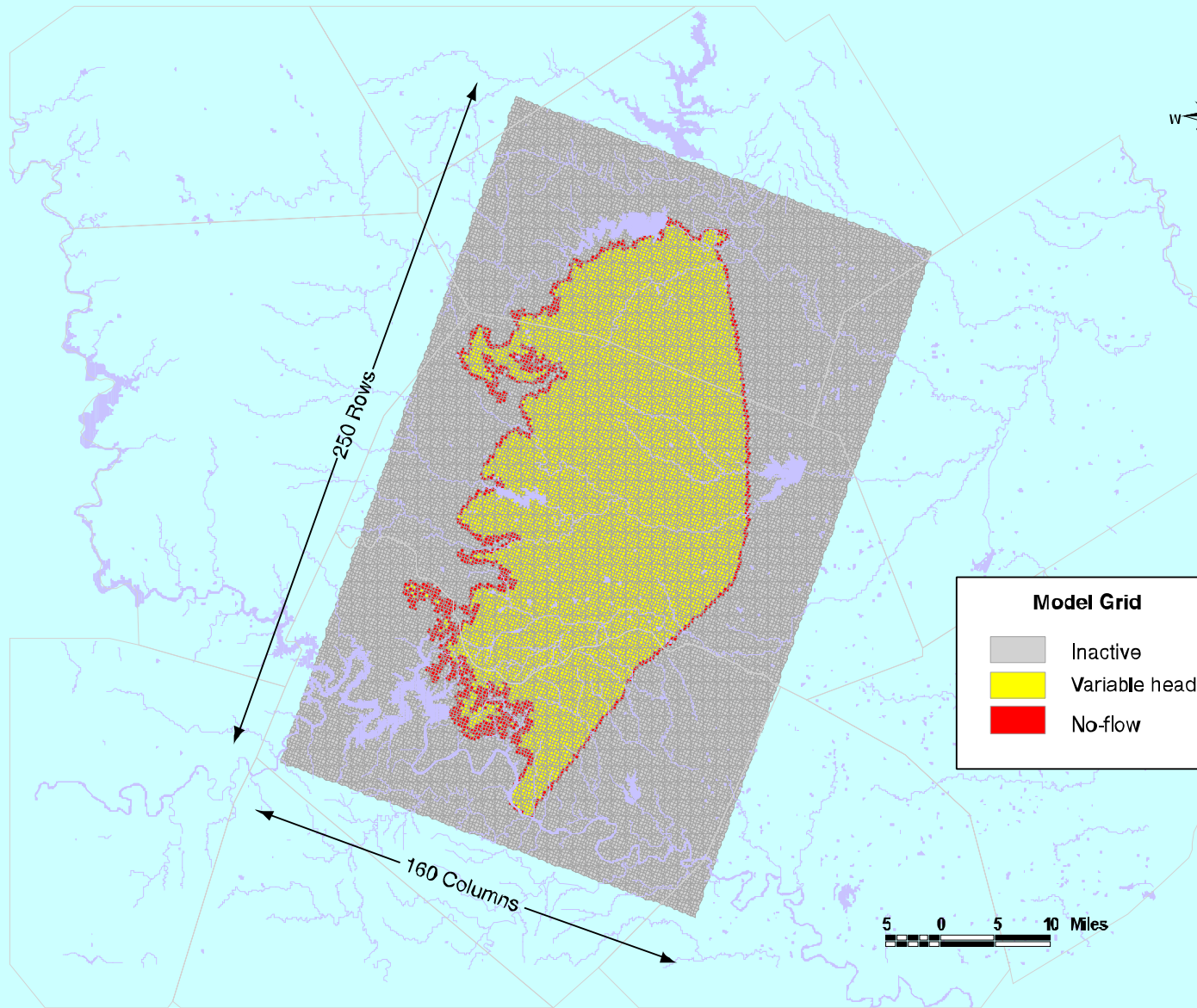


CONCEPTUAL MODEL

MODEL INPUT DATA

MODEL INPUT DATA

- Model grid
- Aquifer structure
 - Top
 - Base
- Initial water levels
- Drains (Springs)
- Streams and reservoirs
- Wells
- Hydraulic conductivity
- Recharge

