Managing Natural Resources in the Heart of Texas: Challenges and Opportunities

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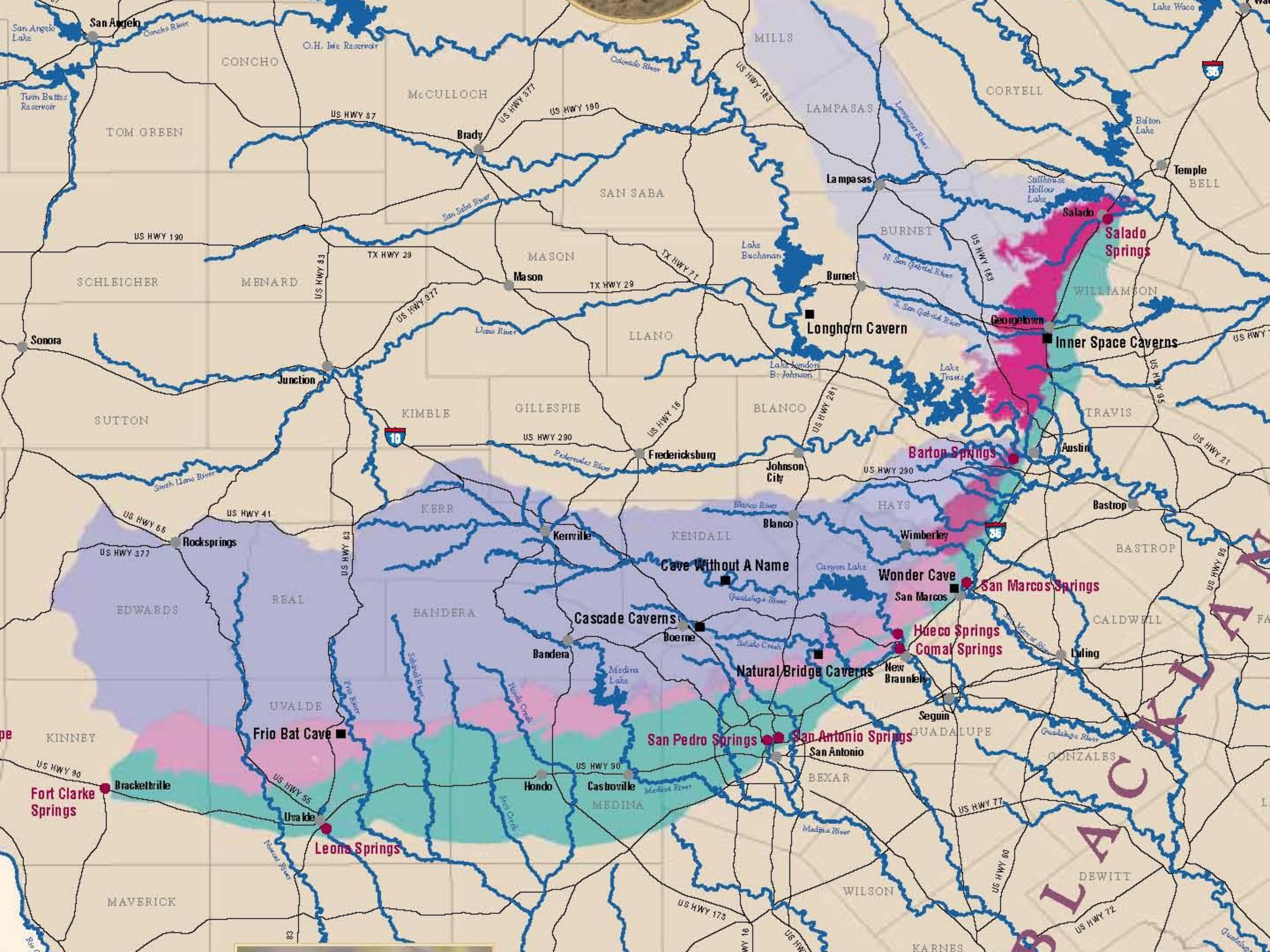
Greater Edwards Aquifer Alliance



