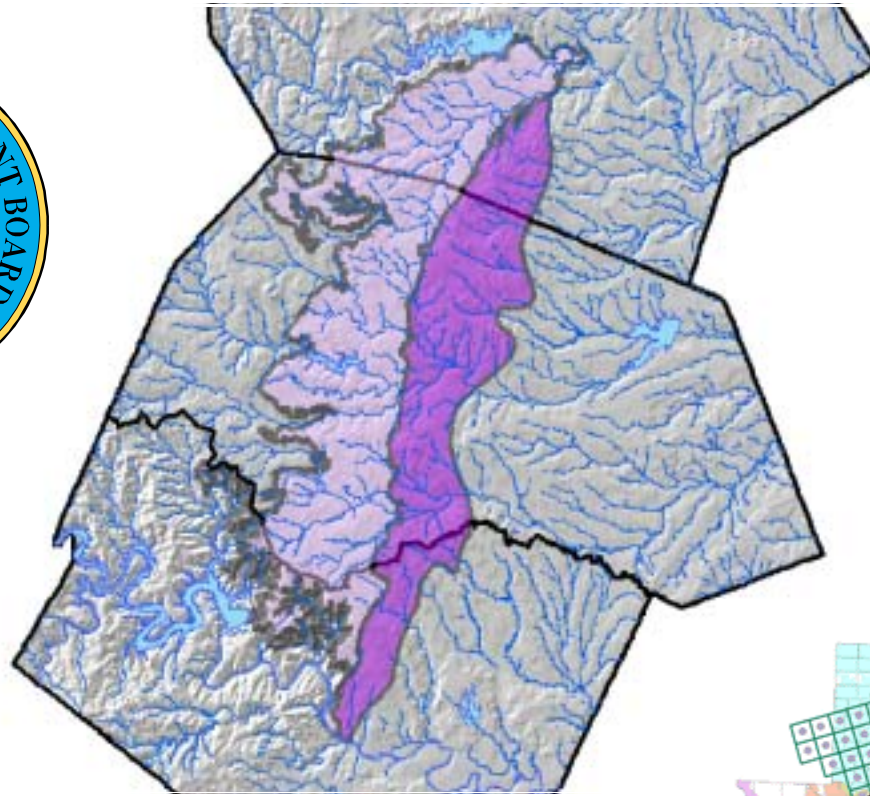
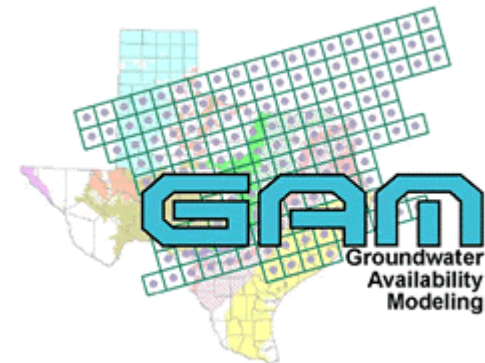


NORTHERN EDWARDS AQUIFER



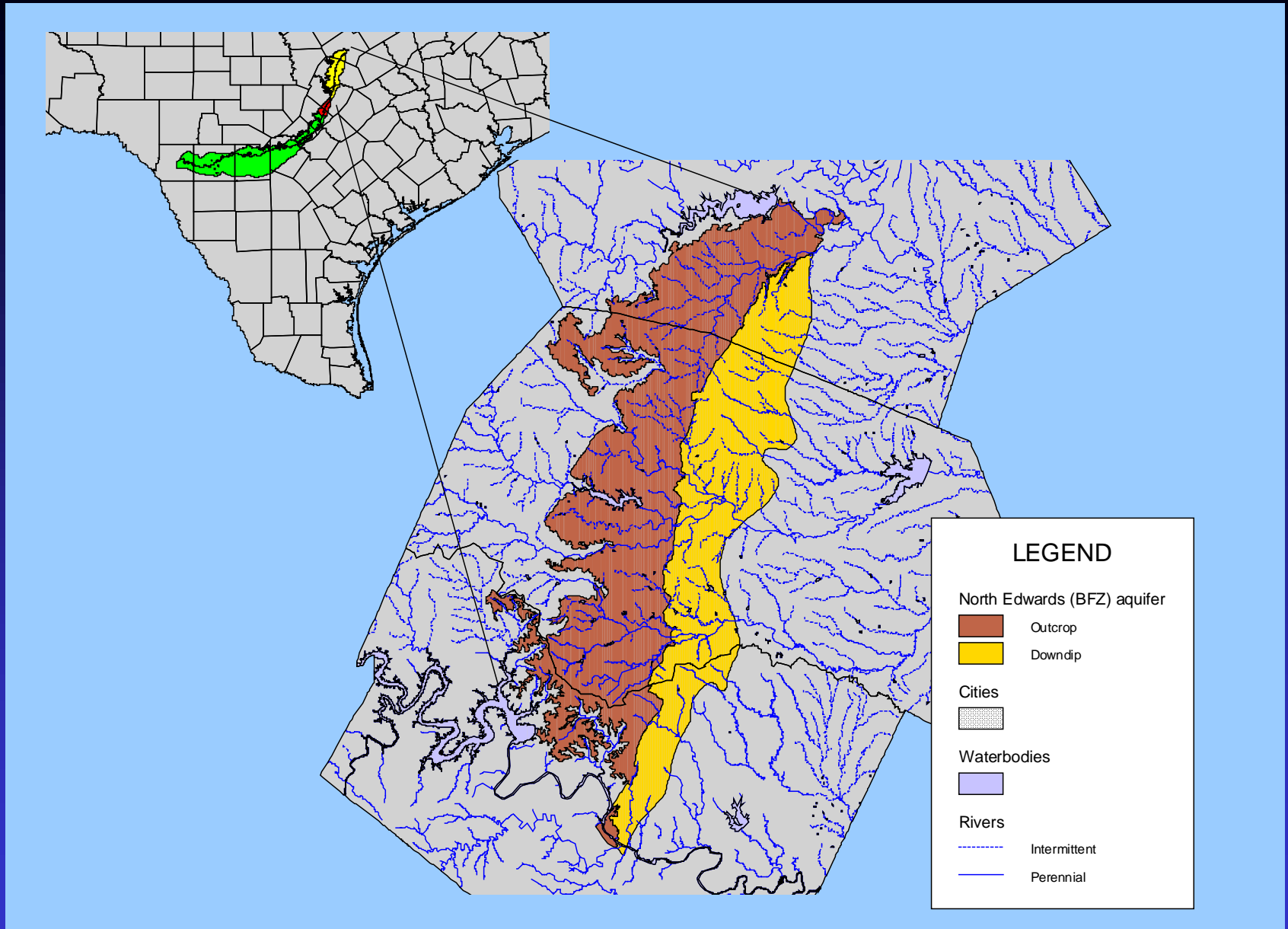
**Fourth Stakeholder Advisory Forum
January 16, 2003**