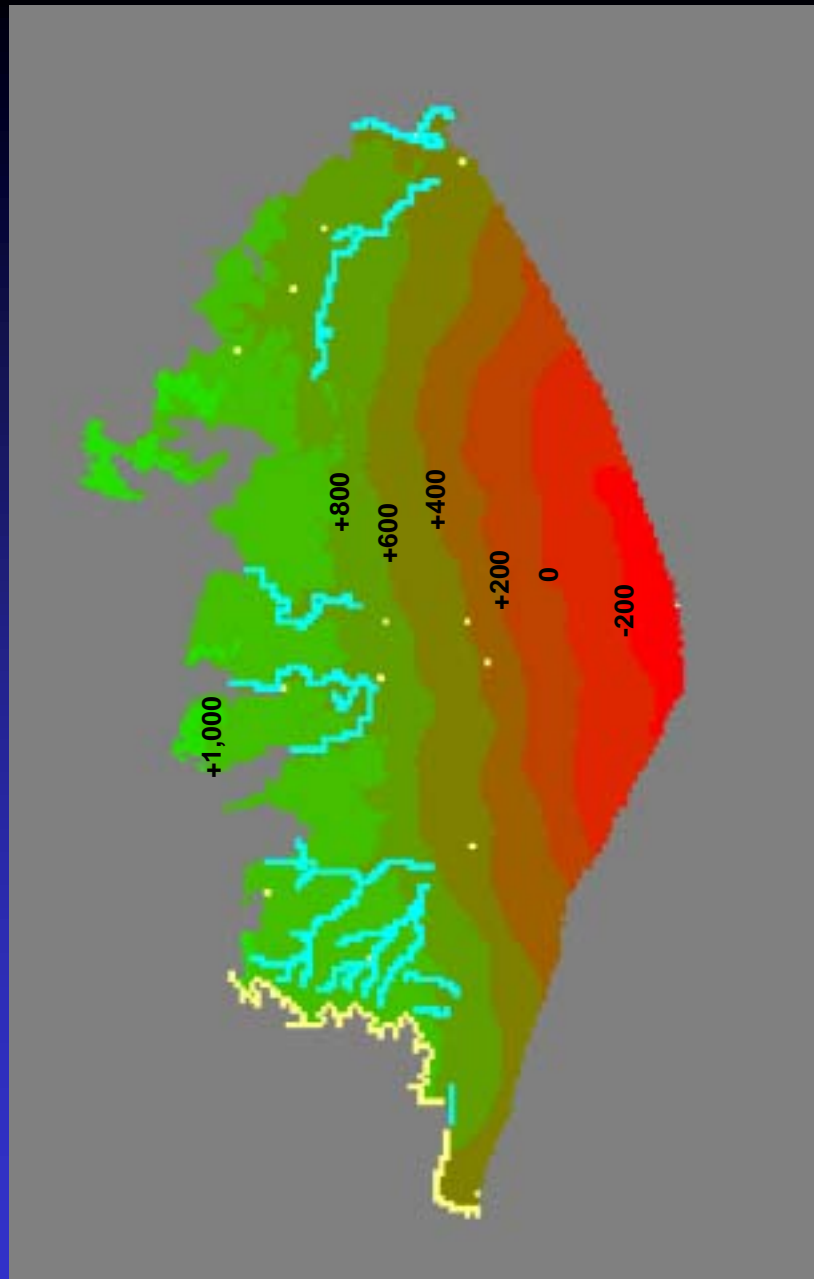


Model grid

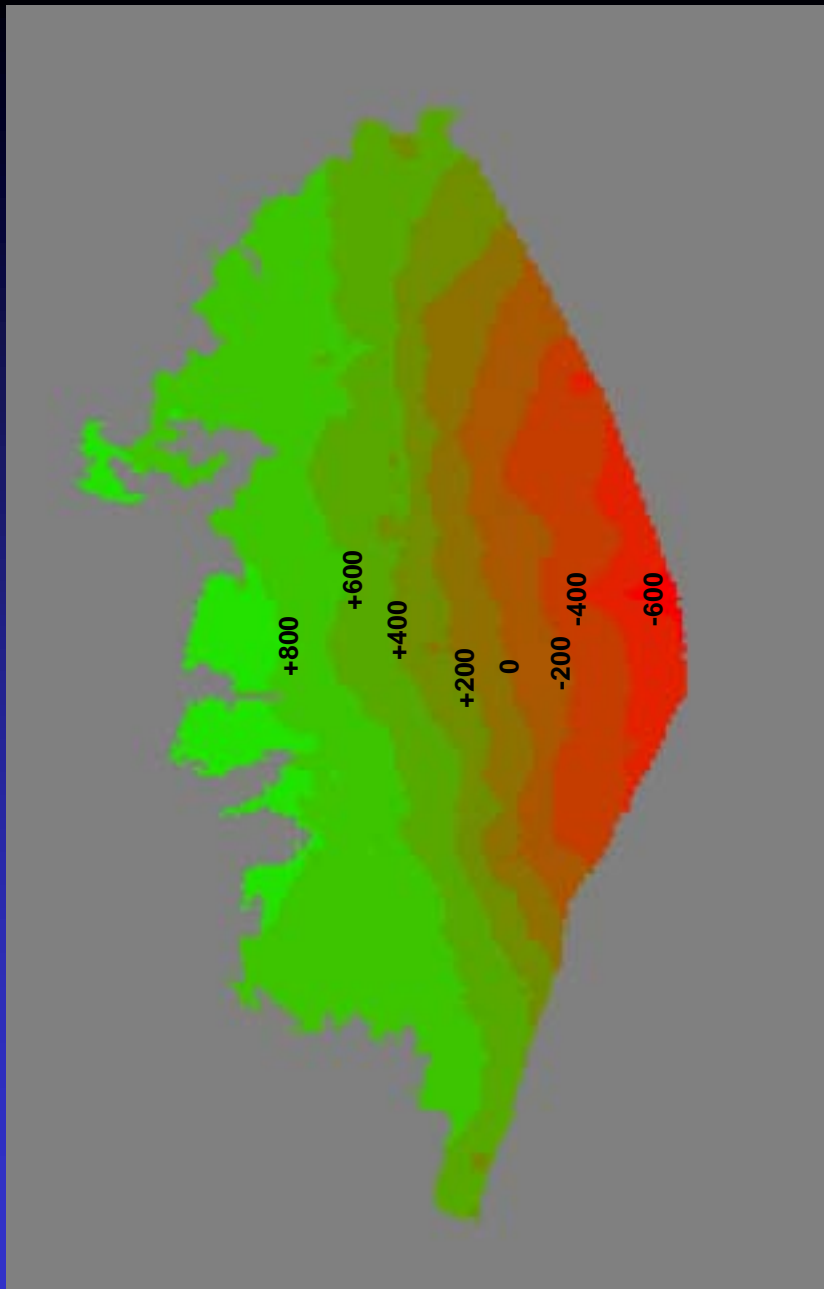
MODEL GRID



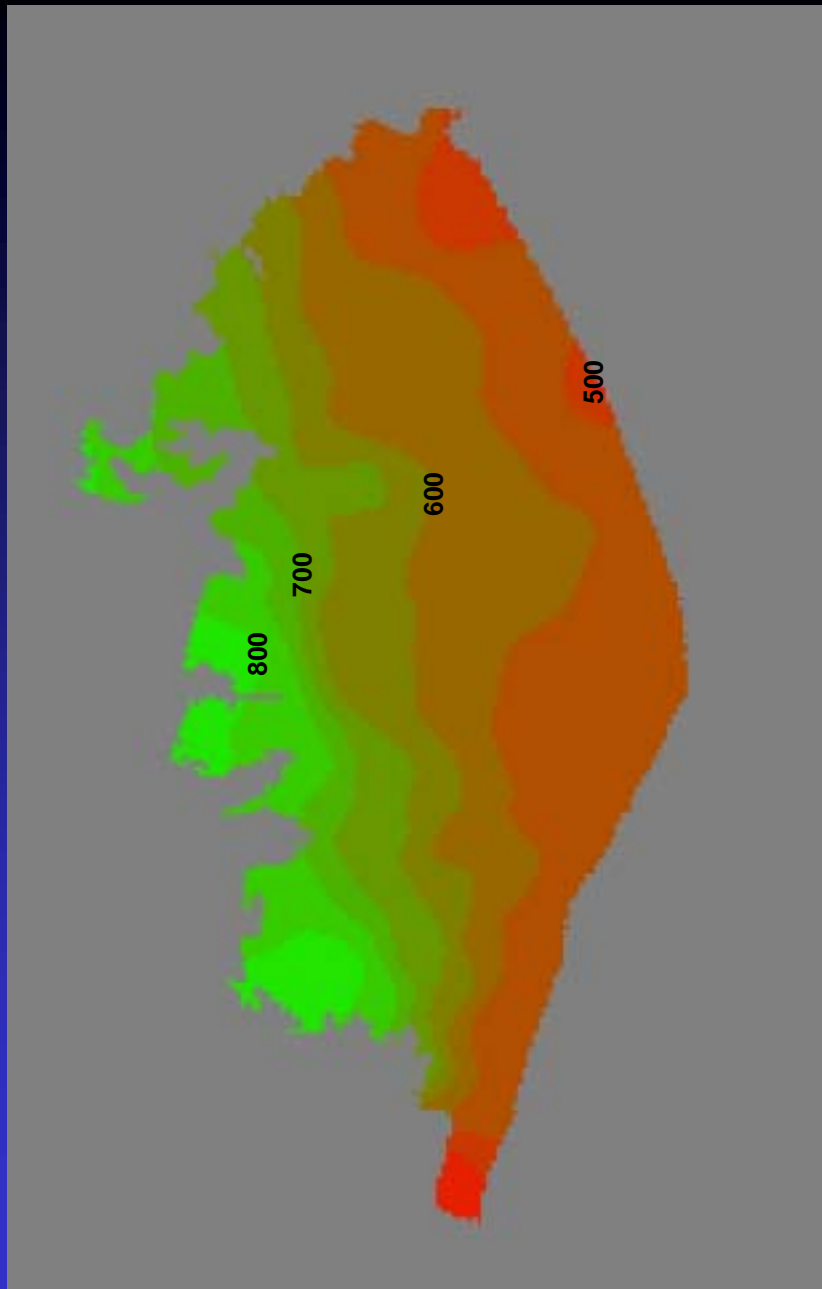
MODEL GRID



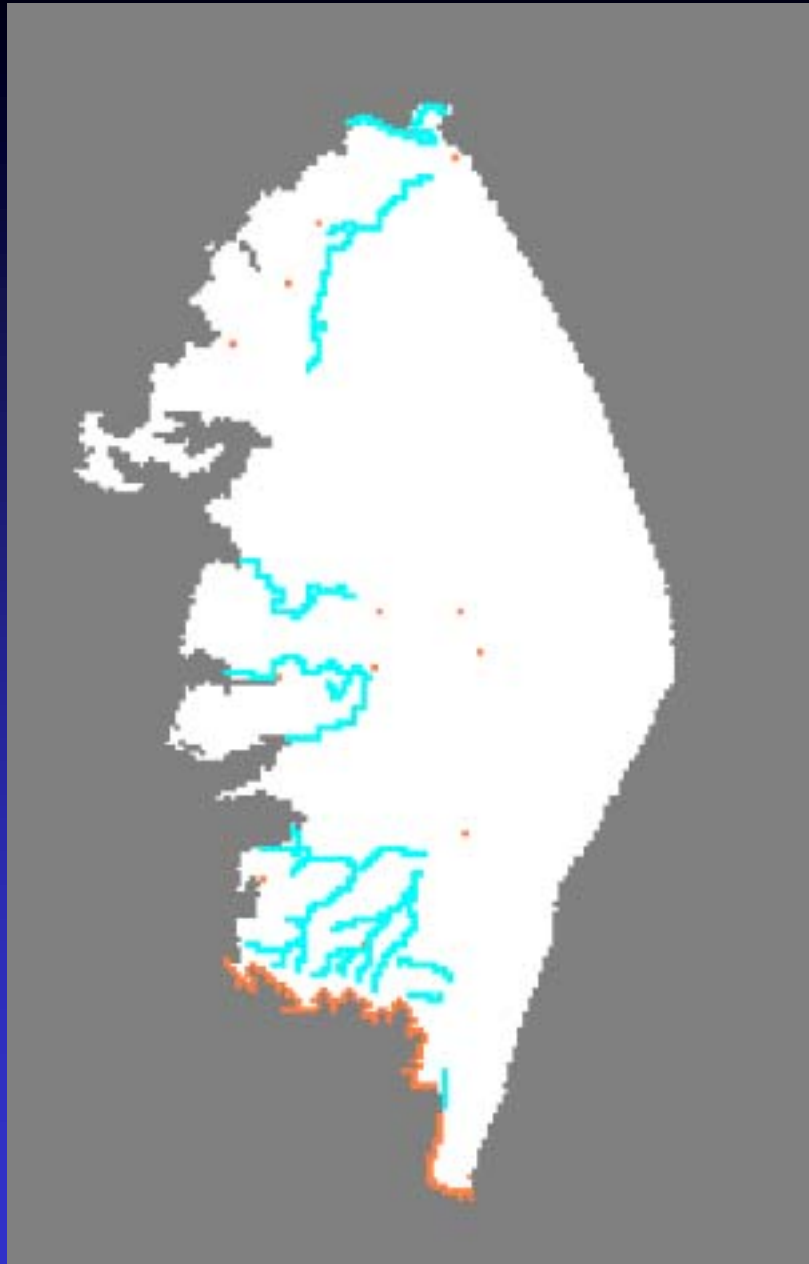
AQUIFER TOP ELEVATION



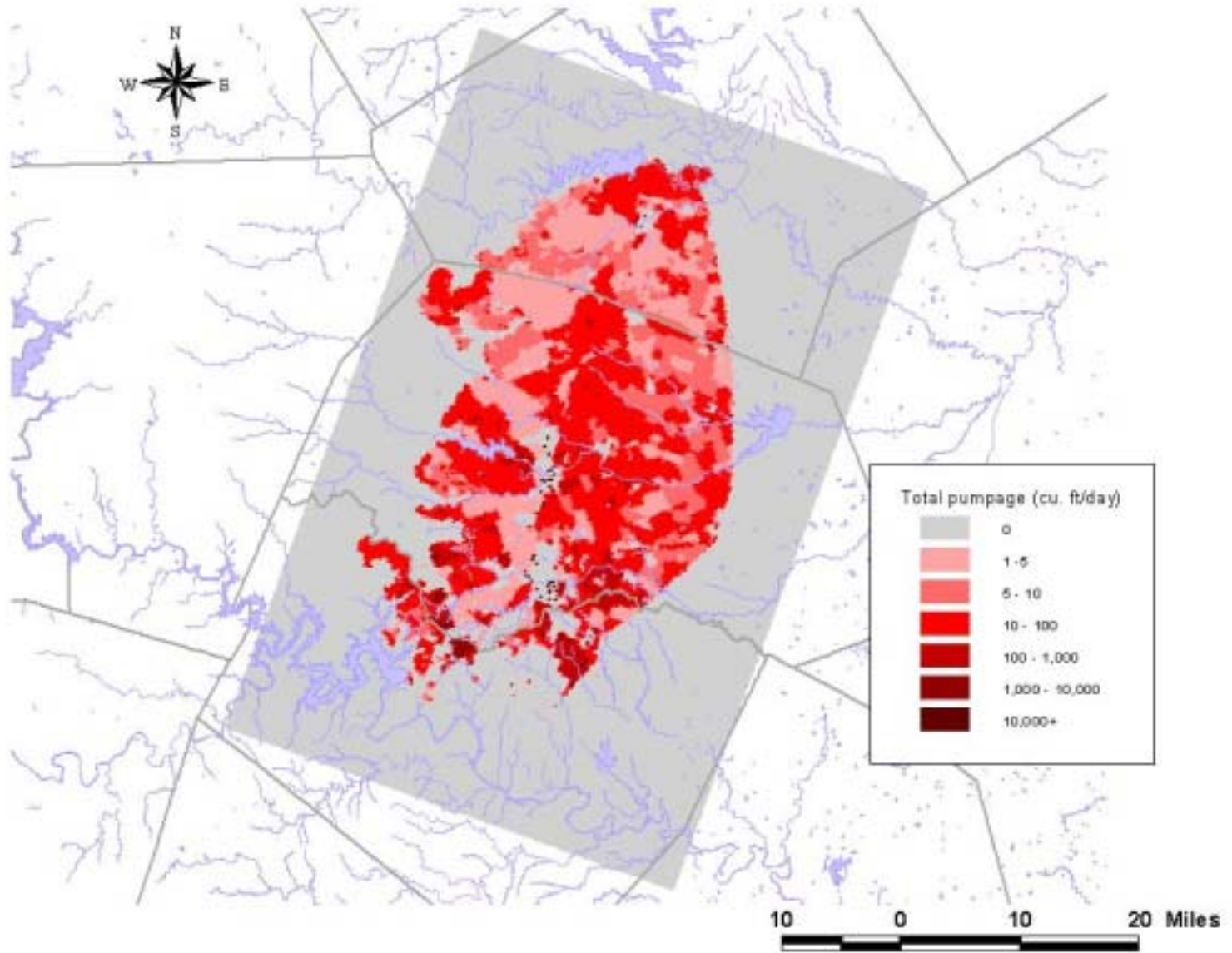
AQUIFER BASE ELEVATION



INITIAL WATER-LEVEL ELEVATIONS



SURFACE WATER



TOTAL PUMPAGE

GAM SCHEDULE

SCHEDULE

SAF Meeting 1— Mar. 18 ■

SAF Meeting 2 — June ■ ● June —Draft conceptual model

SAF Meeting 3— Sept. ■ ● Sept. —Initial model design

SAF Meeting 4 — Dec. ■ ● Dec. —Calibrate steady-state model

SAF Meeting 5 — Mar. ■ ● Mar. —Complete model predictions

SAF Meeting 6— June ■

● Apr. —Prepare draft report

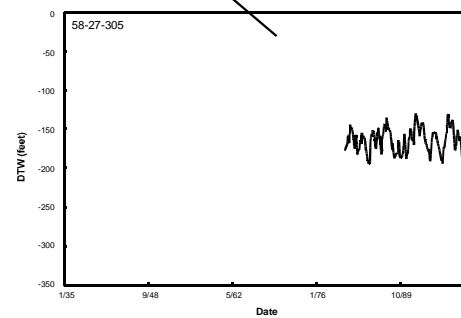
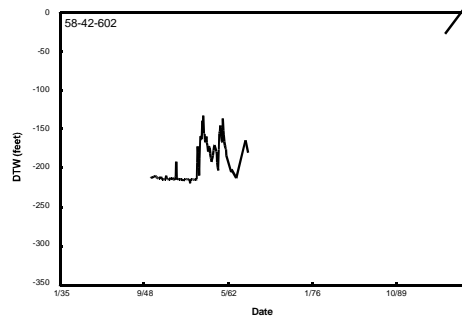
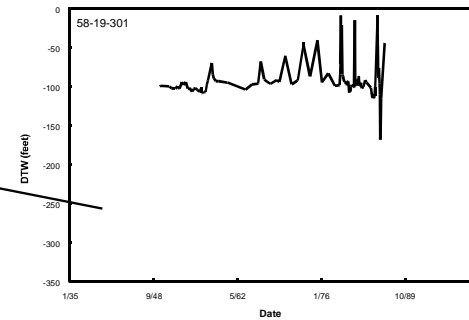
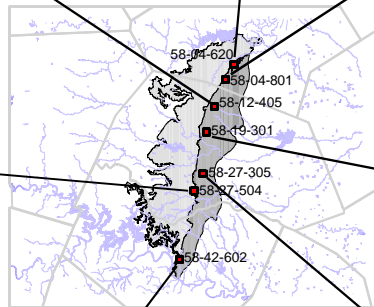
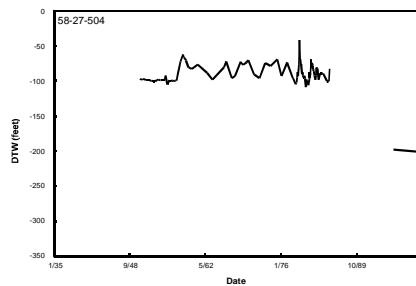
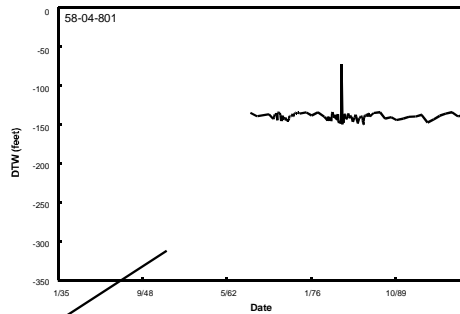
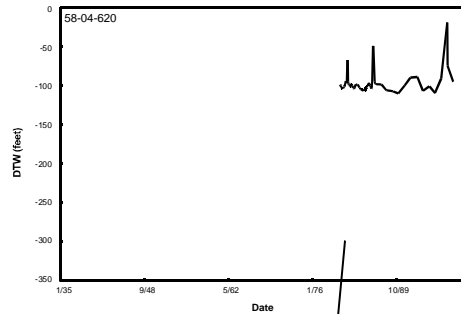
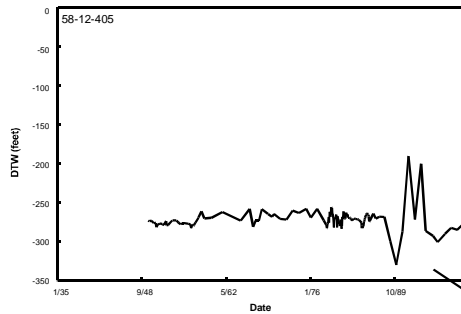
● Aug. —Present SAF Model Seminar