San Angelo
San Angelo Lake
Concho River
O.H. Ivie Reservoir
Colorado River
MILLS
CONCHO
McCULLOCH
US HWY 377
US HWY 190
US HWY 183
LAMPASAS
CORYELL
Lake Waco
Twin Buttes Reservoir
TOM GREEN
US HWY 87
Brady
Lampasas River
Belton Lake
Temple
BELL
Lampasas
Stillhouse Hollow Lake
SAN SABA
San Saba River
Salado
Salado Springs
US HWY 190
TX HWY 29
MASON
TX HWY 71
Lake Buchanan
BURNET
N. San Gabriel River
SCHLEICHER
MENARD
US HWY 83
Mason
TX HWY 29
Burnet
WILLIAMSON
US HWY 377
S. San Gabriel River
Longhorn Cavern
Georgetown
Inner Space Caverns
Sonora
Llano River
LLANO
Lake Lyndon B. Johnson
Lake Travis
Junction
US HWY 95
KIMBLE
GILLESPIE
US HWY 16
BLANCO
US HWY 281
TRAVIS
SUTTON
10
US HWY 290
Barton Springs
Austin
Fredericksburg
Pedernales River
Johnson City
US HWY 290
US HWY 21
South Llano River
US HWY 41
KERR
Blanco River
HAYS
Bastrop
US HWY 55
Rockprings
Blanco
US HWY 377
US HWY 83
Kerrville
KENDALL
Wimberley
35
BASTROP
Cave Without A Name
Canyon Lake
Wonder Cave
San Marcos Springs
EDWARDS
REAL
BANDERA
Guadalupe River
San Marcos
San Marcos River
CALDWELL
Cascade Caverns
Boerne
Hueco Springs
Comal Springs
Bandera
Salado Creek
Luling
Sabinal River
Frio River
Medina Lake
Natural Bridge Caverns
New Braunfels
Hondo Creek
UVALDE
Seguin
KINNEY
Frio Bat Cave
San Pedro Springs
San Antonio Springs
GUADALUPE
Guadalupe River
San Antonio
GONZALES
US HWY 90
US HWY 90
BEXAR
Brackettville
Fort Clarke Springs
US HWY 55
Hondo
Castroville
Medina River
MEDINA
US HWY 77
Uvalde
Seco Creek
Leona Springs
Nueces River
Medina River
WILSON
DEWITT
MAVERICK
US HWY 173
US HWY 80
US HWY 72
KARNES
BLACKLAND

The Texas Commission on Environmental Quality (TCEQ) has designated the Edwards Aquifer as the major aquifer in the state most vulnerable to pollution.

Little to no filtration is provided as water enters directly into the Aquifer through faults, stream beds, and terrain characterized by uniquely porous Edwards limestone.

The Edwards is a uniquely prolific aquifer characterized by rapid groundwater recharge and rapid open channel flow.

This rock also makes the Edwards uniquely prolific.

Some issues with protection of Central Texas karst aquifers:

- The State has no density restrictions for the Edwards Aquifer Recharge Zone.
- Neither the State nor municipalites require adequate protection of the Edwards Aquifer Contributing Zone. Most Edwards Aquifer Authority regulations extend protections for five miles into the Contributing Zone.
- The State treats storm water as a pollutant, requiring measures to seal the Aquifer from recharge, or to mitigate water quality through the use of engineered Best Management Practices (BMP's).
- Current engineered structures required by the state to mitigate water quality are often poorly designed and poorly maintained.
- Public investment in infrastructure does not take environmental services of the Edwards and Trinity aquifer watersheds, encouraging growth where it is least appropriate.
- Counties lack the authority to regulate land uses
- The State often grants powers of eminent domain to Municipal Utility Districts and other entities, empowering them to encroach on contiguous privately held land.

On-Line Resources

- Greater Edwards Aquifer Alliance
  - Library - Legislation http://www.aquiferalliance.net/library/legislation/
  - Alerts: http://www.aquiferalliance.net/sign-up-for-action-alerts/
- Texas Legislature On-Line
  - Bill Look Up http://www.capitol.state.tx.us/
  - Bill Lists http://www.capitol.state.tx.us/MnuMyTLO.aspx
  - Live Hearings

http://www.house.state.tx.us/video-audio/

For more information about GEAA and our member groups visit

www.AquiferAlliance.org

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"Our fundamental position is that water in its natural state is entirely dedicated to supporting the environment. There is no surplus. As that water is used for human purposes, its environmental support capability is reduced.

As more of water is used for human purposes, not only is there less water available for environmental support, but there starts to be competition for the water among human needs. There never is a surplus. There is only a willingness by people to claim that certain amounts of water can be placed to human use with certain restraints.