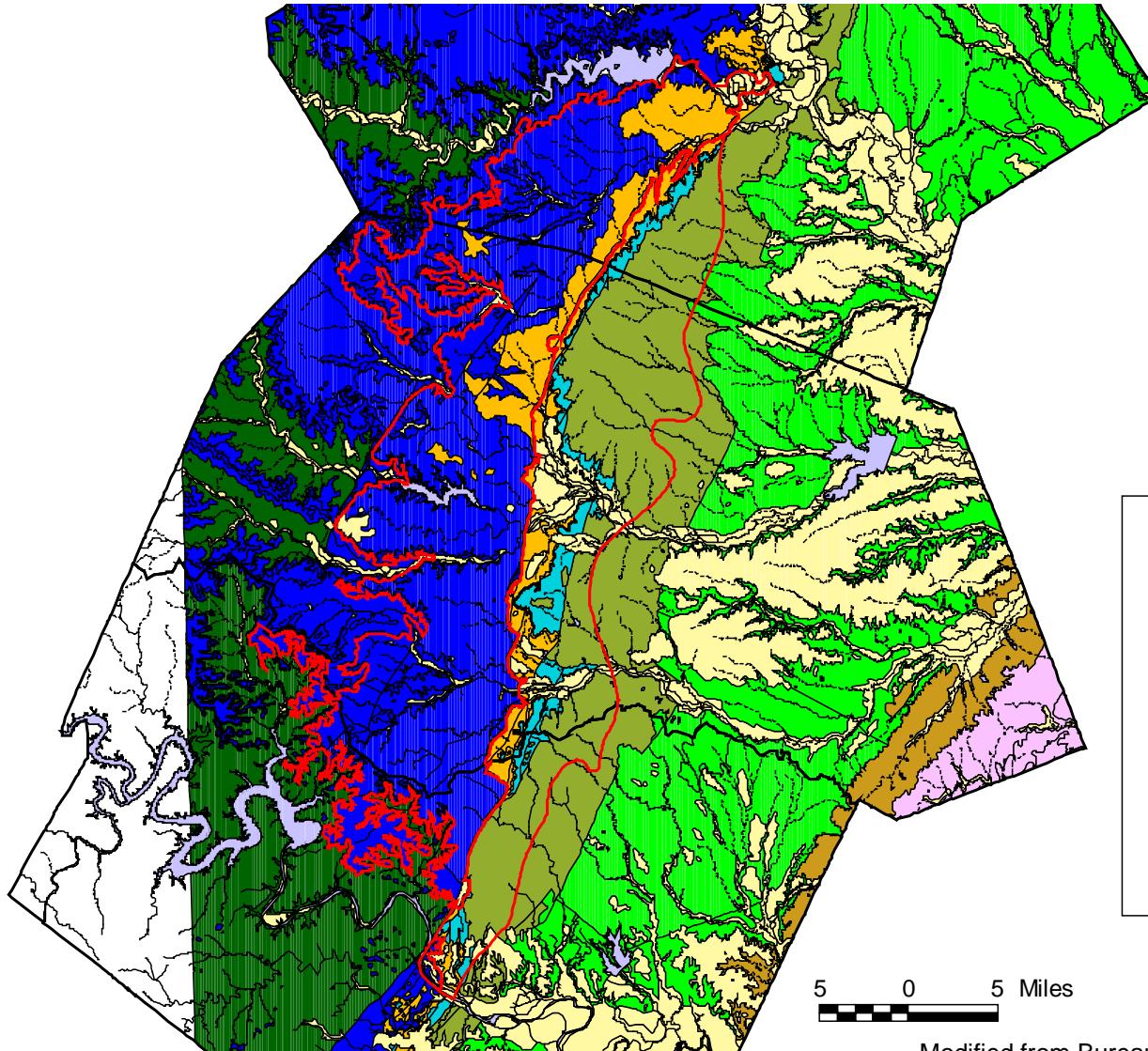
texas water development board











OUTLINE

- Review of hydrogeology of aquifer and modeling process
- Steady-state model calibration results
- GAM schedule



LOCATION MAP



Stratigraphic Units	
	Alluvium
	Wilcox
	Midway
	Igneous
	Taylor
	Austin
	Eagle Ford
	Washita
	Fredericksburg
	Trinity

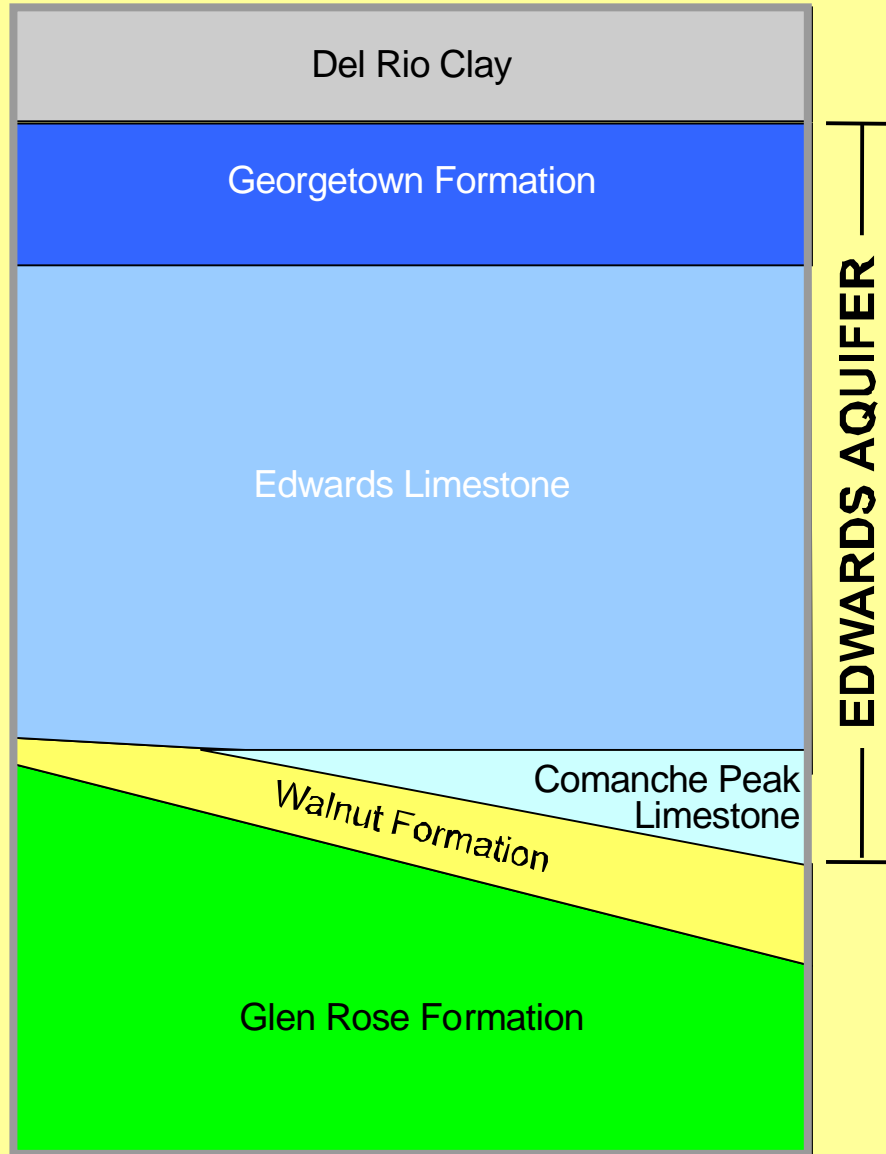


Modified from Bureau of Economic Geology
Geologic Atlas of Texas

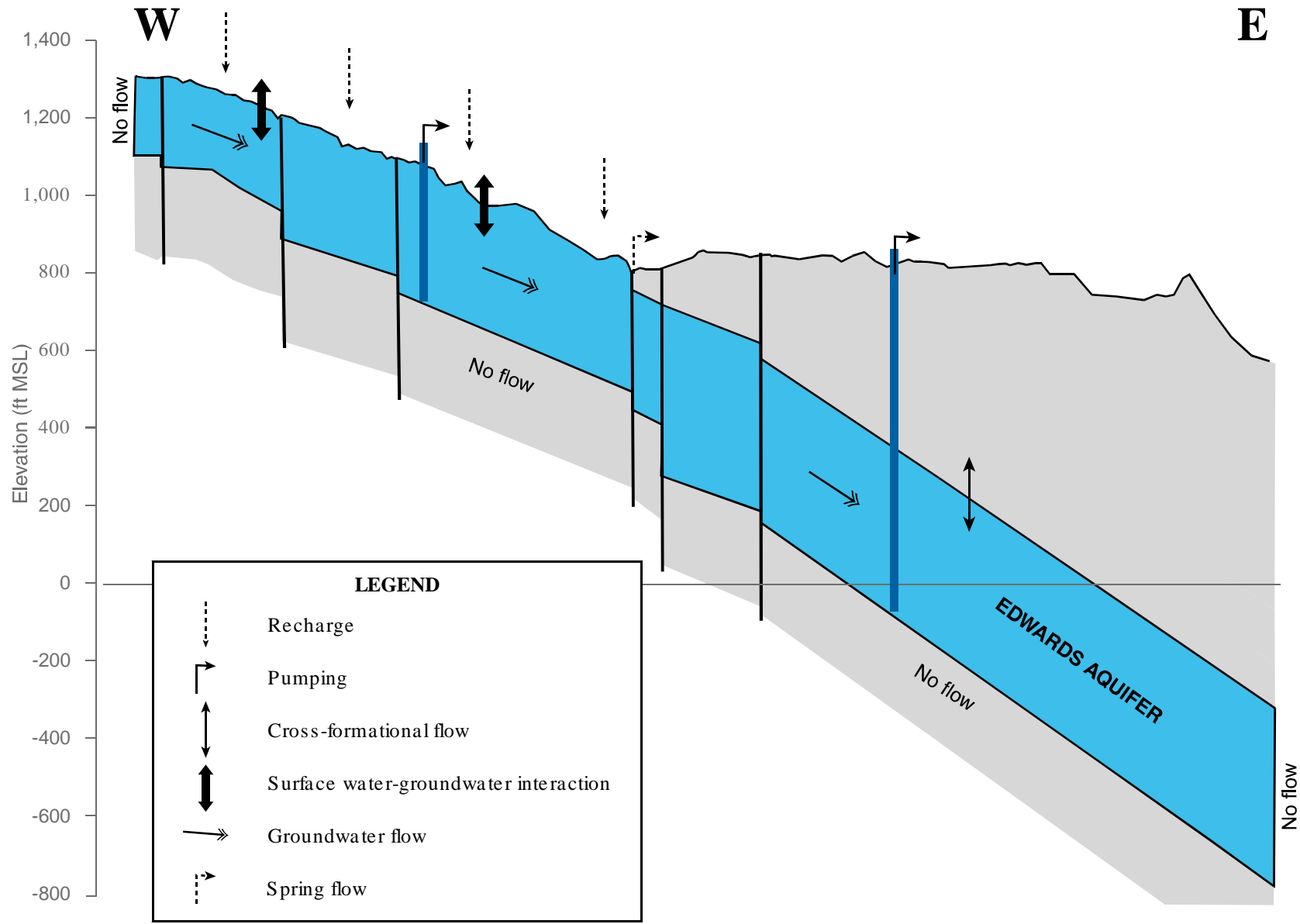
SURFACE GEOLOGY

S

N



GEOLOGIC AND HYDROGEOLOGIC UNITS



CONCEPTUAL MODEL

MODELING PROCESS

- Define model objectives
- Develop conceptual model
- Design model
- Calibration and verification modeling
 - Comparison with observed data
- Predictive modeling
 - Predict impacts of projected growth
 - 2000 - 2050