▲ Deliver Final Product

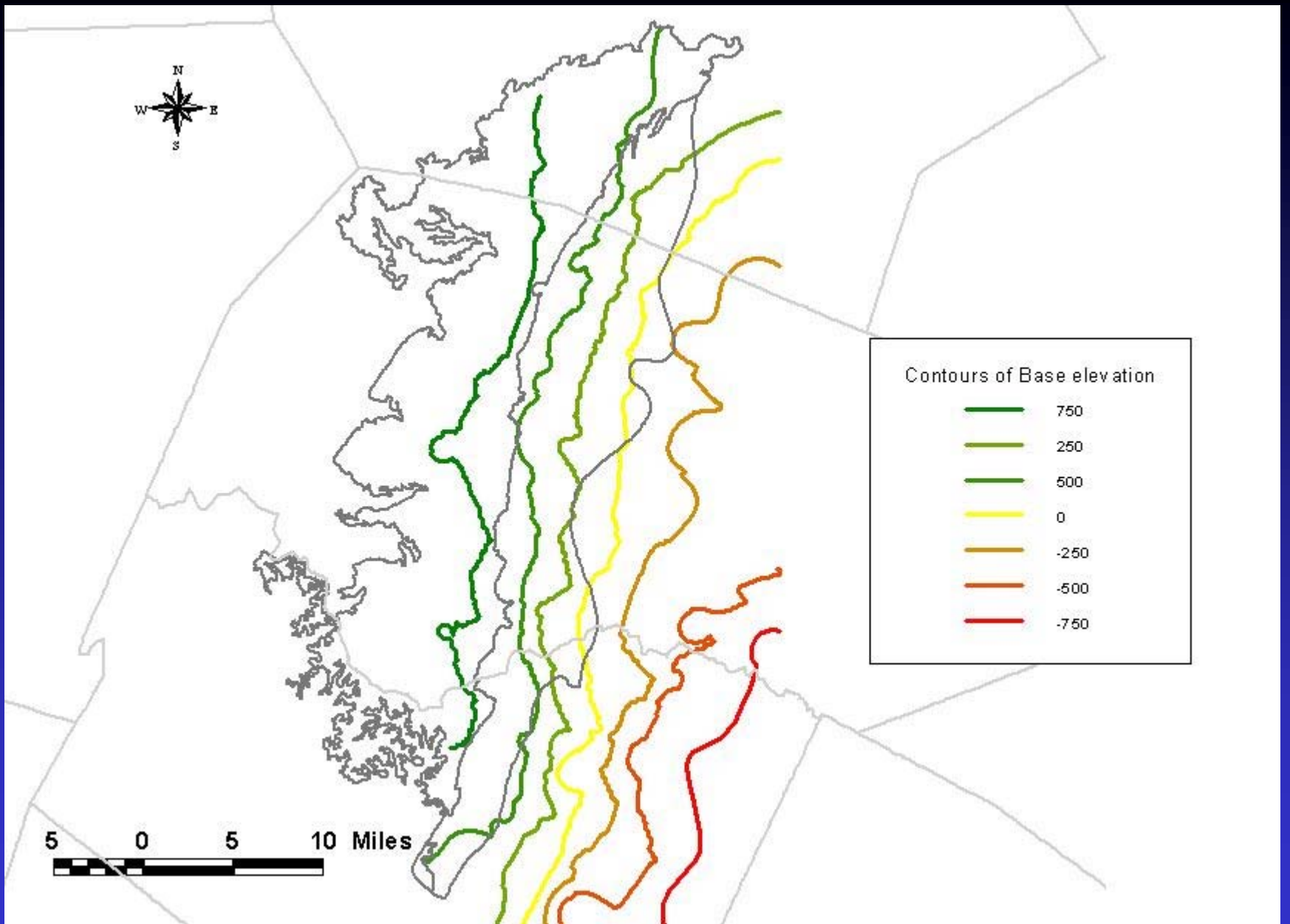
2002

2003

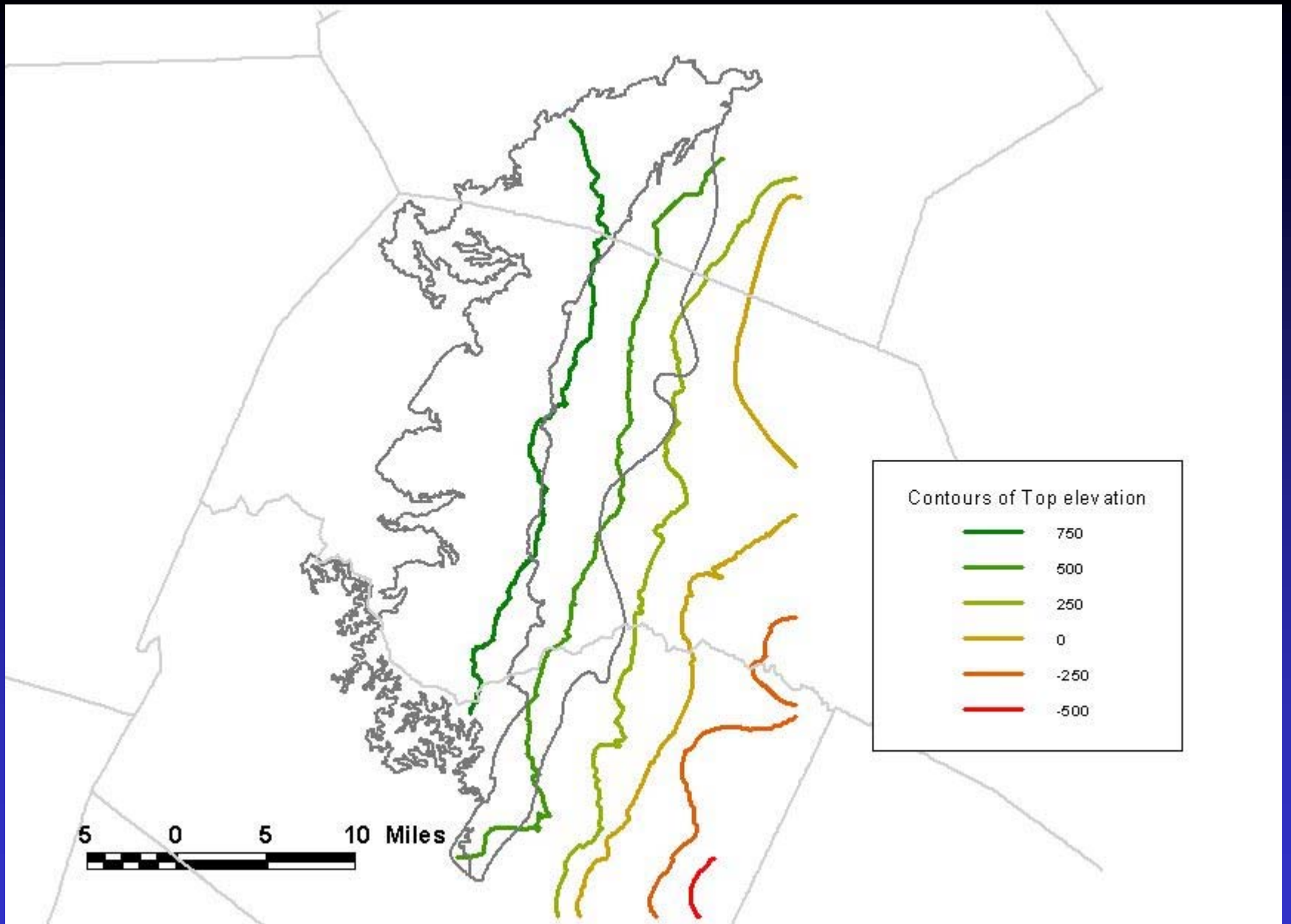




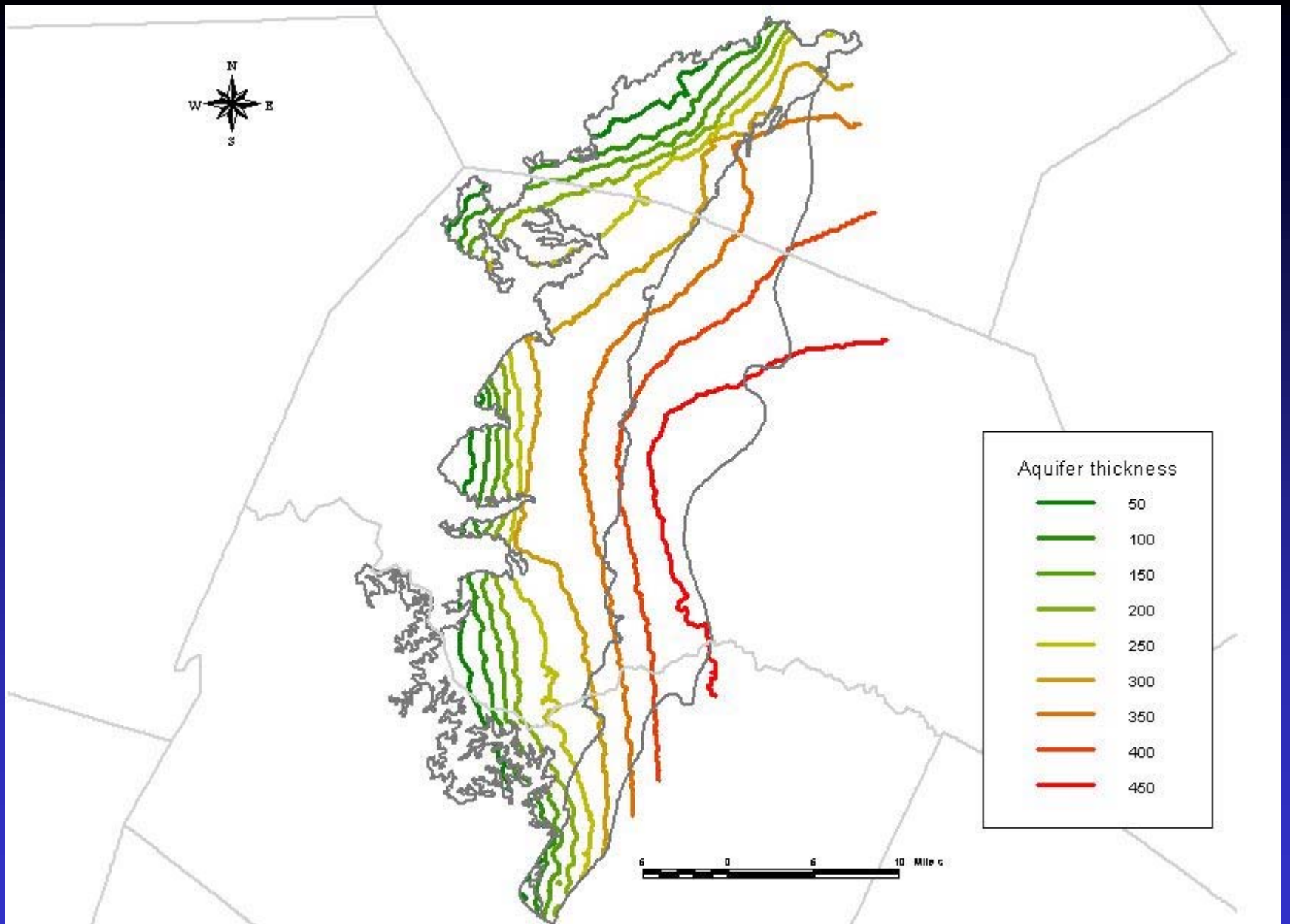
HYDROGRAPHS



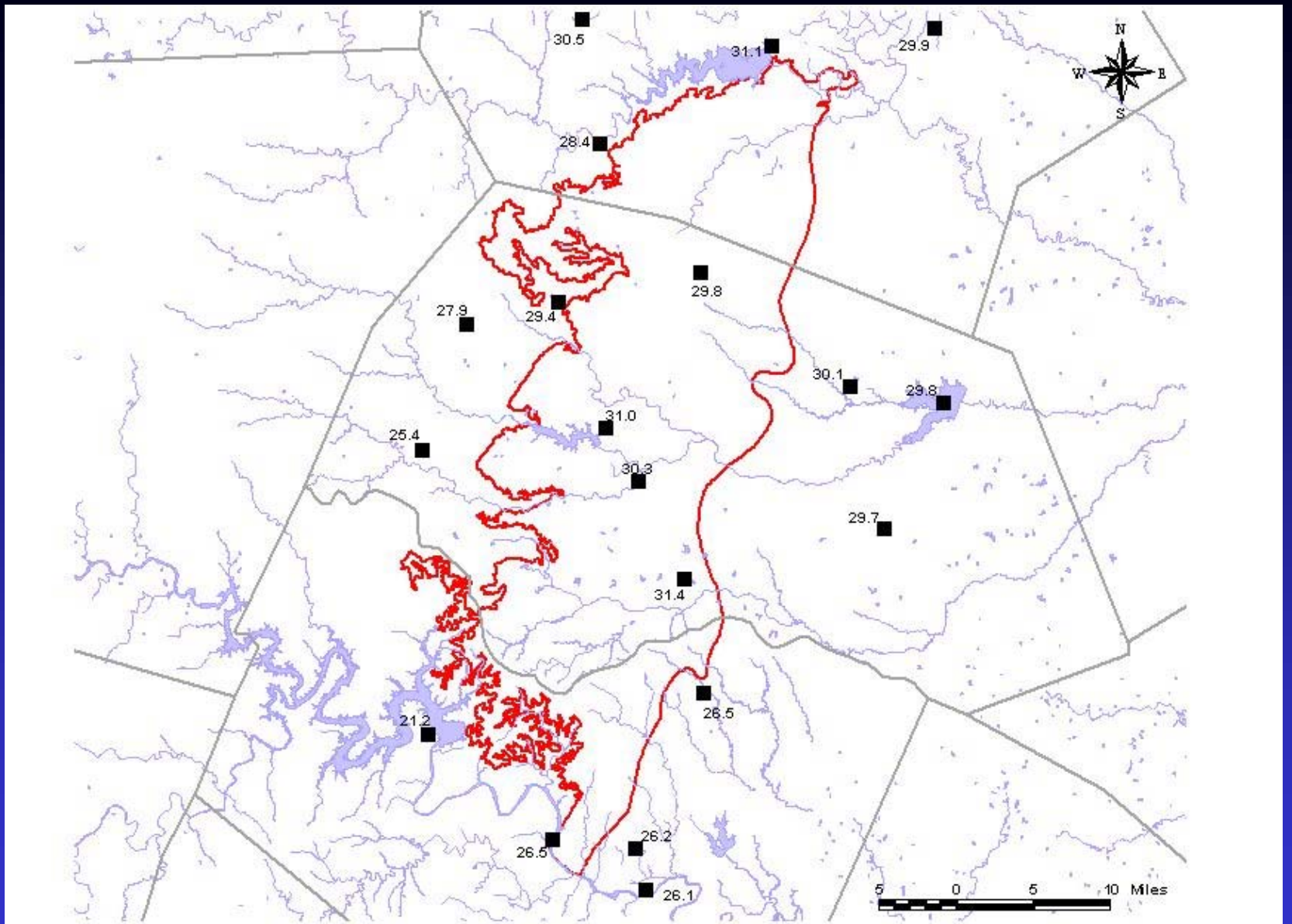
AQUIFER BASE