The challenge is in adequately defining the constraints so that adverse social and environmental impacts are minimized."

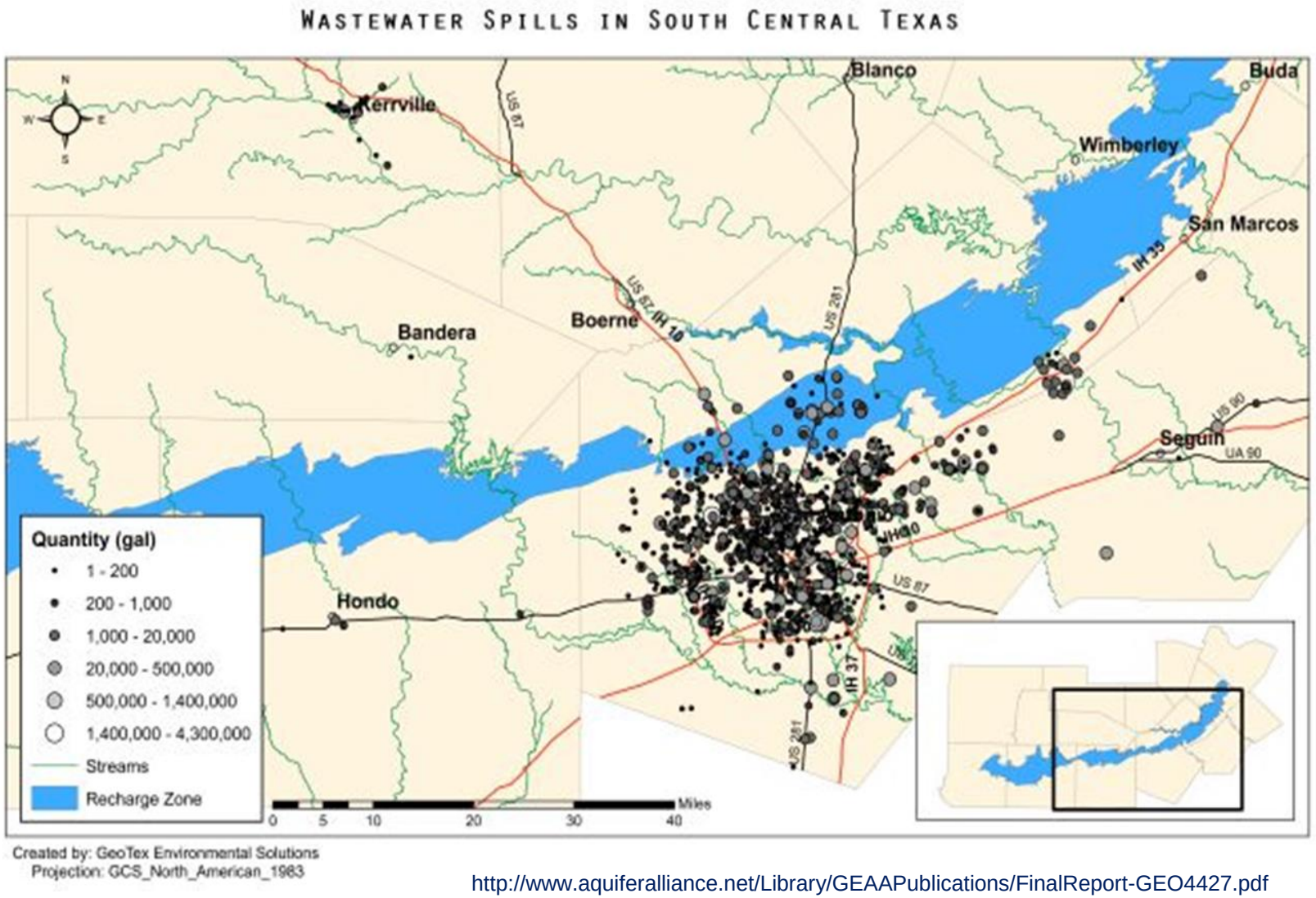
Con Mims, Executive Director, Nueces River Authority - *Water Transfers: from areas of surplus to areas of scarcity* 9/24/2011

Increased Urbanization in the Edwards Aquifer Recharge and Contributing zones is Impairing Water Quality