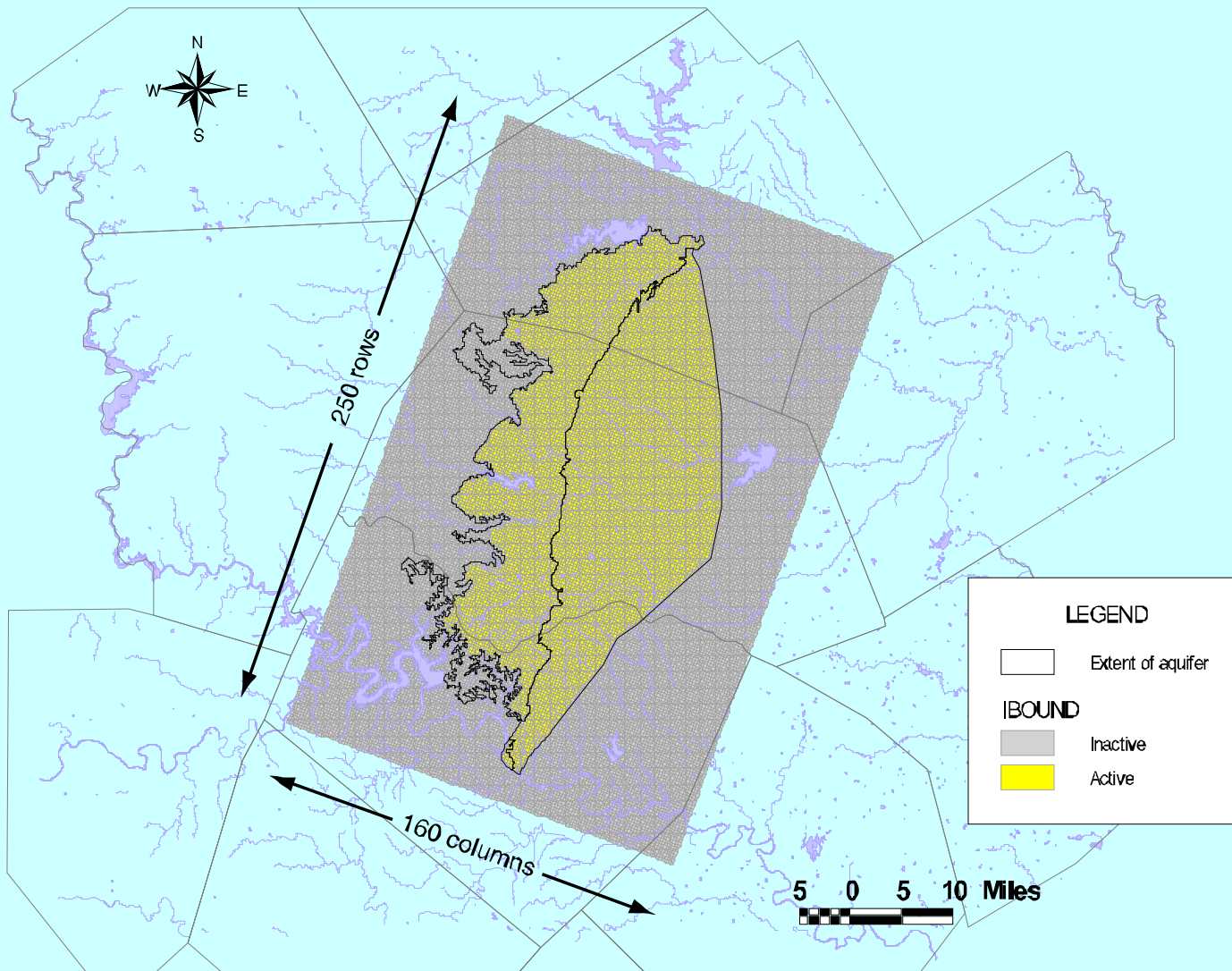
MODELING PROCESS

- Three models
 - Steady-state
 - Transient (historic)
 - Transient (predictive)

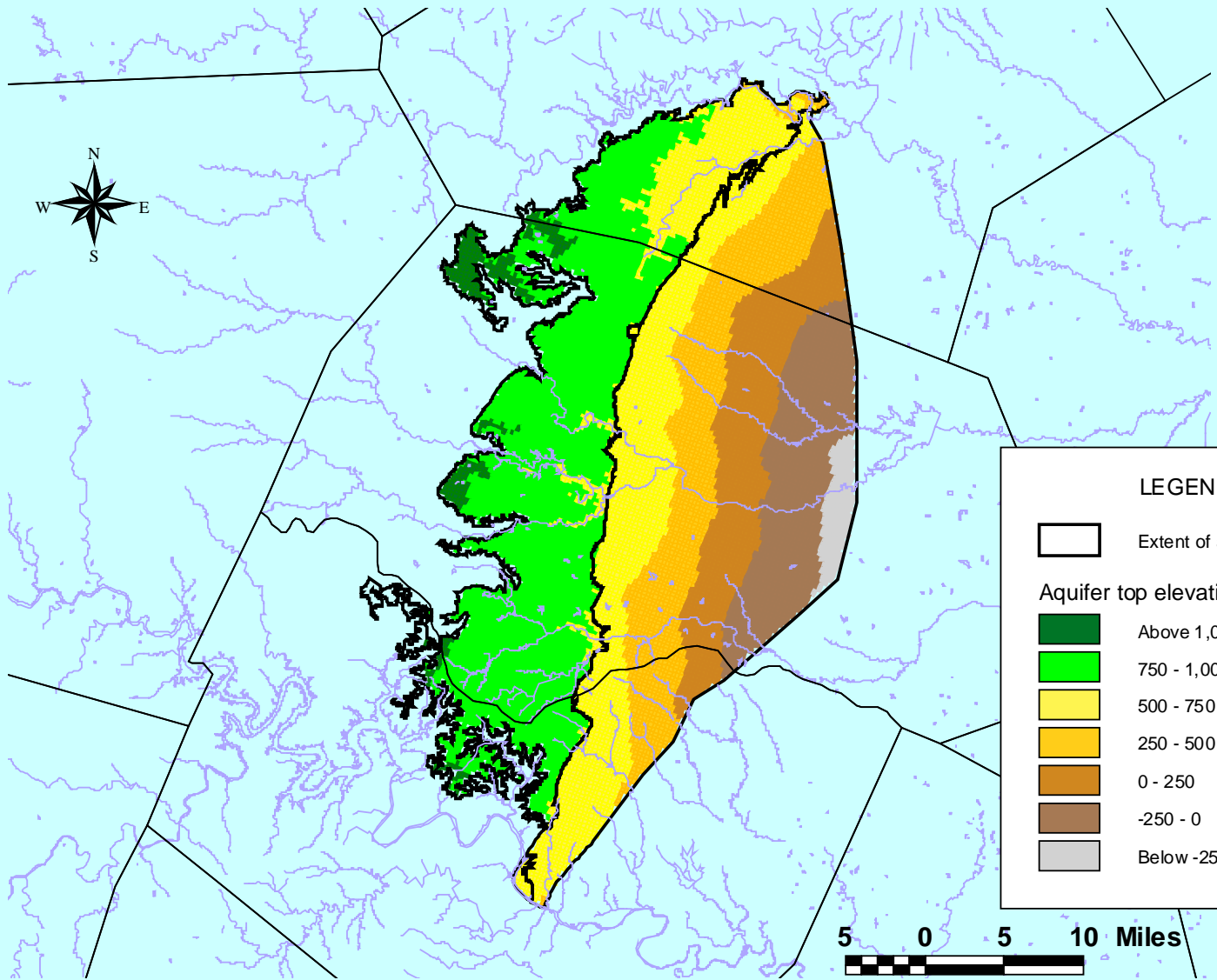
STEADY-STATE CALIBRATION

- Parameters
 - Water levels
 - Stream discharge
- Root Mean Square Error
 - Measure of difference between measured and simulated water levels
 - Target = less than 10 % (34 feet)