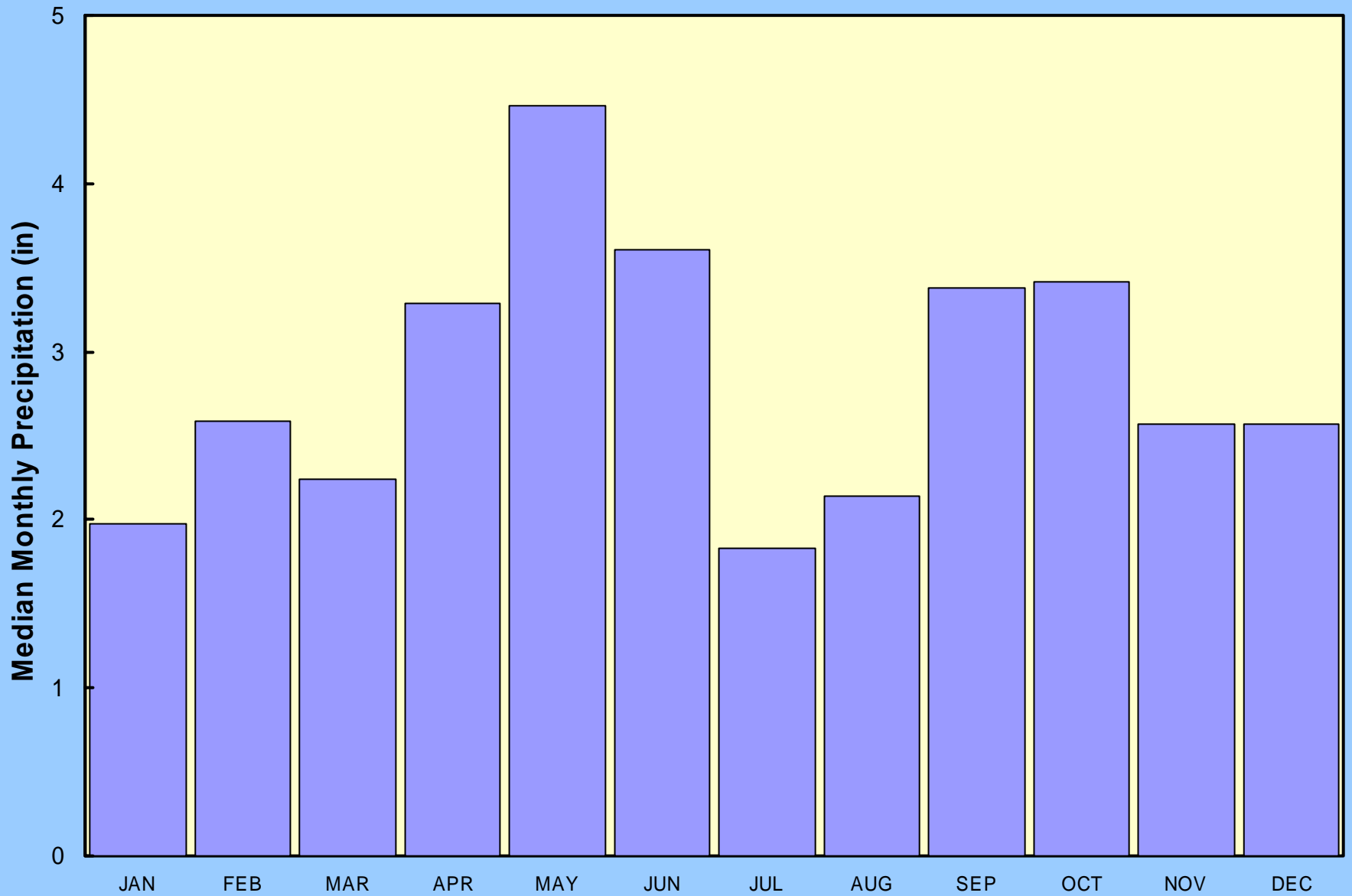
AQUIFER TOP



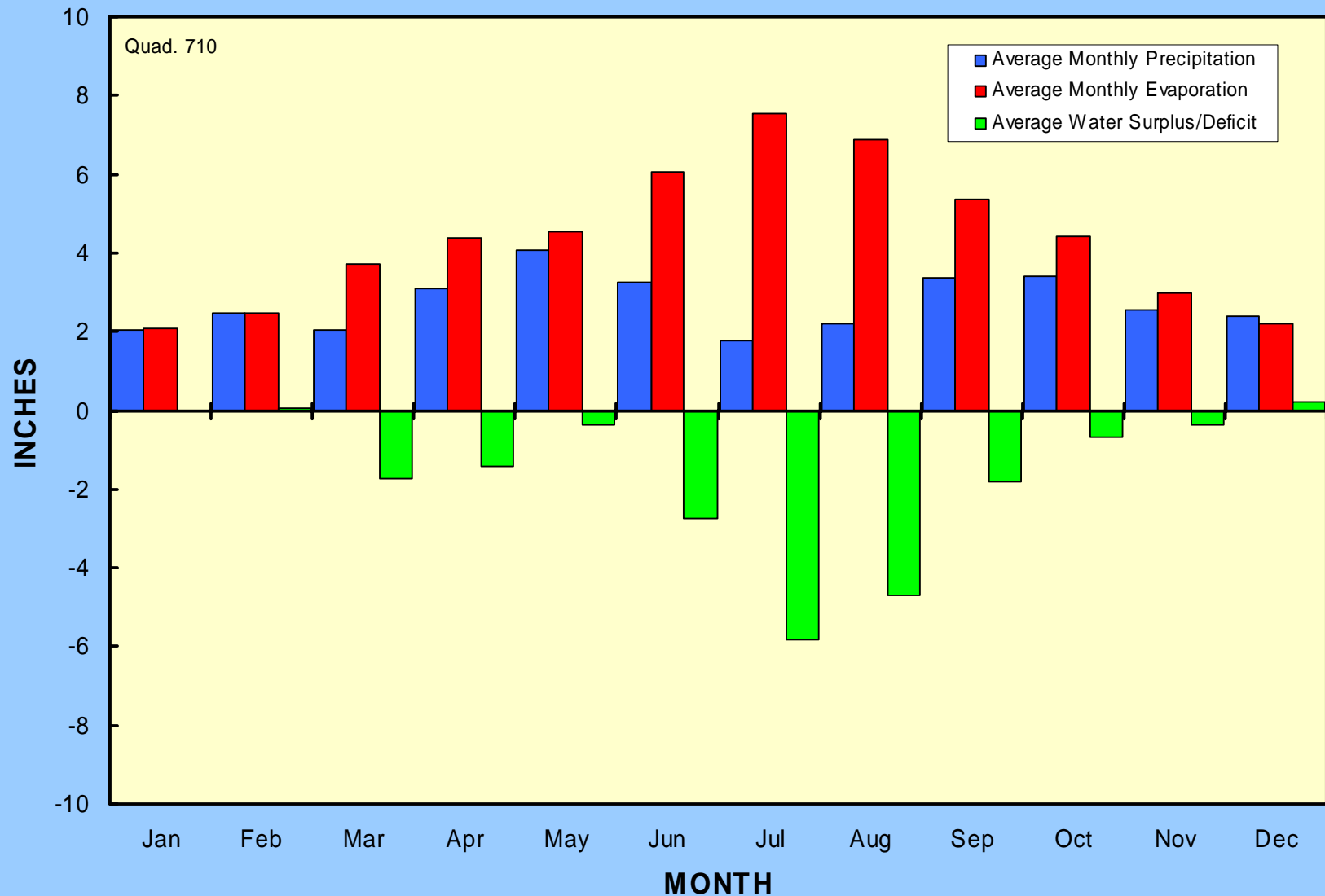
AQUIFER THICKNESS



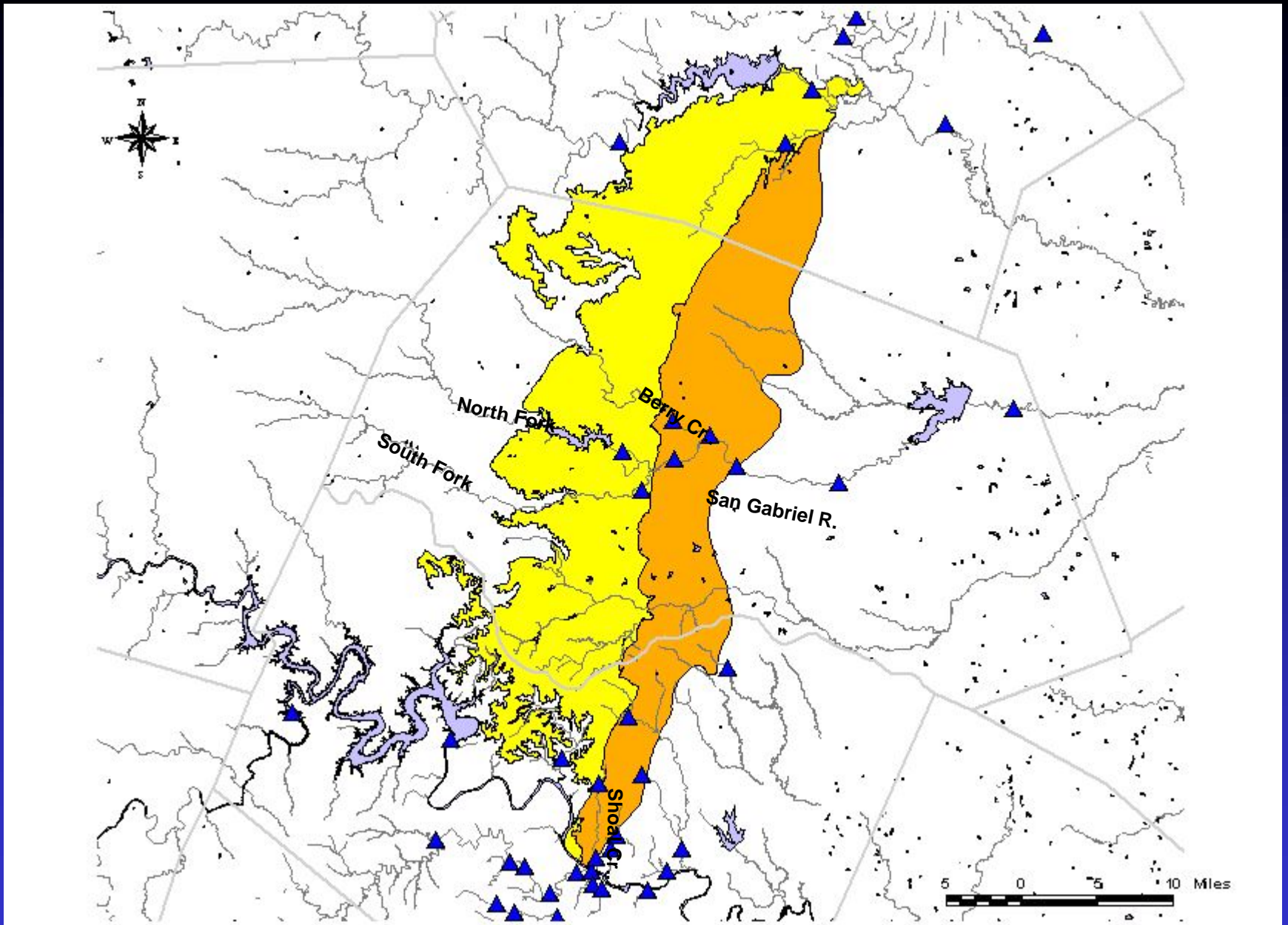
AVERAGE ANNUAL PRECIPITATION



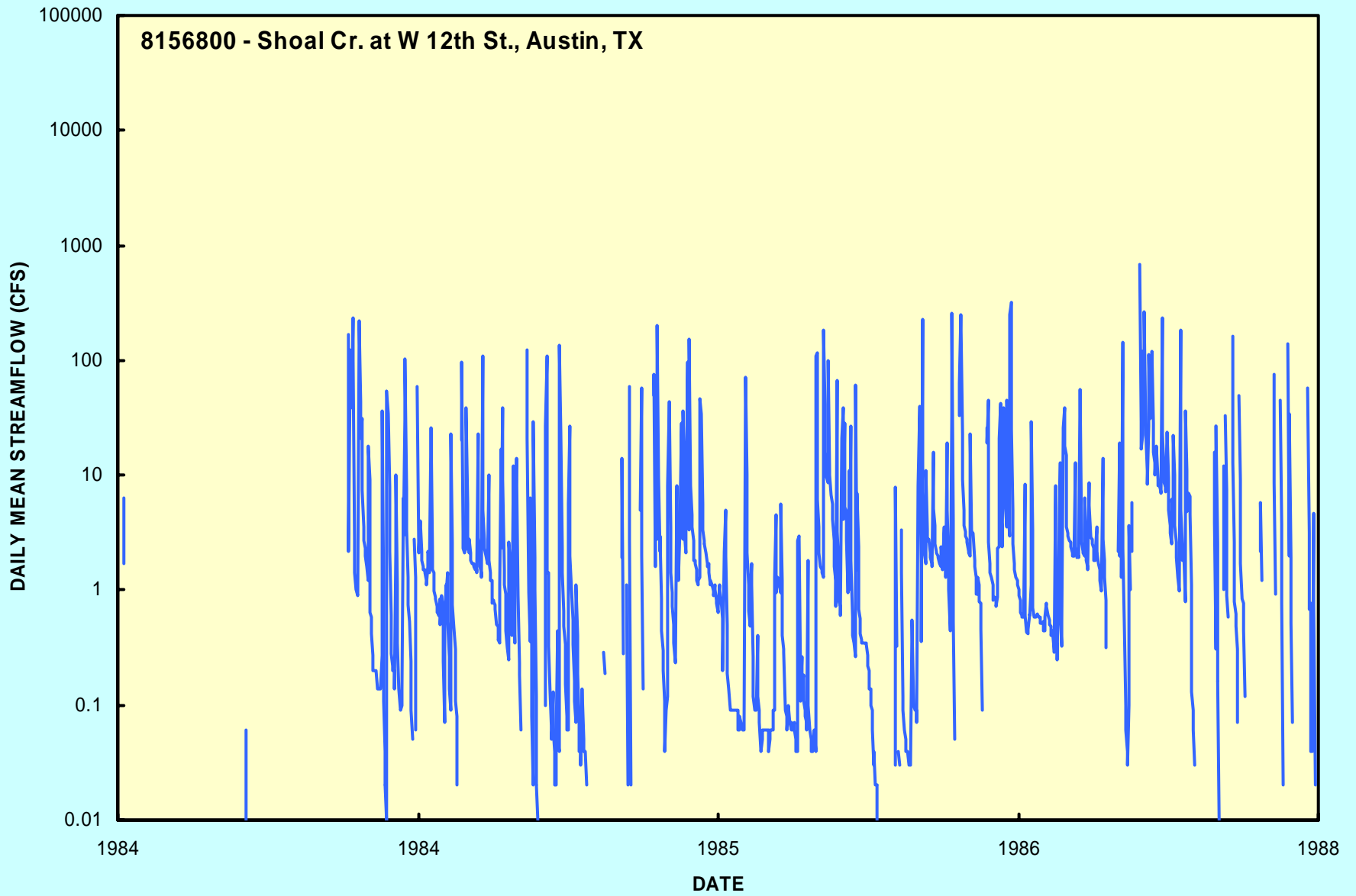
