



Rio Grande Basin Biophysical Assessment for Sustainable Agricultural Water Conservation



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Rio Grande Research Center
Sul Ross State University



Rio Grande Basin

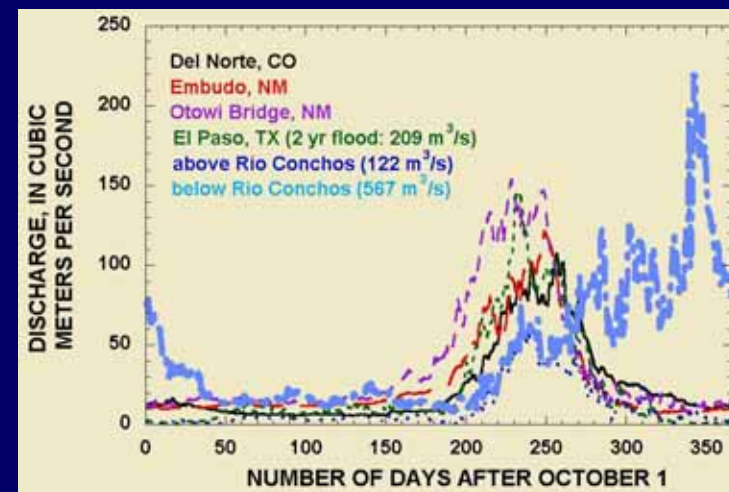
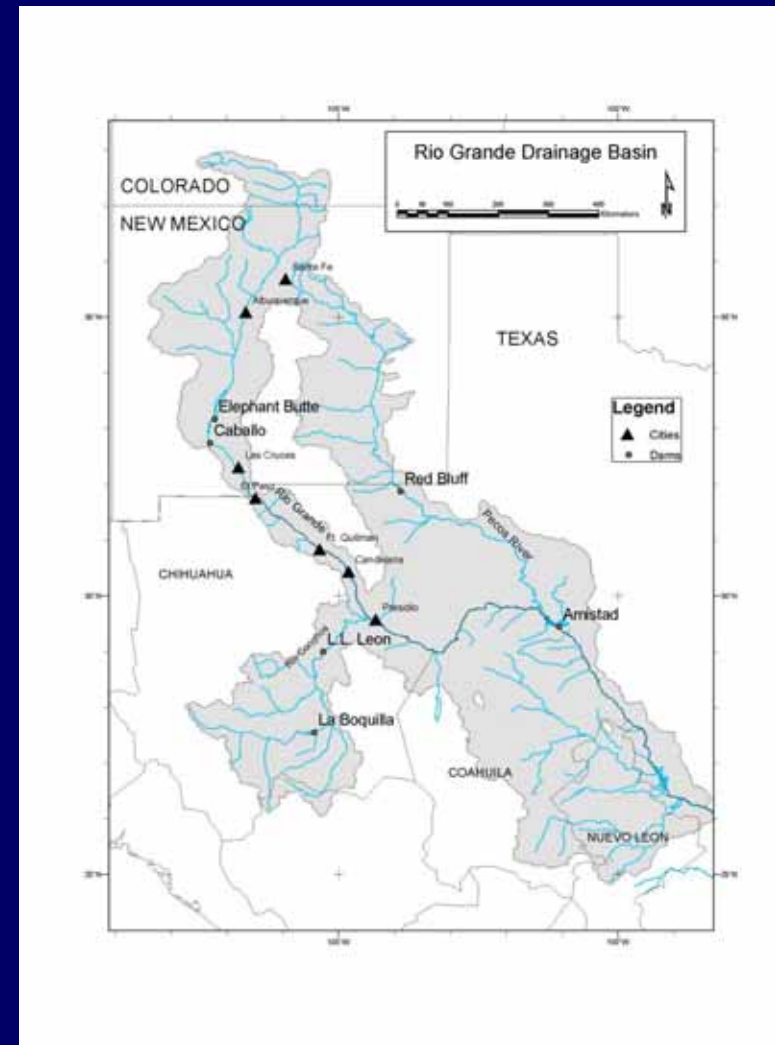
- Rio Grande
- Pecos River
- Rio Conchos