MODEL INPUT DATA



MODEL GRID

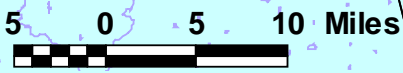


LEGEND

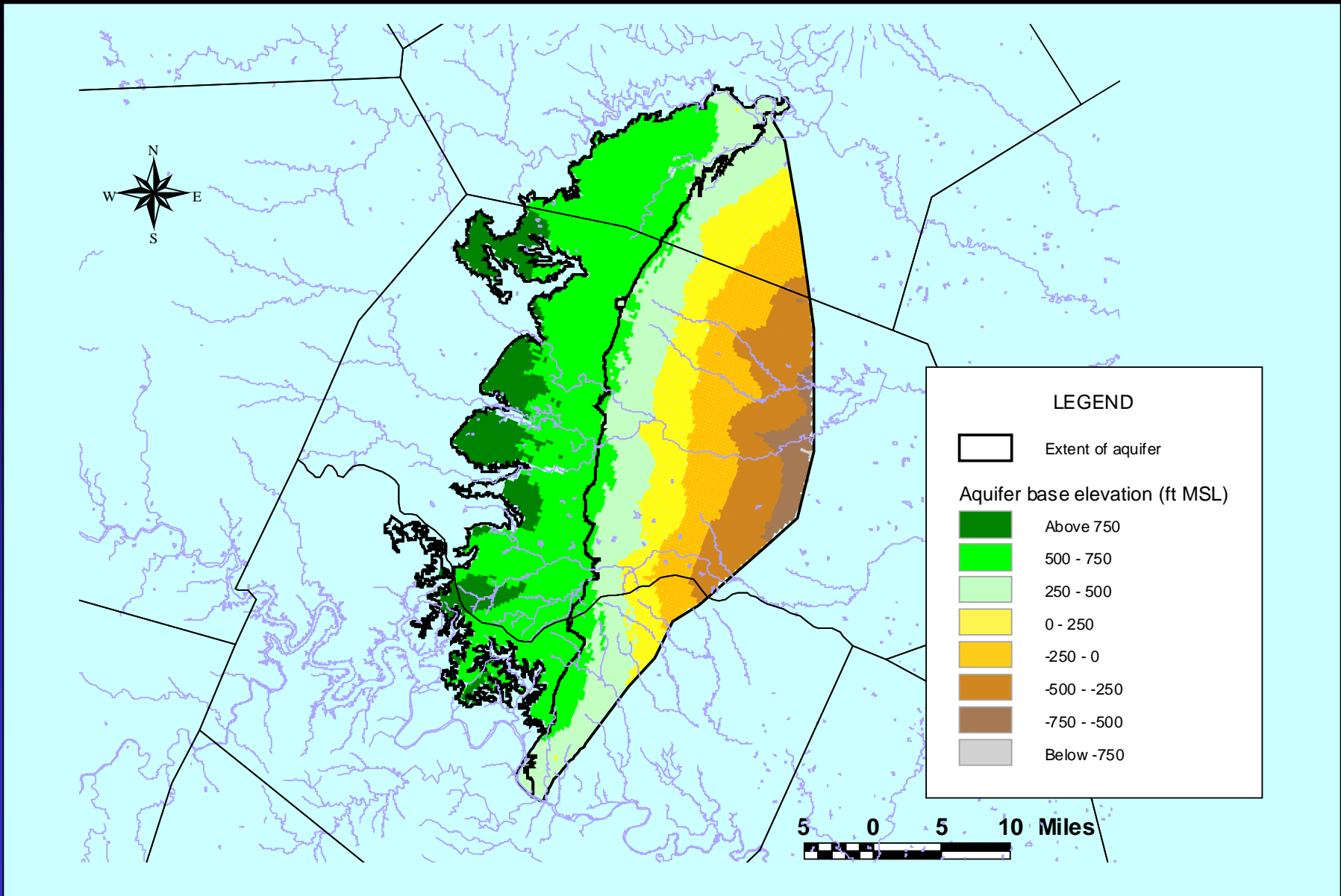
Extent of aquifer

Aquifer top elevation (ft MSL)

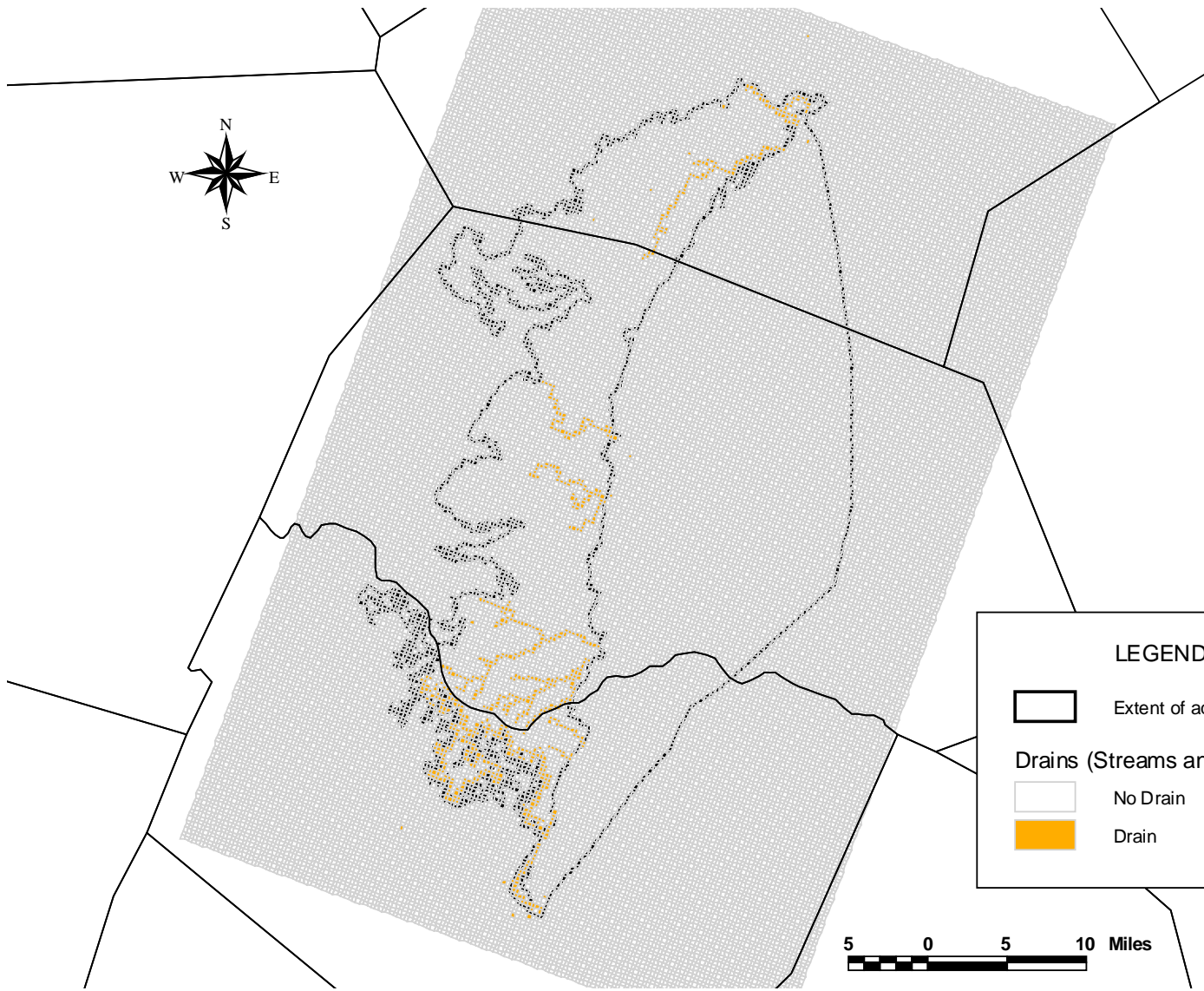
- Above 1,000
- 750 - 1,000
- 500 - 750
- 250 - 500
- 0 - 250
- 250 - 0
- Below -250