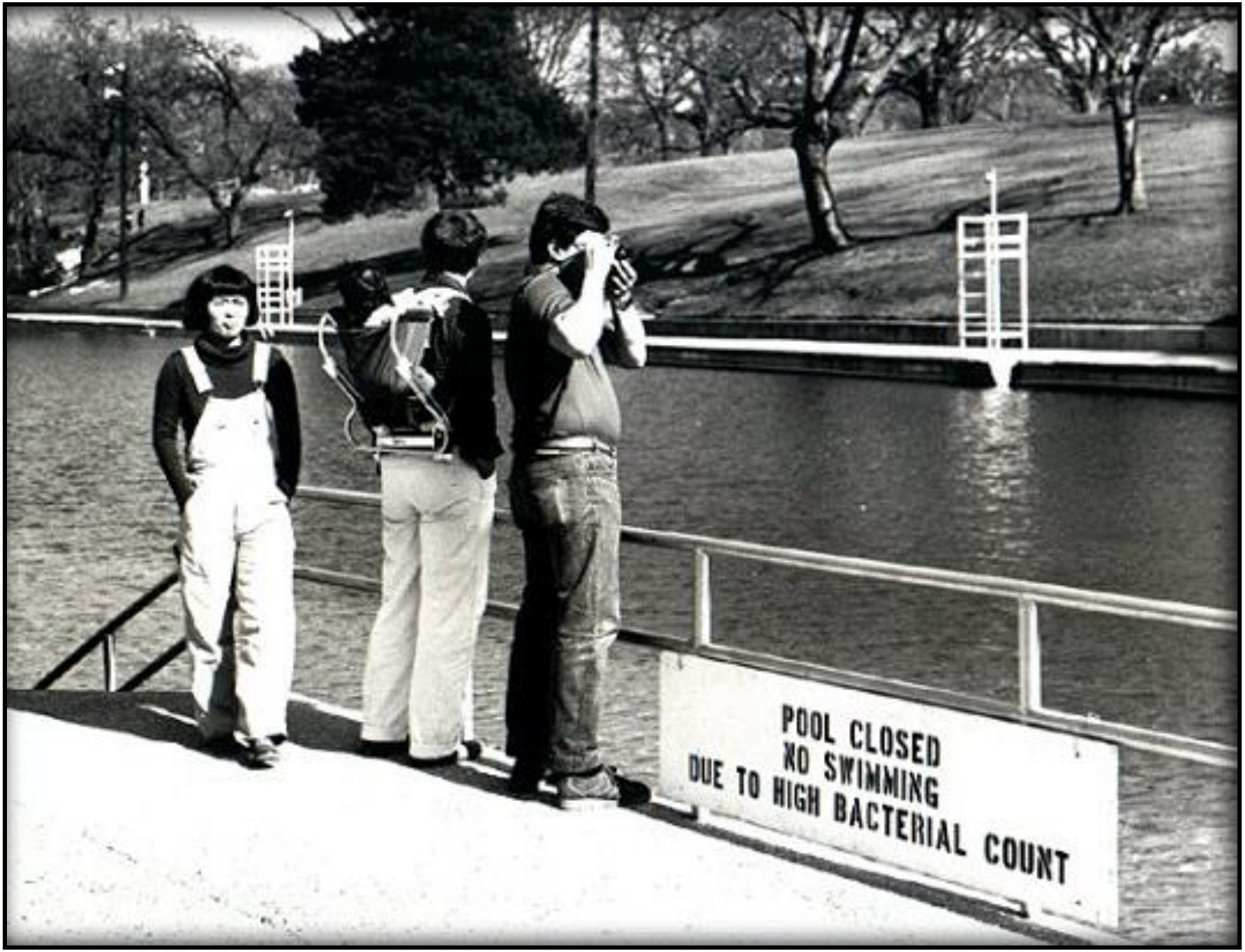
- Results of EAA well tests (2011 – 2012*) detecting anthropogenic or “emerging” contaminants (pharmaceuticals and personal care products)