MEDIAN MONTHLY PRECIPITATION



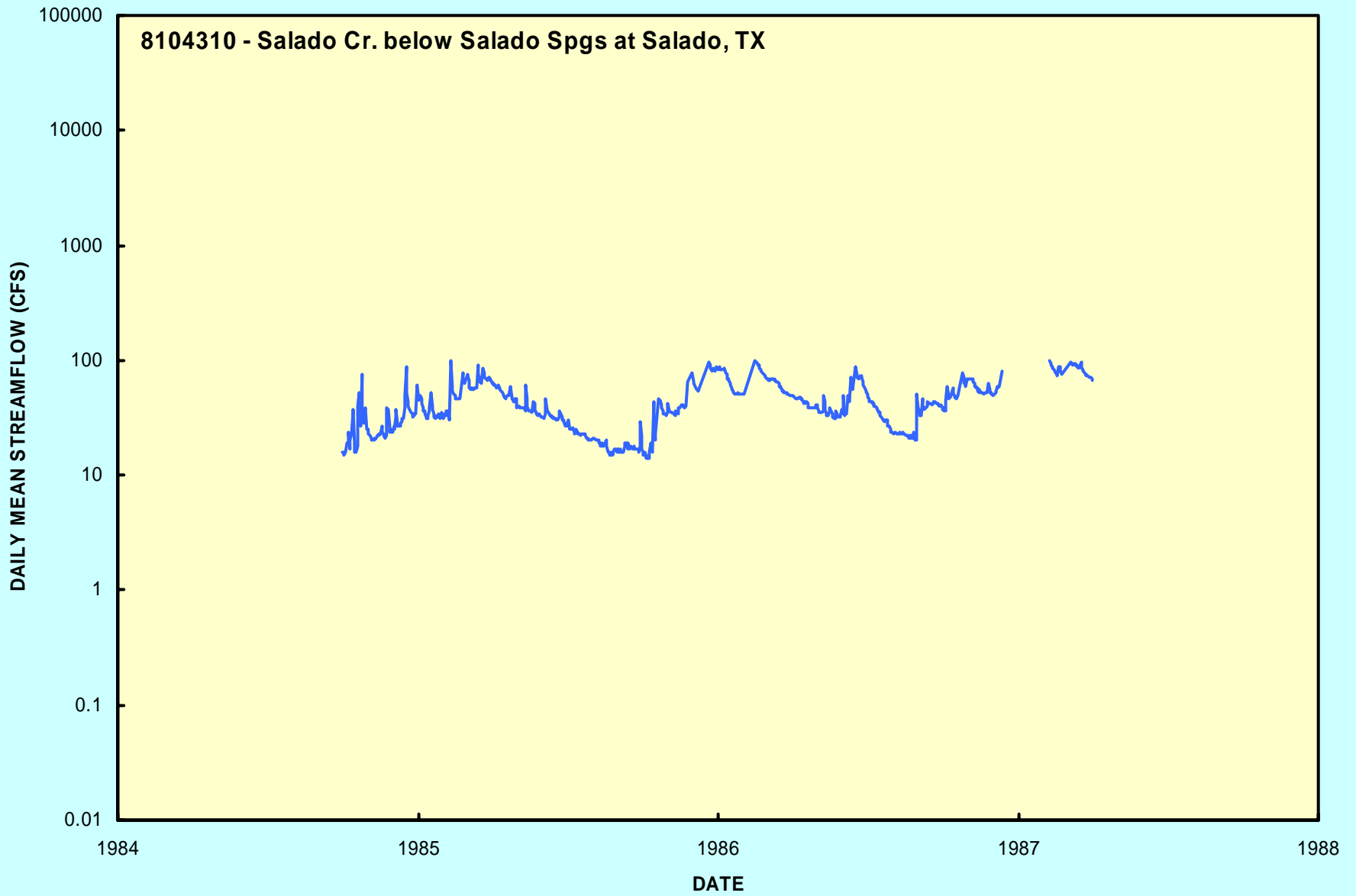
PRECIPITATION vs. EVAPORATION



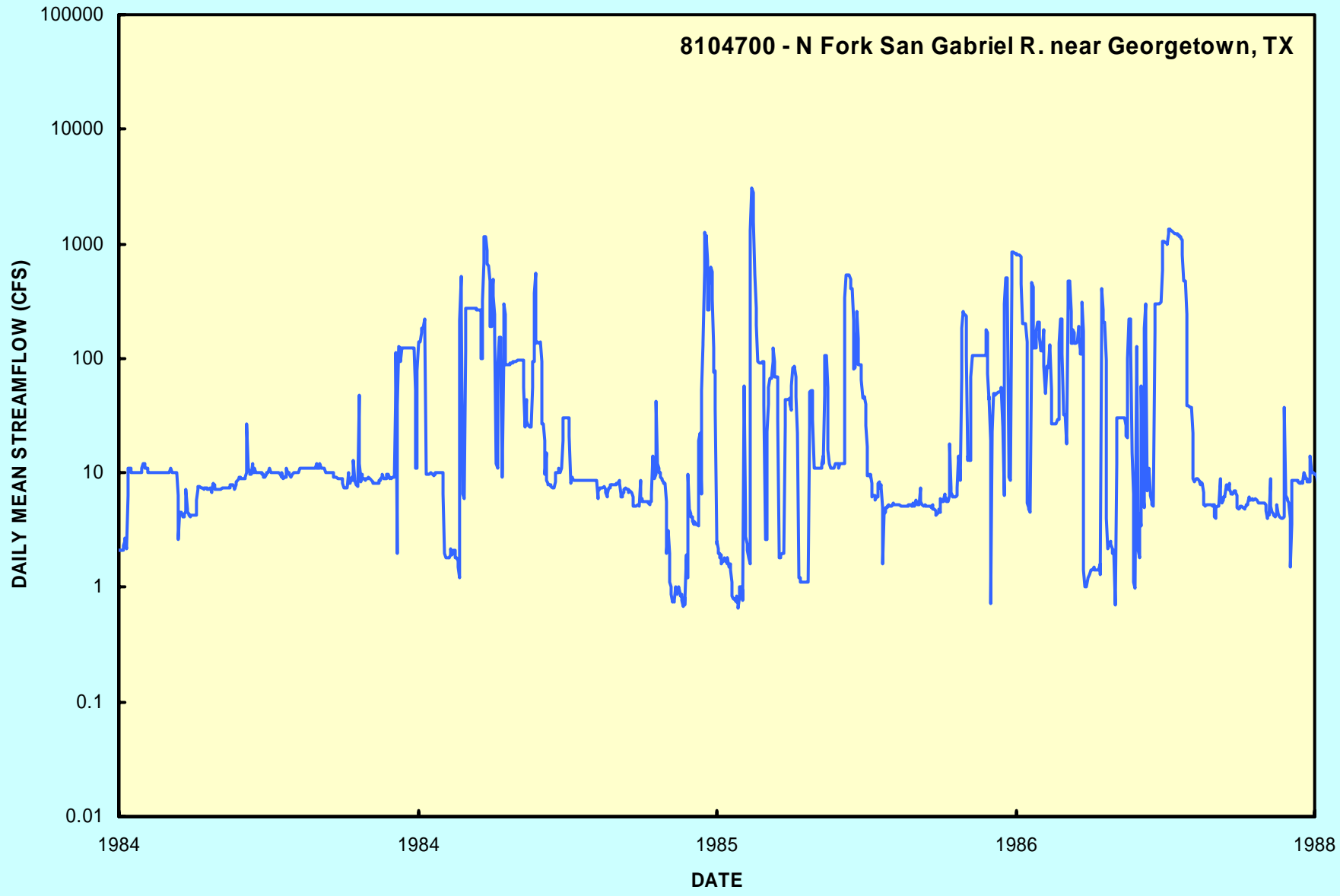
STATIONS WITH DAILY STREAMFLOW DATA



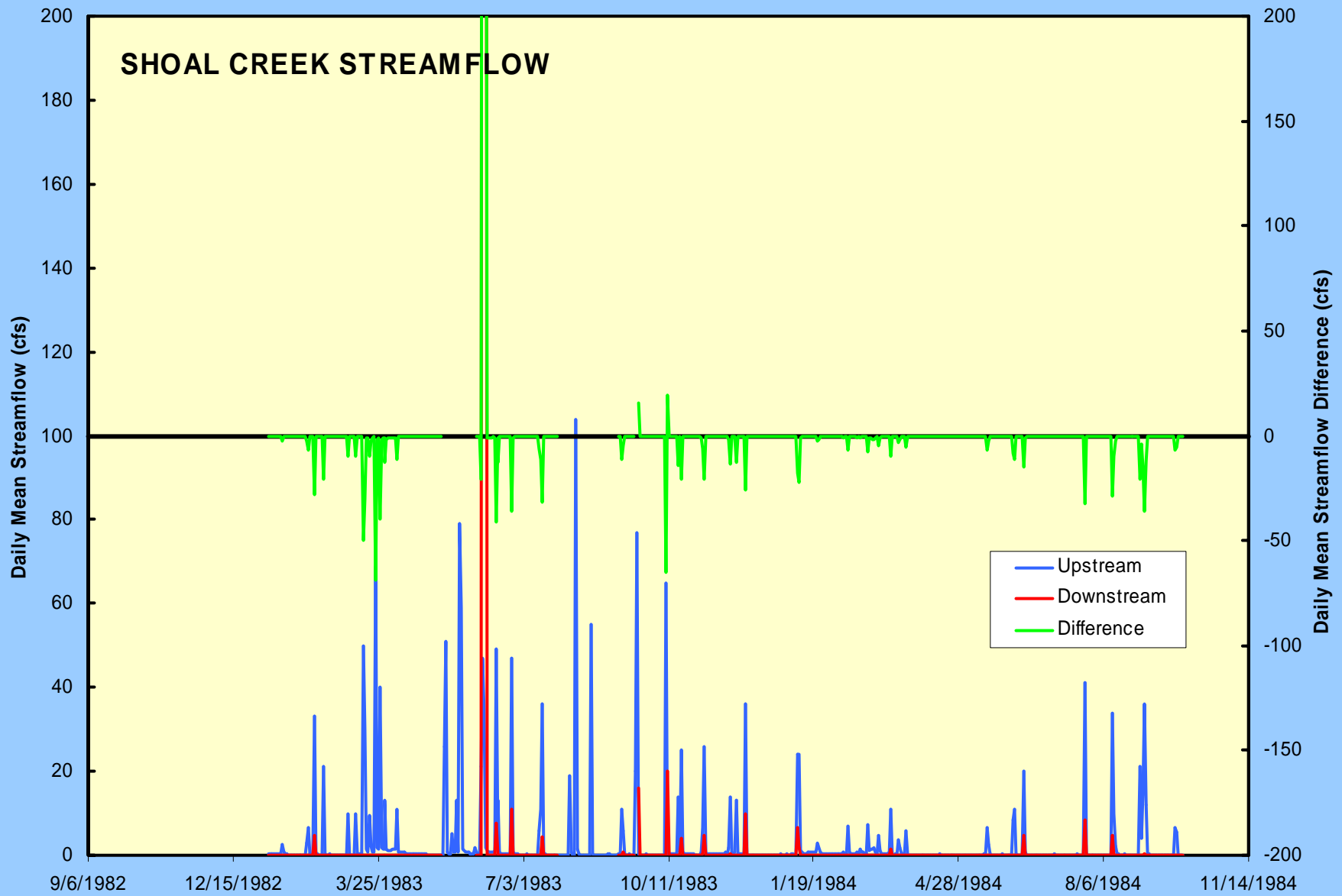