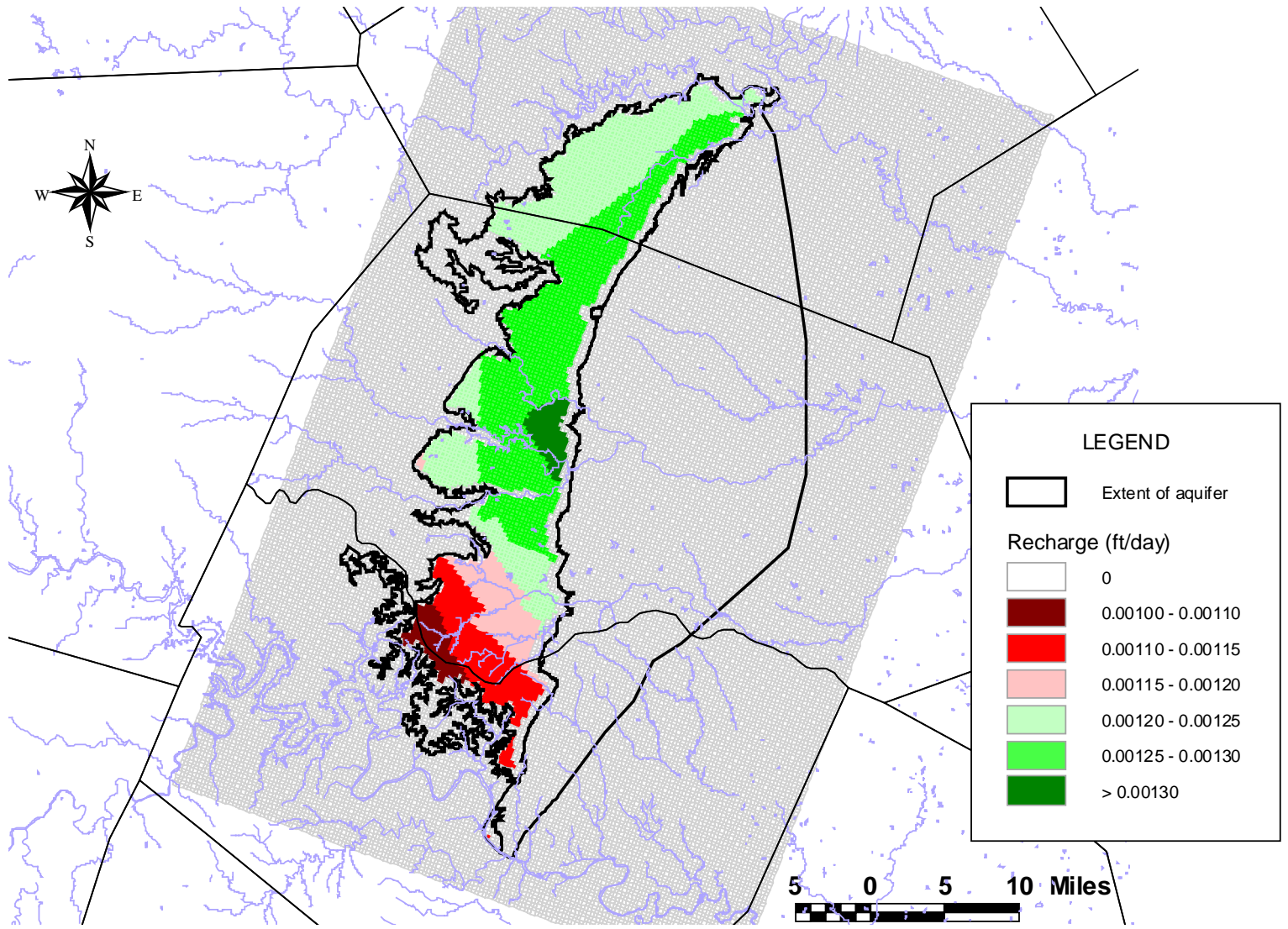
AQUIFER TOP ELEVATION



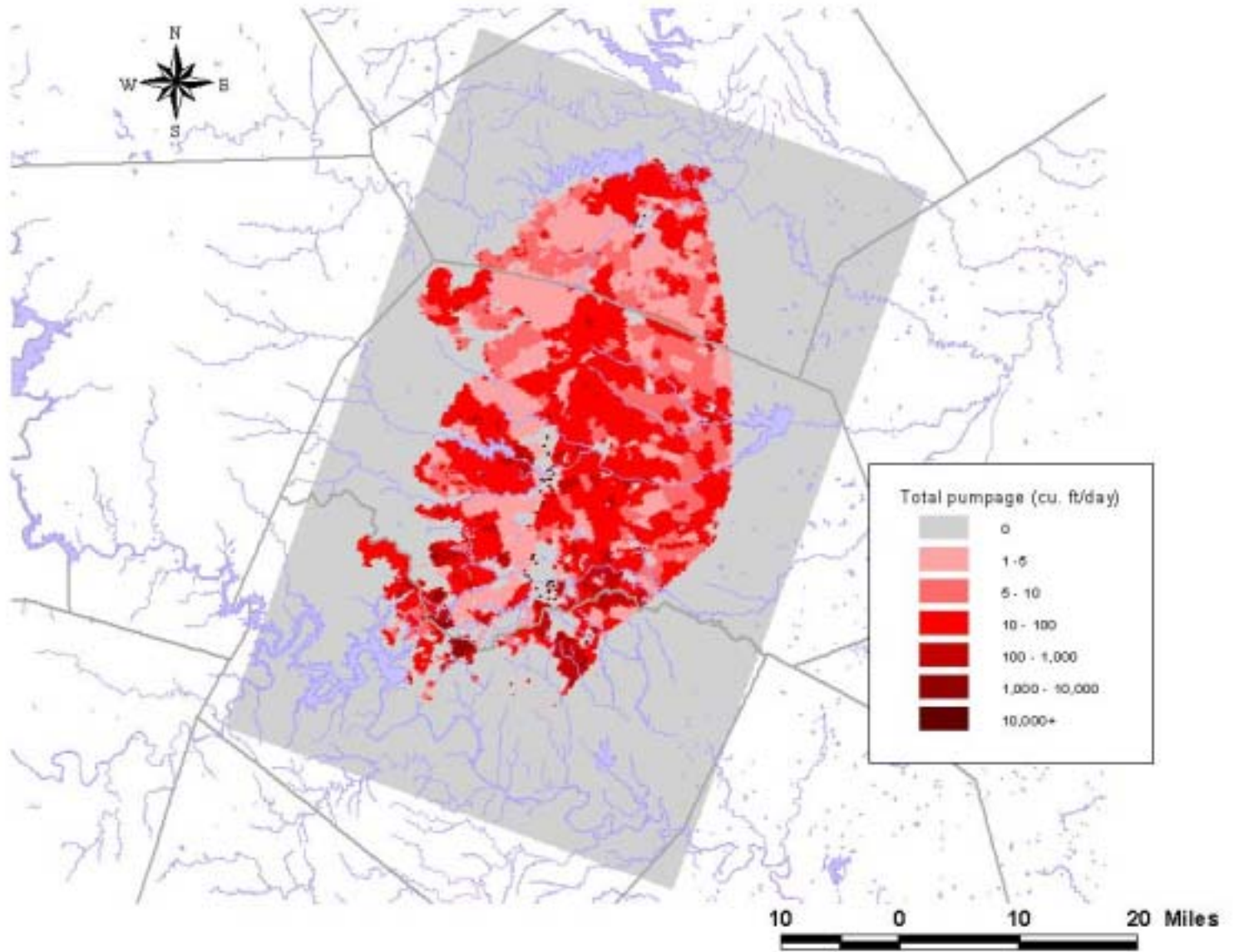
AQUIFER BASE ELEVATION



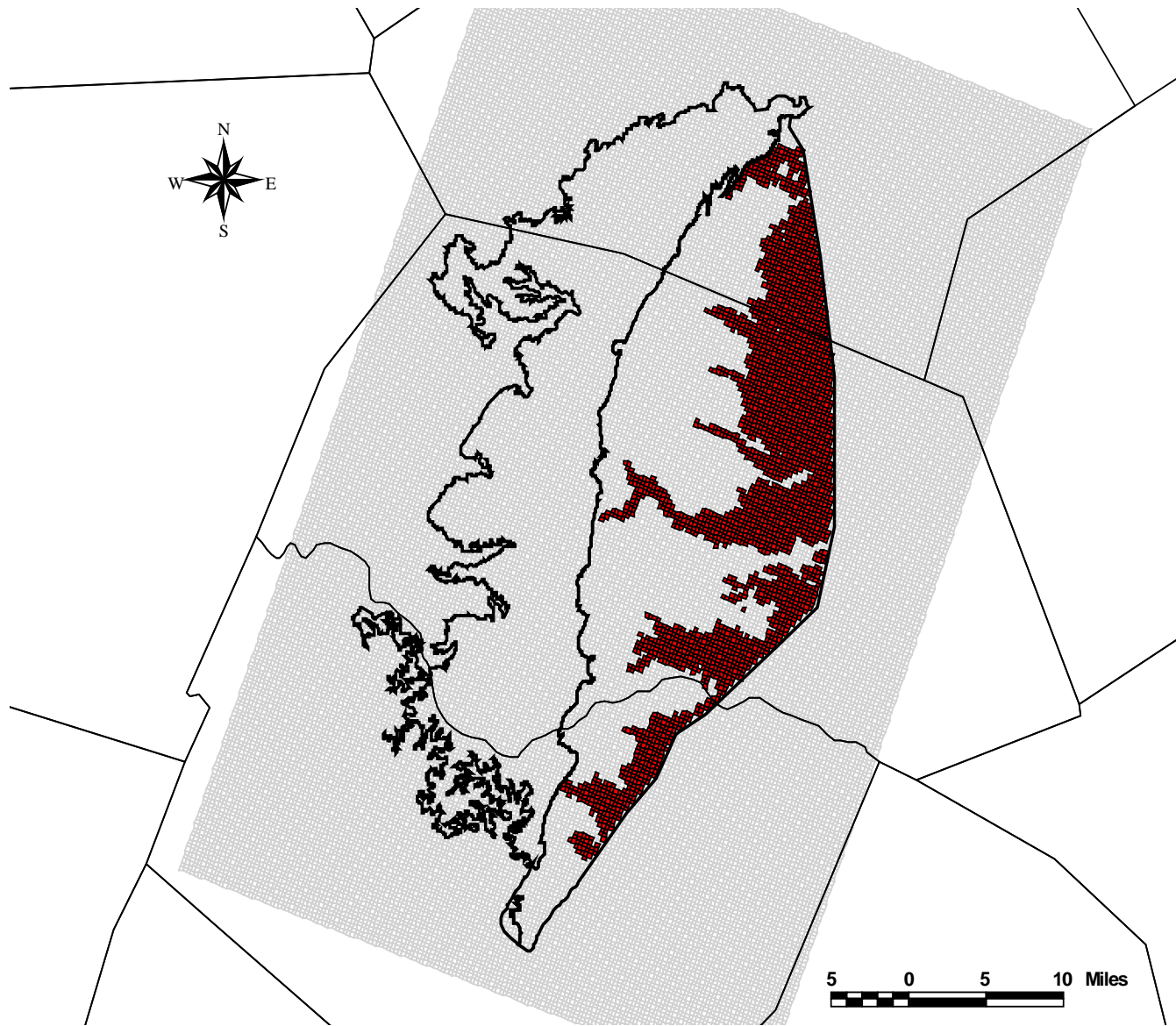
STREAMS/SPRINGS



RECHARGE

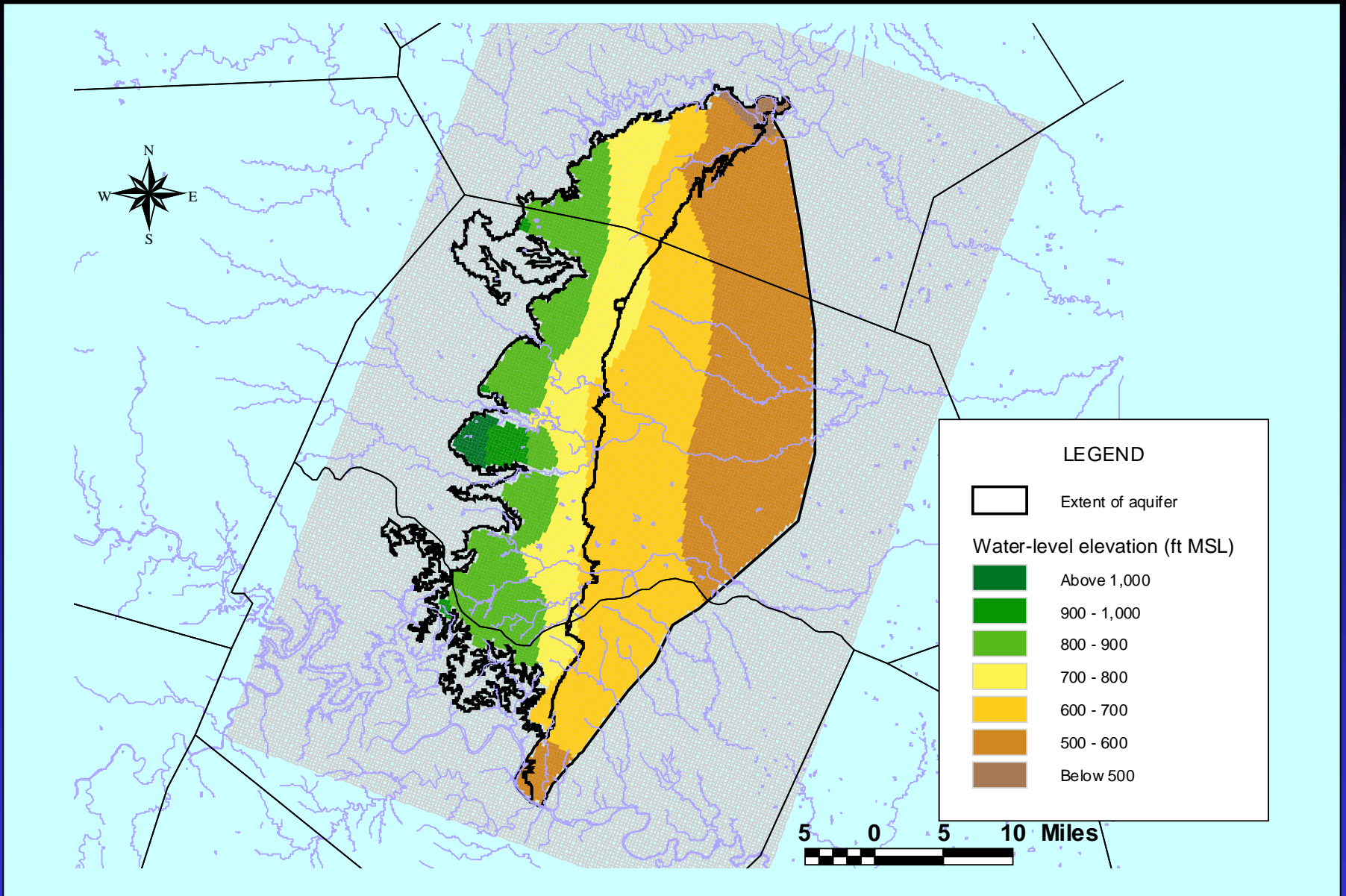


TOTAL PUMPAGE

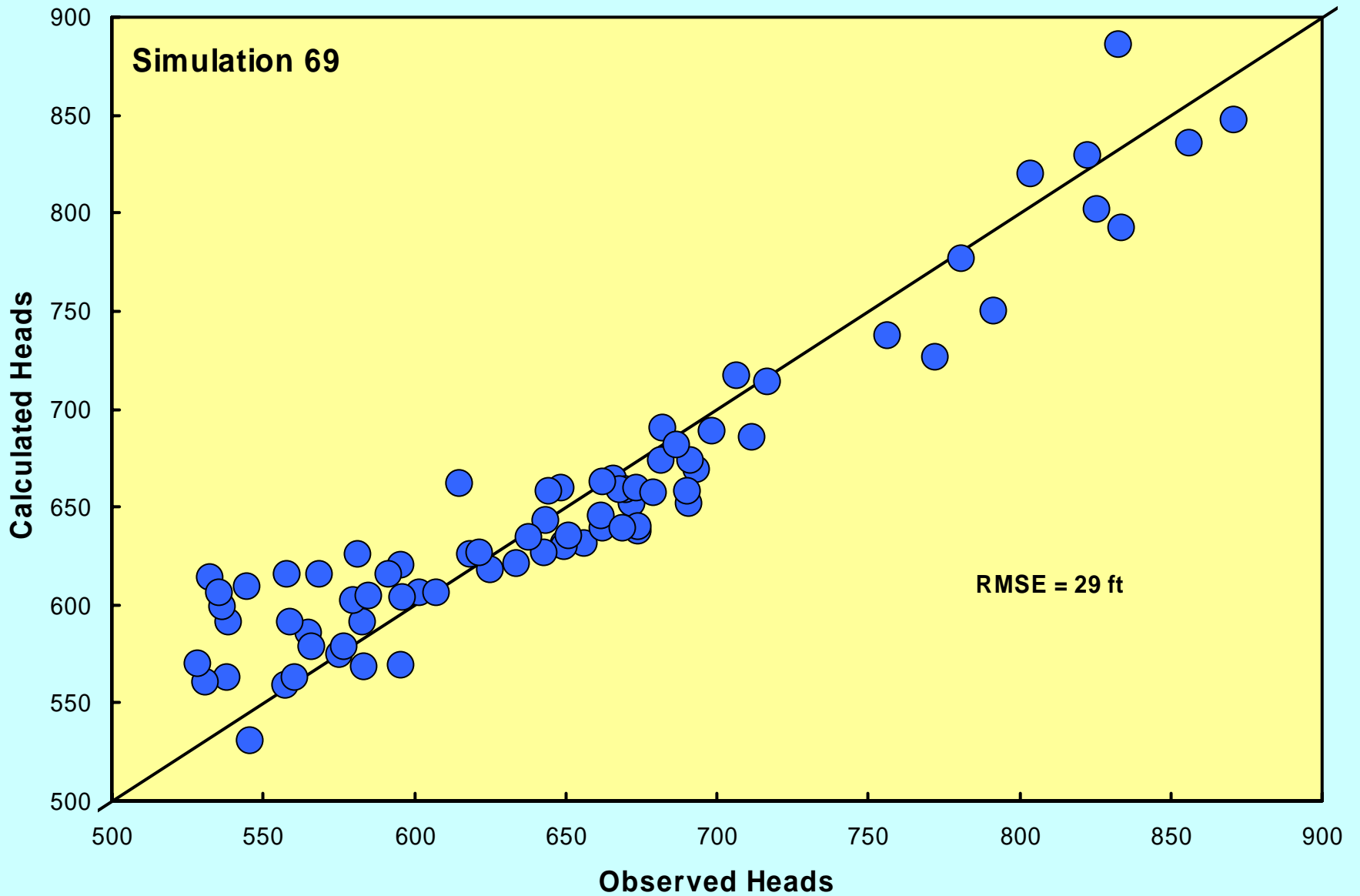


GENERAL-HEAD BOUNDARY

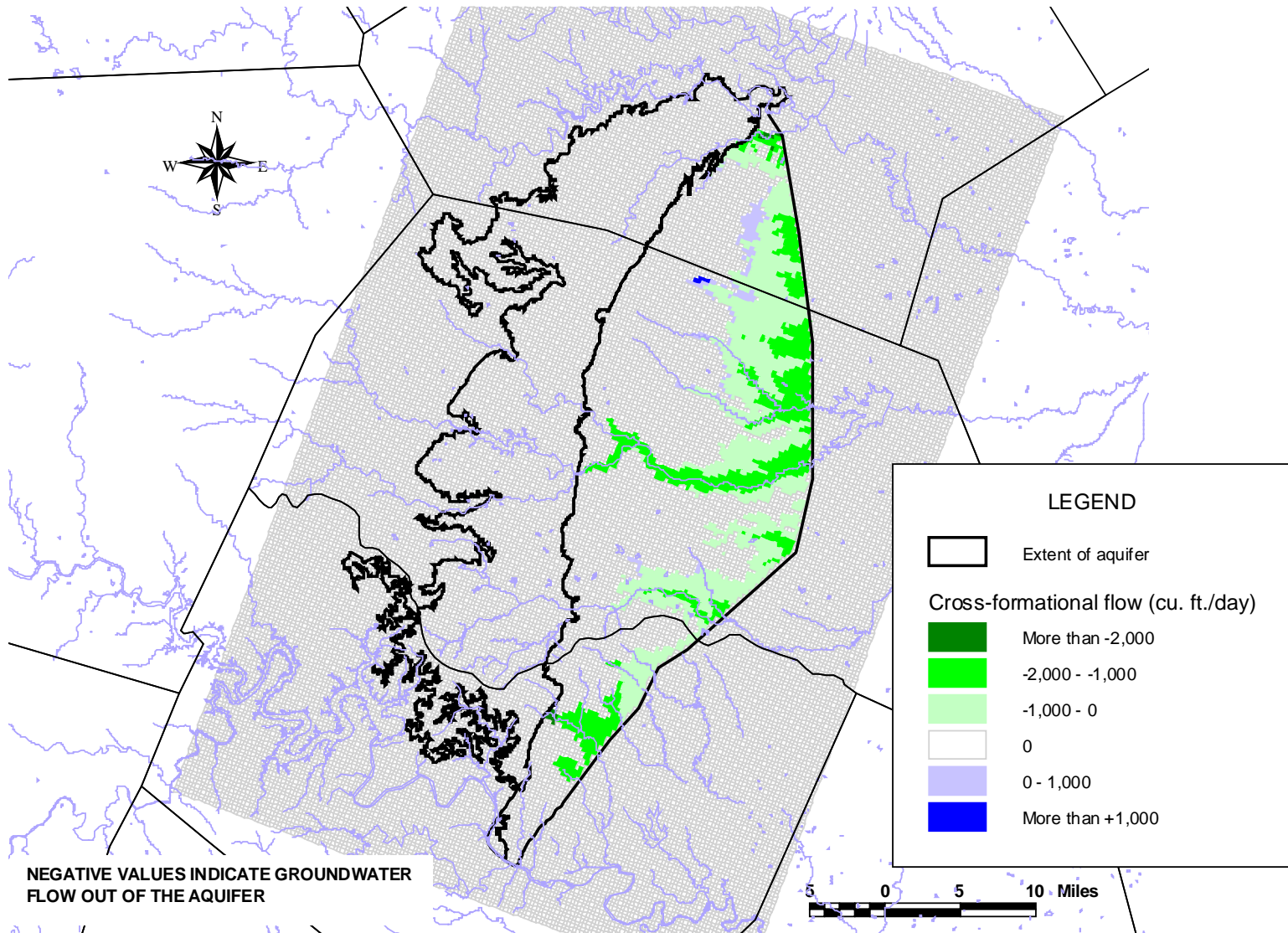
MODEL RESULTS



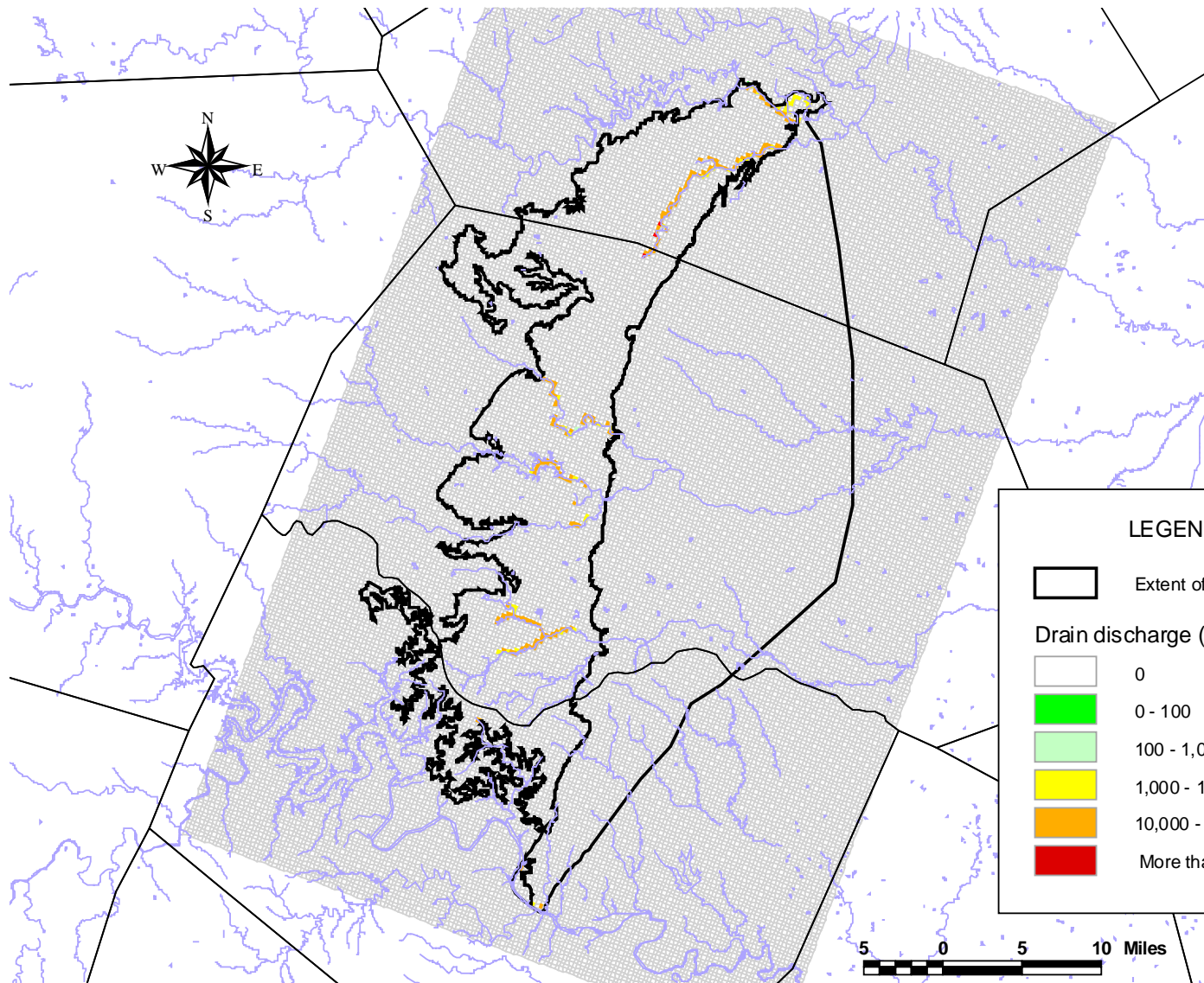
SIMULATED WATER-LEVEL ELEVATIONS



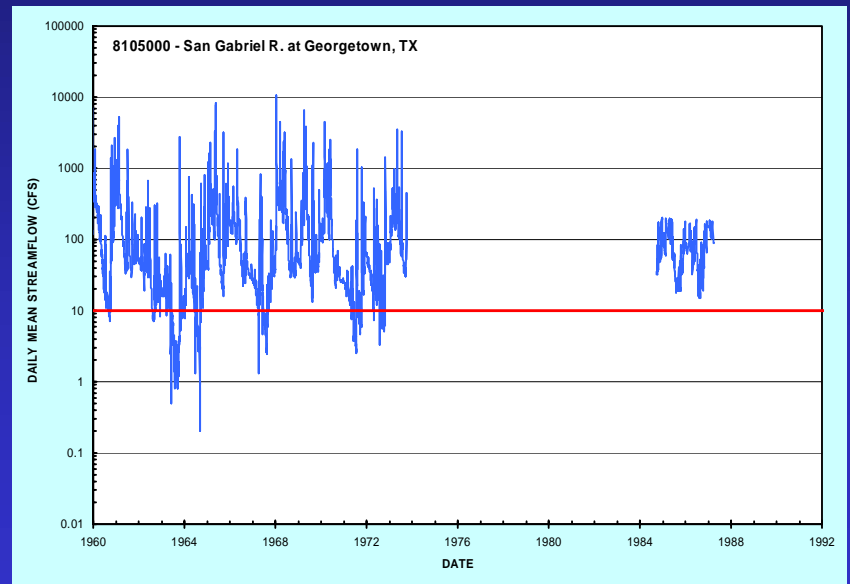
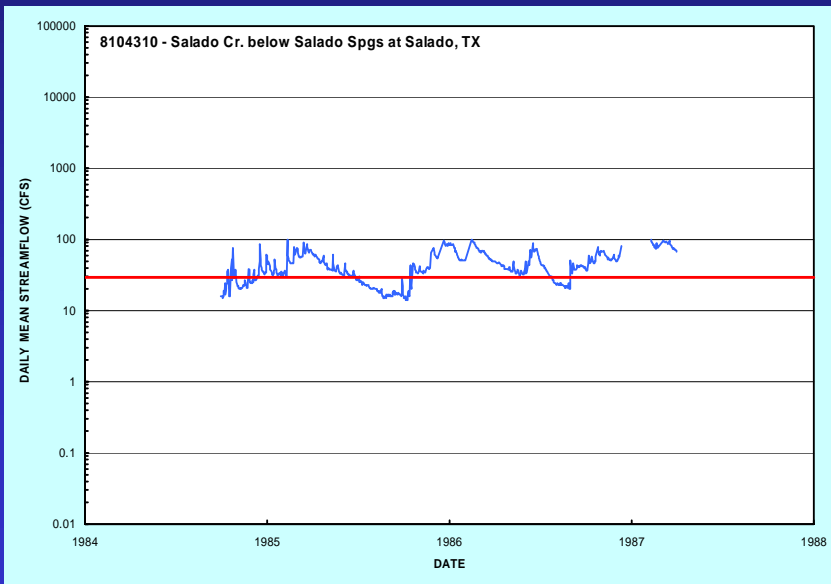
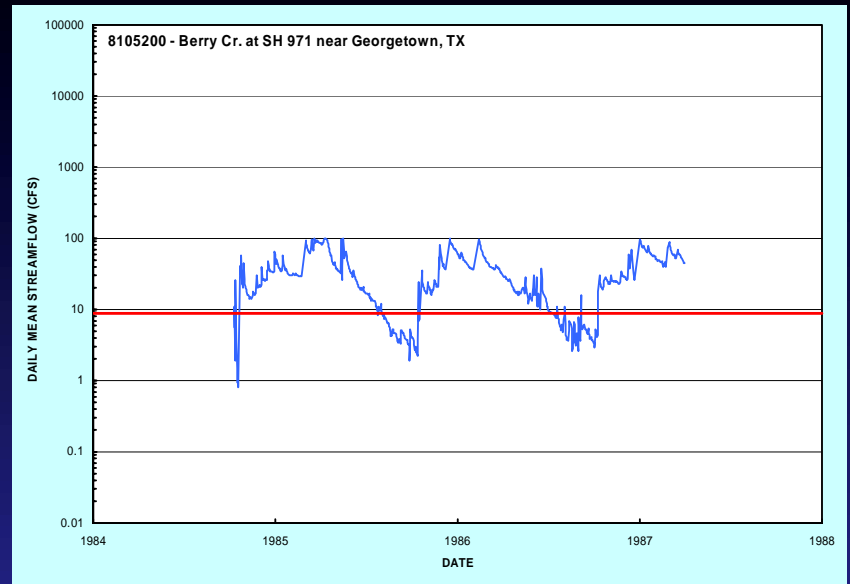
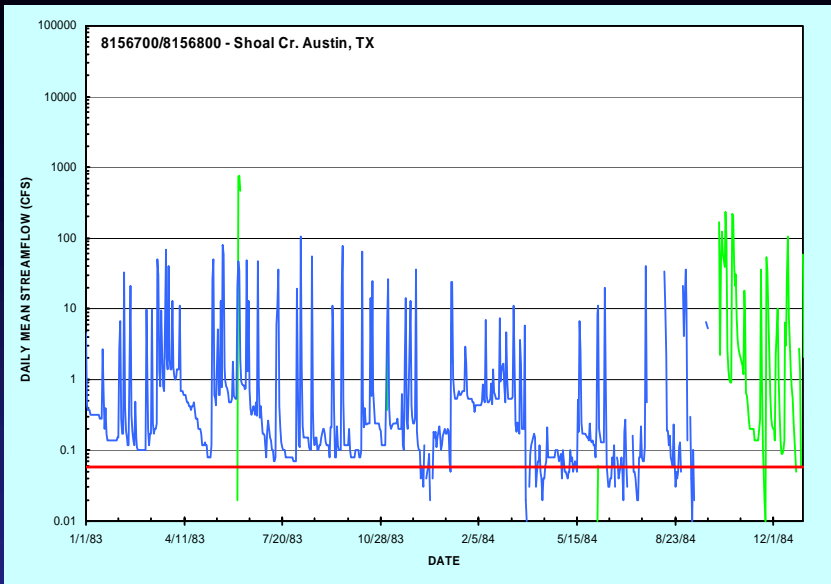
MEASURED v. SIMULATED WATER LEVELS