U.S. States

- Colorado
- New Mexico
- Texas

Mexican States

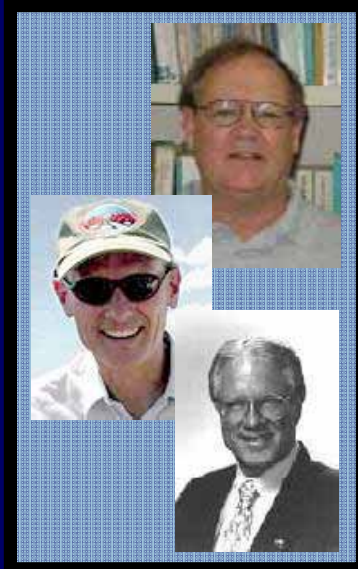
- Chihuahua
- Coahuila
- Nuevo Leon
- Tamaulipas



Hydrograph courtesy
of Jack Schmidt

RIO GRANDE RESEARCH CENTER

Located on SRSU campus in Alpine, Texas, near the center of the Rio Grande Basin





The mission of the Rio Grande Research Center is to improve our understanding of the water resources in the Rio Grande Basin and to provide approaches for their sustainable use



Rio Grande Research Center

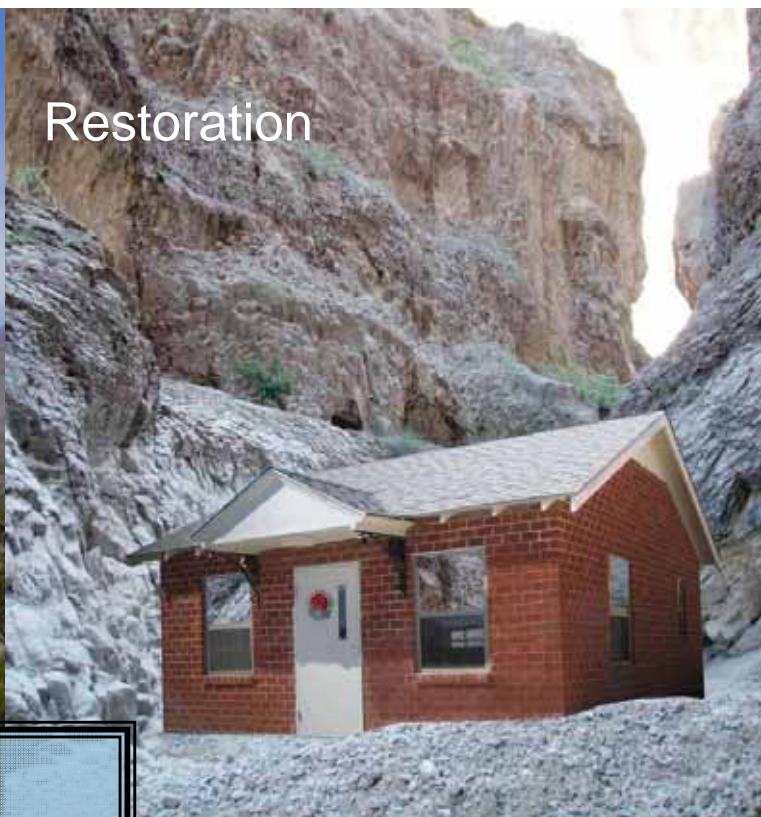
- ✓ Facilitate Stakeholder Collaboration
- ✓ Coordinate Outreach & Education
- ✓ Coordinate Research Projects
- ✓ SAWC Annual Accomplishment Reports
- ✓ GOES Equipment Maintenance
- ✓ Identify project appropriate funding streams
- ✓ Data Clearinghouse: www.rivers.txstate.edu/rg/
- ✓ GIS Resources: Data for research and decision making
- ✓ K-12 Education Outreach: Tex Prep, Teacher Training
- ✓ Assist researchers and land managers in connecting stakeholder identified needs with funding that results in 'real time' solutions