STREAMFLOW



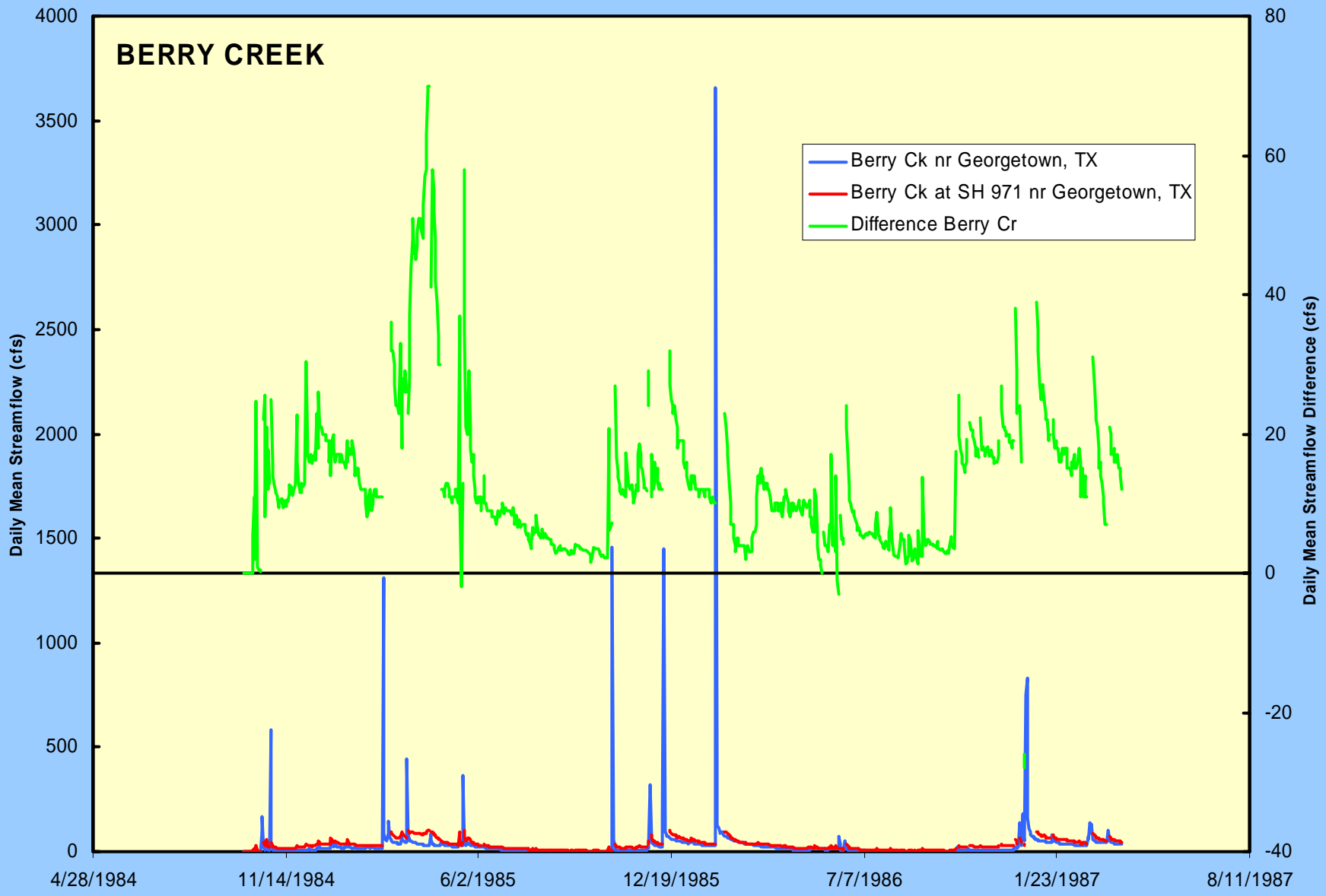
STREAMFLOW



STREAMFLOW

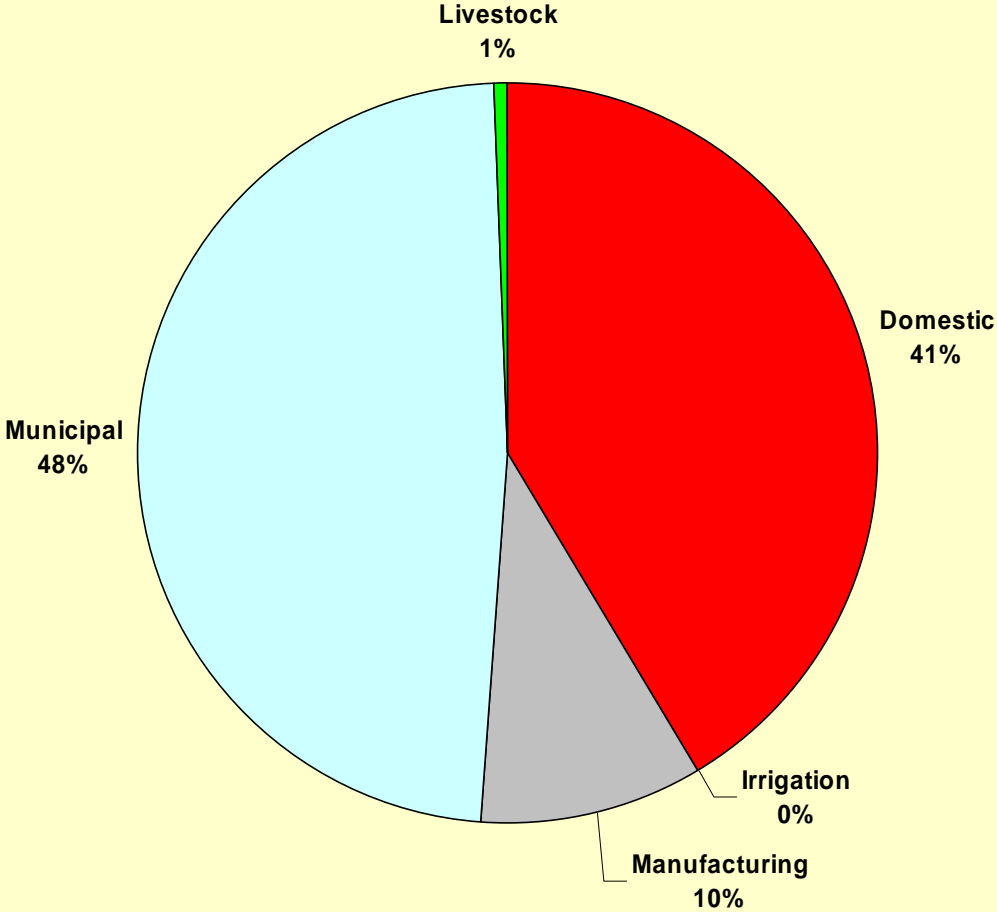


STREAMFLOW CHANGE ALONG SHOAL CREEK

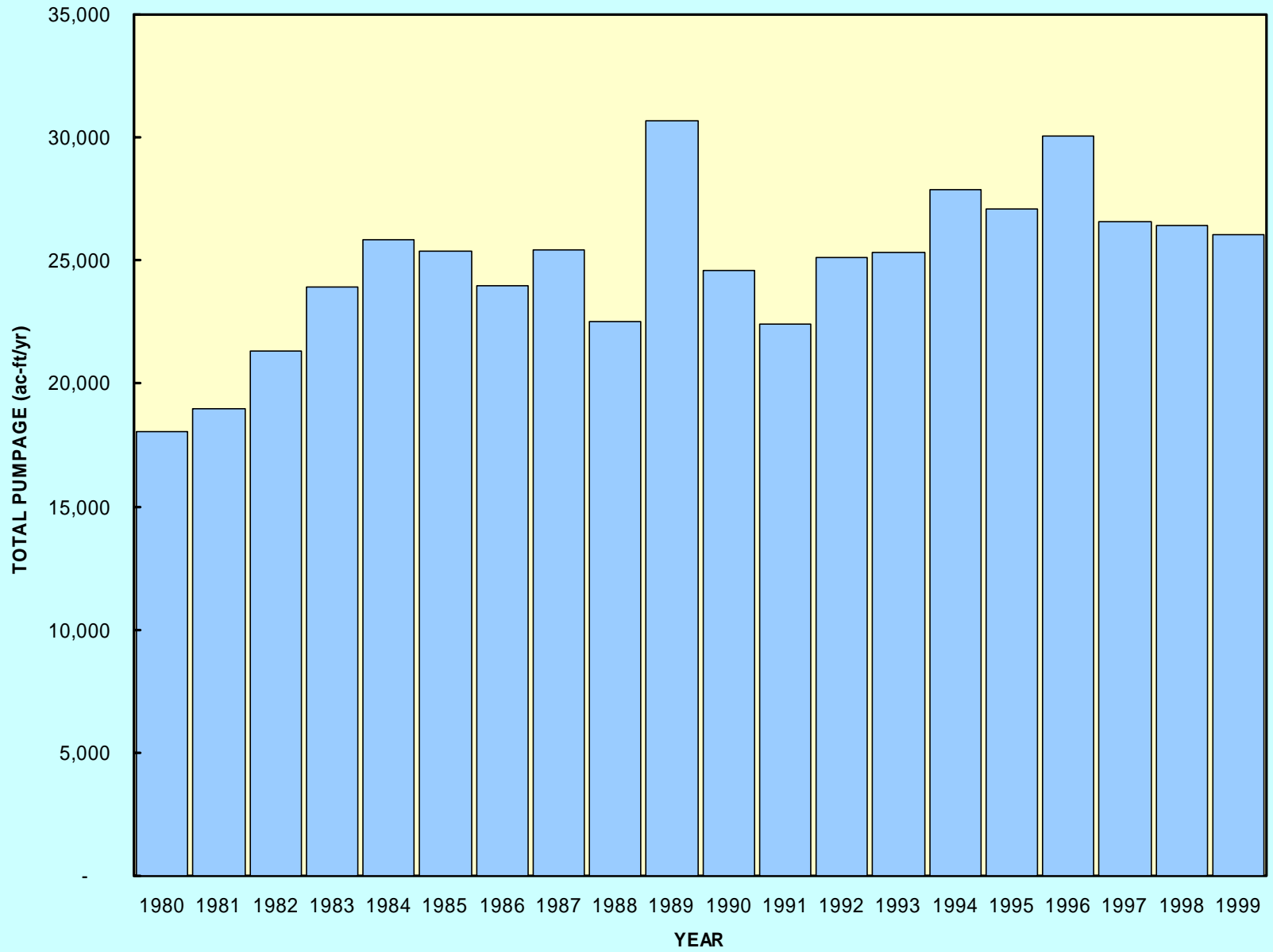


STREAMFLOW CHANGE ALONG BERRY CREEK