CROSS-FORMATIONAL FLOW



STREAM/SPRING DISCHARGE



MEASURED v. SIMULATED STREAM DISCHARGE

WATER BUDGET

FLOW TERM	IN		OUT		IN - OUT
WELLS	0	0.0%	12,700	16%	-12,700
DRAINS	0	0.0%	49,600	61%	-49,600
RECHARGE	81,700	99.7%	0	0%	+81,700
CROSS-FM. FLOW	200	0.3%	19,600	24%	-19,400

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



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

Name		Affiliation
1	Sergio Garza	Private citizen
2	Horace Grace	Clearwater UWCD
3	John Lich	TCEQ
4	Brian McCaig	TC&B
5	Jim Michael	Private citizen
6	Judy Parker	Clearwater UWCD
7	Steve Paulson	Aci
8	Philip Price	Brazos River Authority
9	James W. Sansom	Consulting geologist
10	Philip Savoy	Murfee Eng. Co. Inc.
11	James Sloan	TCEQ
12	Besta Stanukinos	Saratoga UWCD/Friends of Sulphur Creek
13	Tony Stanukinos	Monitoring Group/Friends of Sulphur Creek

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

Stakeholder Advisory Forum #4, January 16, 2003

Thirteen people attended the fourth Stakeholder Advisory Forum for the northern segment of the Edwards aquifer groundwater availability model. This meeting was held at the Salado Civic Center, Salado, TX. The stakeholders present represented the Texas Commission on Environmental Quality, Clearwater UWCD, Brazos River Authority, and various consulting firms, as well as private citizens.

At the meeting, Dr. Ian Jones outlined the work conducted to calibrate the steady-state model. This included discussion of the final input data and calibration results for the model, including the Root Mean Square Error and comparison of simulated and observed streamflow data. The presentation also included a brief review of the geology, hydrogeology, and the conceptual model.

Questions asked during the presentation pertained to how recharge and hydraulic conductivity was distributed, use of pump test data, and the source of structural and pumpage data. It was suggested that transient model cover relatively short time period that included major drought.