- Analytic MethodChemical NameResultUnitAY-68-28-2118/22/11 10:50 AMWS-LC-002217a-Estradiol1.2ng/lAY-68-28-2118/22/11 10:50 AMWS-LC-0022Equilenin3.8ng/lAY-68-28-2118/22/11 10:50 AMWS-LC-0022Estrone6.9ng/lAY-68-28-2118/22/11 10:50 AME1694Triclocarban2.9ng/lAY-68-28-2118/22/11 10:50 AME1694Tylosin2.3ng/lAY-68-28-6088/18/11 10:30 AME1694Cotinine1.7ng/lAY-68-28-6088/18/11 10:30 AME1694Cotinine1.7ng/lAY-68-28-6088/18/11 10:30 AME1694Lincomycin0.51ng/lAY-68-28-6088/18/11 10:30 AME1694Lincomycin0.51ng/lAY-68-28-6089/19/12 12:40 PME1694Diltiazem7.9ng/lAY-68-29-1128/18/11 1:35 PME1694Lincomycin0.42ng/lAY-68-29-1121/11/12 11:05 AME1694Caffeine53ng/lAY-68-29-1121/11/12 11:05 AMWS-LC-0022Estrone1.6ng/lAY-68-29-1121/11/12 11:05 AME1694Lincomycin0.27ng/lAY-68-29-1138/18/11 12:05 PME1694Lincomycin0.31ng/lAY-68-29-1138/18/11 12:05 PME1694Lincomycin0.31ng/lAY-68-29-1131/10/12 11:25 AMWS-LC-002217a-Estradiol1.4ng/lAY-68-29-1131/10/12 11:25 AMWS-LC-002217b-Estradiol1.5ng/lAY-68-29-1131/10/12 11:25 AME1694Caffeine320ng/lAY-68-29-1131/10/12 11:25 AME1694Diltiazem0.48ng/lAY-68-29-1131/10/12 11:25 AMWS-LC-0022Estrone1.3ng/lAY-68-29-1131/10/12 11:25 AME1694Lincomycin0.69ng/lAY-68-29-1131/10/12 11:25 AME1694Triclosan17ng/lAY-68-29-4181/17/12 9:45 8/16/12 9:50 AME1694Thiabendazole24ng/lDX-68-15-901 Hueco Springs12/3/12 1:15 PME169817a-Estradiol1.60ng/lDX-68-15-901 Hueco Springs12/3/12 1:15 PME1694Cotinine4.85ng/lDX-68-15-901 Hueco Springs12/3/12 1:15 PME1694Diltiazem0.705ng/lDX-68-23-301 Comal Springs8/23/11 8:50 AMWS-LC-002217a-Estradiol4.3ng/lDX-68-23-301 Comal Springs8/23/11 8:50 AMWS-LC-002217b-Estradiol7.0ng/lDX-68-23-301 Comal Springs8/23/11 8:50 AMWS-LC-0022Equilenin0.72ng/lDX-68-23-301 Comal Springs8/23/11 8:50 AMWS-LC-0022Estrone5.8ng/lLR-67-01-801 Hotel Springs at San Marcos12/3/12 11:50 AME1694Cotinine4.73ng/lLR-67-01-801 Hotel Springs at San Marcos12/3/12 11:50 AME1694Diltiazem0.451ng/lLR-67-09-101 12/14/12 12:00 AME1694Caffeine250ng/lLR-67-09-101 12/14/12 12:00 AME1694Carbamazepine19ng/lLR-67-09-101 12/14/12 12:00 AME1694Sulfamethoxazole12ng/l
- *excludes results from test well near Cibolo Nature Center
- Lincomyicin and sulfamethoxazole are antibiotics ·Diltiazem is a blood pressure medication · Carbamazepine is an epilepsy medication . Cotinine is a nicotine metabolite

Between January 2008 and May 2012 eighty three spills totaling 809,000 gallons (2.5 acre/feet) of raw sewage occurred on Edwards Aquifer Recharge Zone.



http://www.aquiferalliance.net/Library/GEAAPublications/FinalReport-GEO4427.pdf


POOL CLOSED
NO SWIMMING
DUE TO HIGH BACTERIAL COUNT

Incompatible land uses…

Martin Marietta Quarry next to San Antonio Ranch

Infill development is occurring within drainage areas on the Edwards Recharge Zone

ECOREGIONAL CONTEXT: KEY CONCEPTS

The Edwards Aquifer is an irreplaceable resource that has been subjected to significant urban growth and development, resulting in loss of recharge due to impervious cover replacing native landscape cover.

The Edwards is a karst aquifer, a type of aquifer that is especially susceptible to contamination because pollutants from runoff, leaks, spills, lawn treatments, and other sources can reach the water table within minutes and travel quickly through the aquifer with effectively no filtration.

The need exists for an integrated approach to water management over the aquifer that will maintain the natural hydrologic regime to the extent possible, including the need to recharge the aquifer safely.