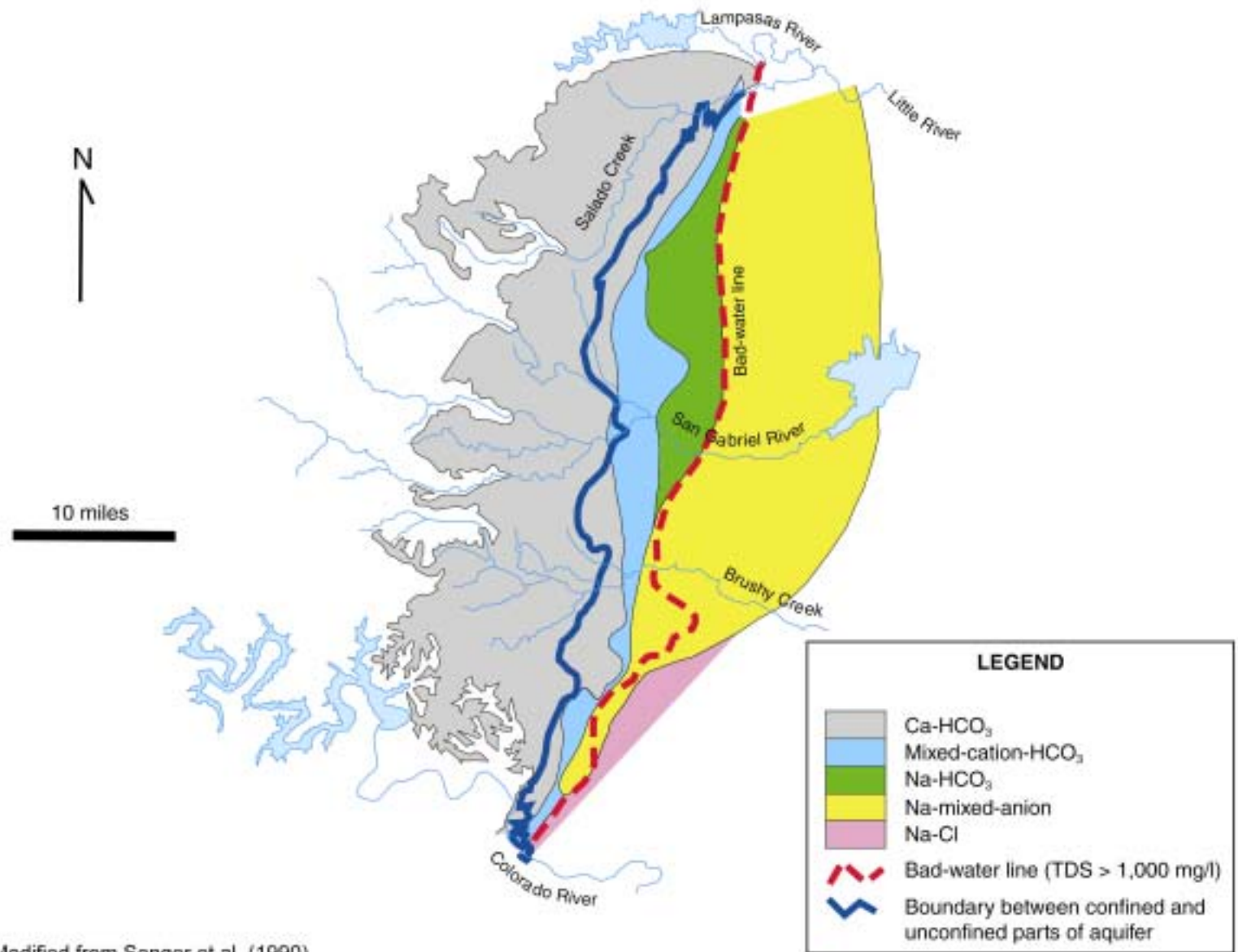
**PUMPAGE FROM NORTHERN EDWARDS AQUIFER
(1999)**



PUMPAGE

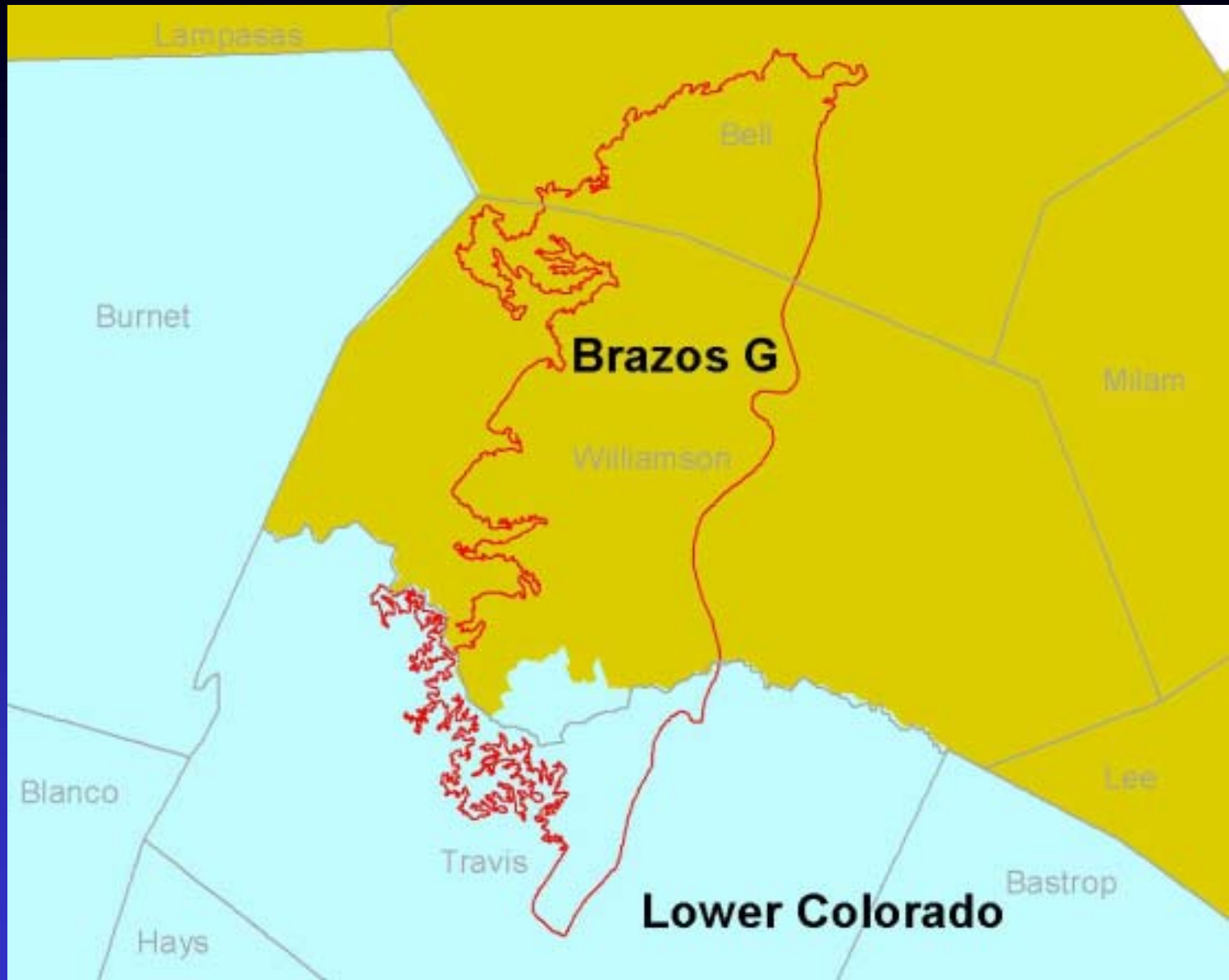


PUMPAGE

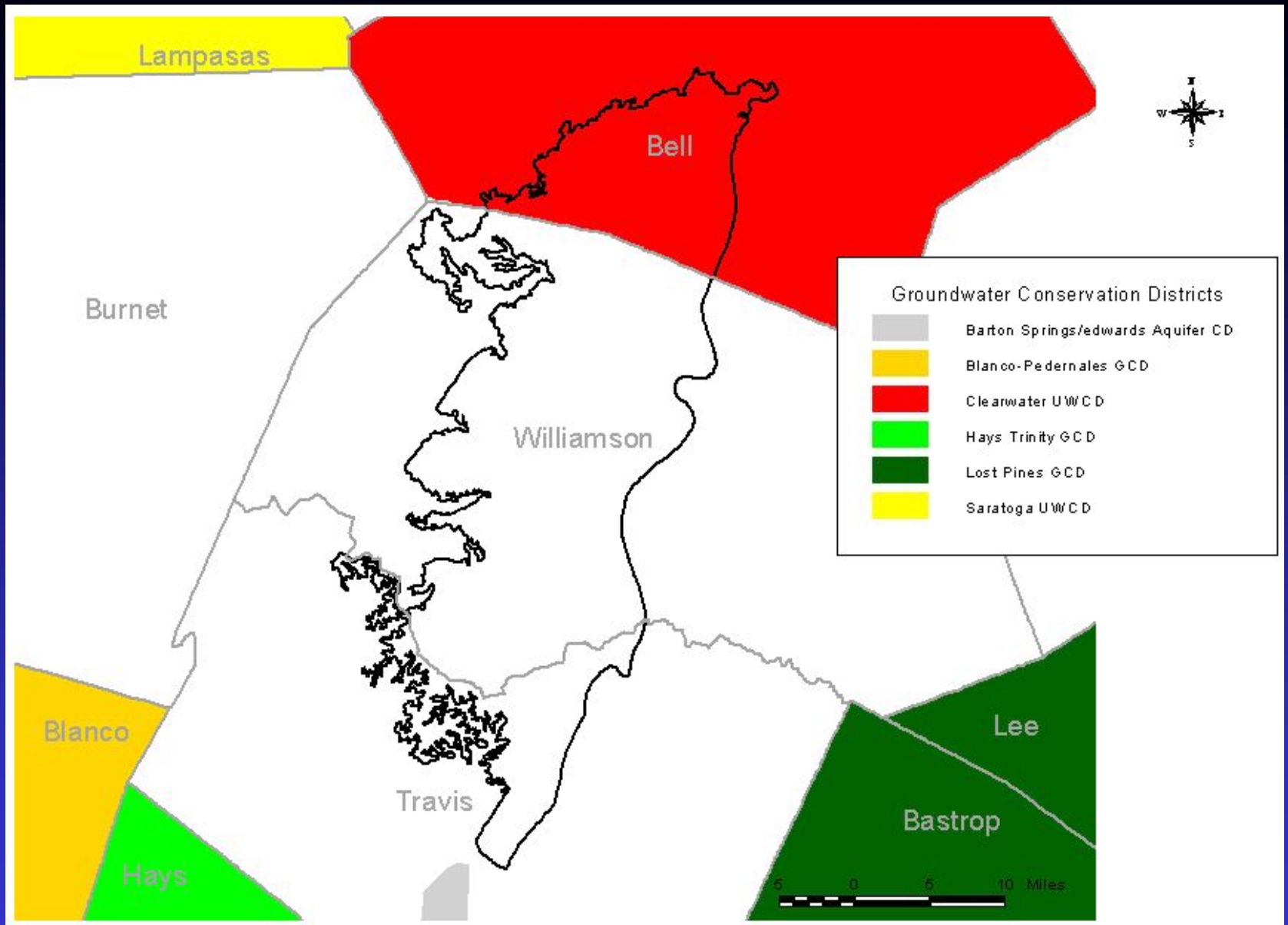


Modified from Senger et al. (1990)