Monitoring



Restoration

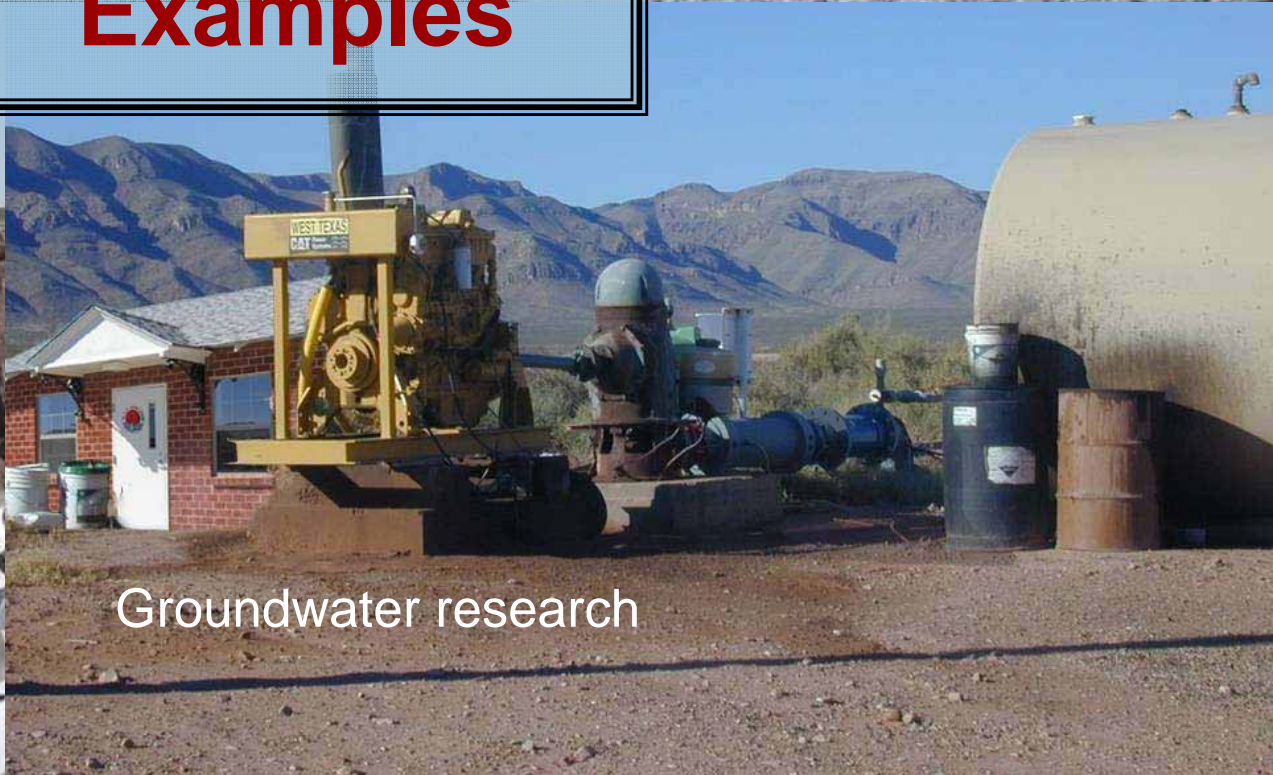


Examples

Outreach / Community Service



Groundwater research





Current Projects

Groundwater and Surface Water

Sul Ross State University Project # 3 **Kokernot Springs Restoration**

Multi-phase endeavor aimed at returning the spring and the adjacent floodplain to a condition that represents a more functional and sustainable geo-hydrologic and biologic condition.

Sul Ross State University Project # 5 **Impact of upland areas near drainages on water quality in the Terlingua Creek Watershed, Brewster and Presidio County, Texas.**

This project addresses needs in the Trans Pecos region of the Rio Grande watershed associated with water quality.