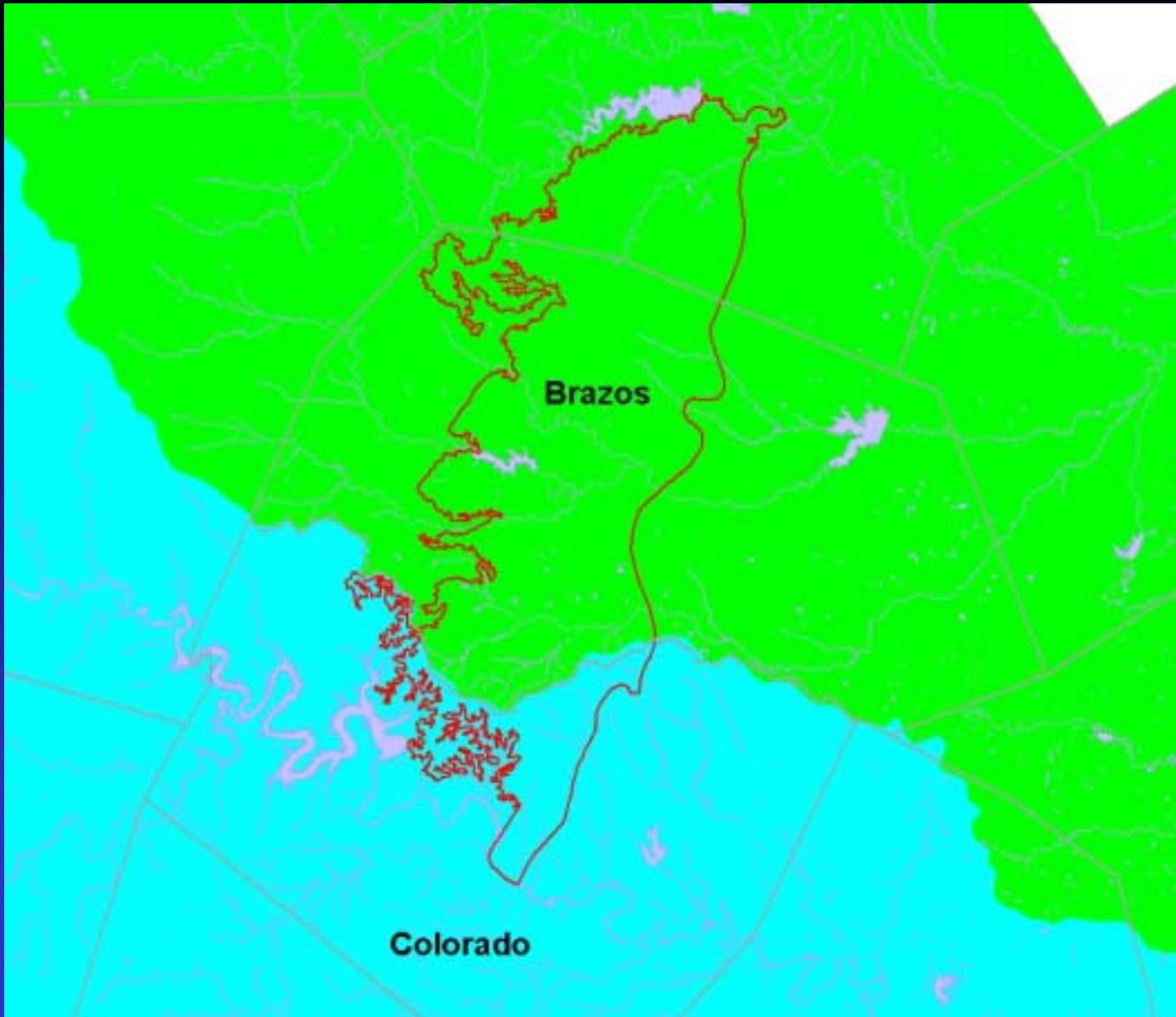
GROUNDWATER QUALITY



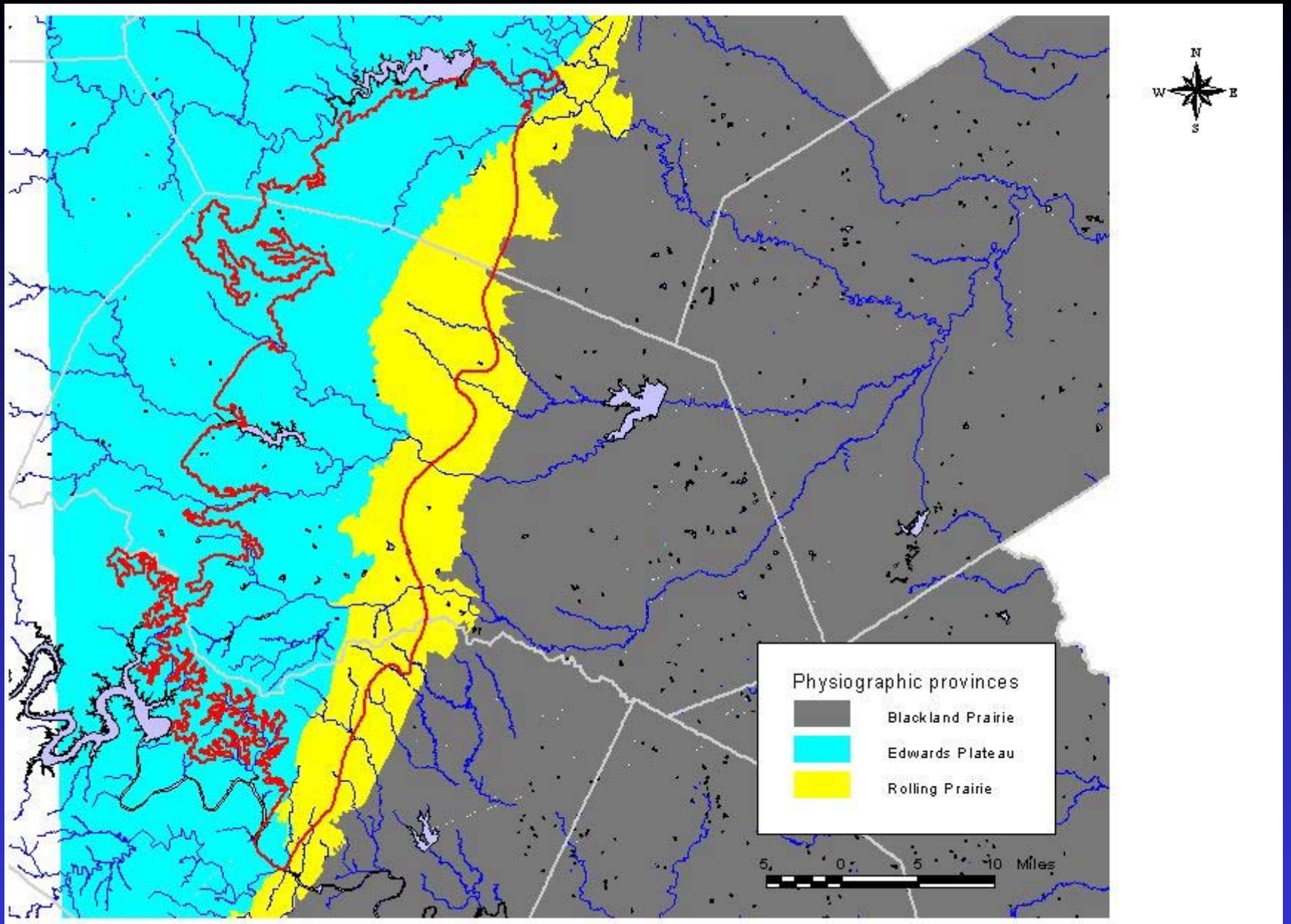
REGIONAL WATER PLANNING GROUPS



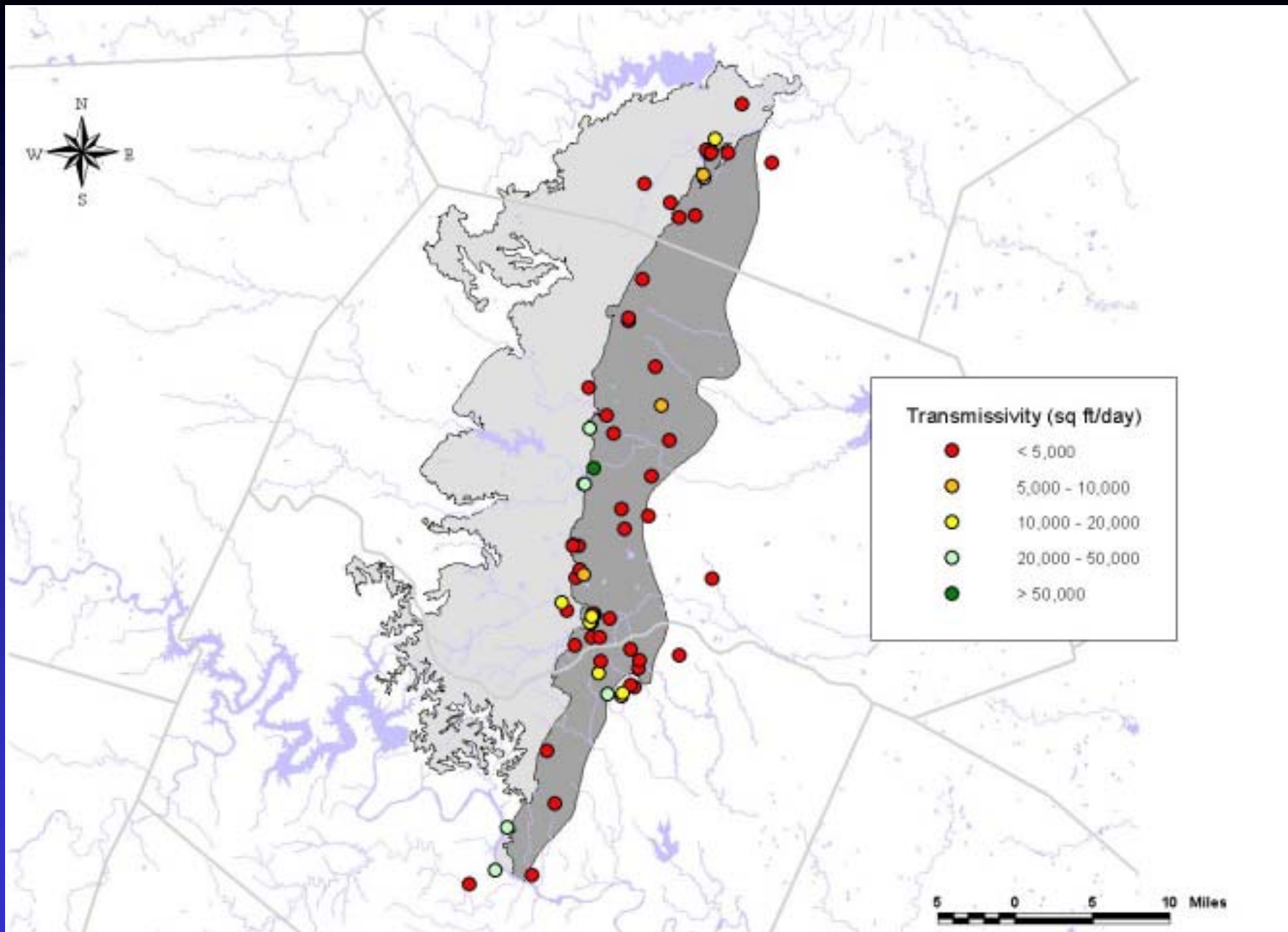
GROUNDWATER CONSERVATION DISTRICTS



RIVER BASINS



PHYSIOGRAPHY



AQUIFER TEST DATA

**Northern Segment of the Edwards Aquifer
Stakeholder Advisory Forum 1
March 18, 2002**

	Name	Affiliation
1	Cheryl Maxwell	Clearwater UWCD
2	James Carson Sloan	TNRCC
3	Ricky Preston	Salado WSC/Clearwater UWCD
4	Juana Preston	Salado WSC
5	Eshan Ham	Clearwater UWCD
6	Horace Grace	Clearwater UWCD
7	Krisa Pullen	Salado WSC

**NORTHERN SEGMENT OF THE EDWARDS AQUIFER GROUNDWATER
AVAILABILITY MODEL**

Stakeholder Advisory Forum #3, September 26, 2002

About 7 people attended the third Stakeholder Advisory Forum for the northern segment of the Edwards aquifer groundwater availability model held at the Salado Civic Center, Salado, TX. These stakeholders represented the Texas Commission on Environmental Quality, the Clearwater UWCD, and the Salado WSC.

At the meeting, Ian Jones outlined the work conducted as part of the initial model design. This included a brief review of the geology, hydrogeology, water levels, hydraulic properties, and the conceptual model. The initial input data for the model was also shown. This data includes: the model grid, structure, initial hydraulic heads, drains, streams and reservoirs, wells, hydraulic conductivity, and recharge.

A brief discussion followed the presentation. Questions were related to whether there is any interaction between the Edwards aquifer and Stillhouse Reservoir, how model results will be used and whether it could be defend if results were questioned, why effects of pumpage at Salado differ from eight miles away in Williamson County, and whether faults will be included in the model. The responses to the questions: 1) it is unlikely that Stillhouse Reservoir has much of an effect, if any, on the Edwards aquifer, but this may need to be addressed during calibration; 2) the model is intended to be used as a tool for managing the aquifer, e.g., evaluating effects of different future pumpage scenarios. As a result of calibration and verification processes the model predictive modeling results should reflect responses that would be observed in the aquifer. 3) larger

drawdown in Williamson County wells may be the result of pumpage from low permeability units. 4) During calibration it will be decided whether to simulate faults by varying hydraulic conductivity, flow barriers, or anisotropy.