Sul Ross State University Project # 4 **Evaluation of Source of Spring Flow from Cretaceous Aquifers along the Rio Grande Wild and Scenic River**

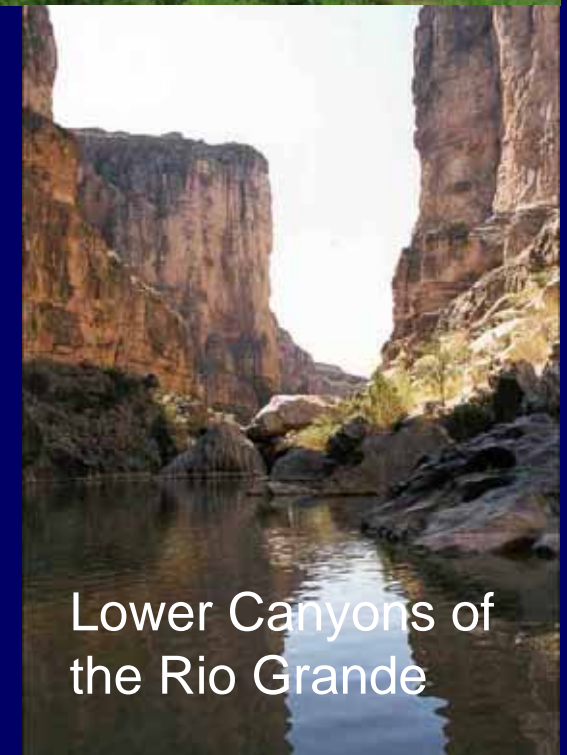
This project seeks to complete a hydro-geologic evaluation of thermal springs along the Rio Grande Wild and Scenic River (RIGR).



Kokernot Springs, Sul Ross State University Campus



Bullfrog tank,
Terlingua creek



Lower Canyons of
the Rio Grande

Human Factors

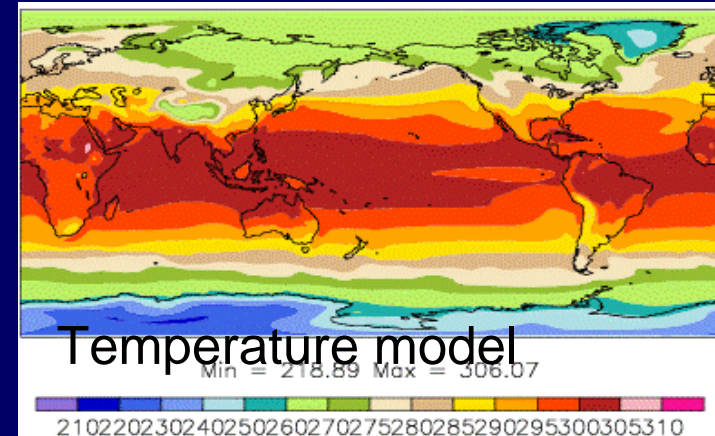
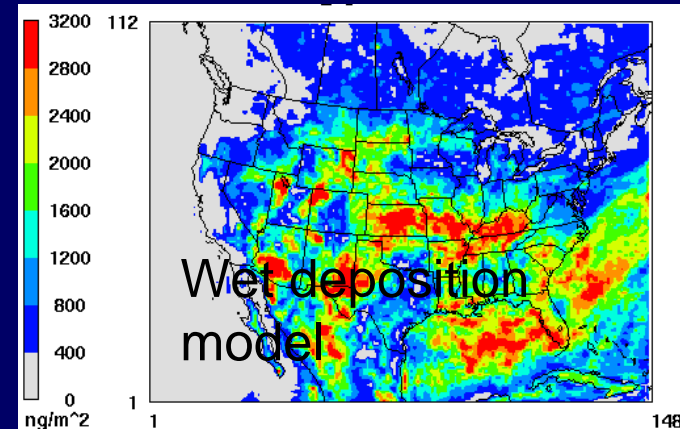
Lamar University Project # 1 *Field Sampling/Identification of Pesticide/Pharmaceutical-Contaminated Water*

Lamar University Project # 2 *Assessment of the Impact of Airborne Particulate Pollutants on the Rio Grande Basin Watershed*

The objective of this study is to employ the most updated version of EPA's Models-3/CMAQ modeling system in order to assess the impact of airborne particulate pollutants on the sustainable use of Rio Grande Basin water.

Lamar University Project # 3 *Impact of Global Climate Change on the Precipitation and Acid Deposition in the Rio Grande Region*

The objective of this research project is to examine the impact of global climate change on the precipitation and acid deposition in the Rio Grande River Basin region.



Human Factors Cont.

Sam Houston State University Project #3

Drought-Mitigation Planning and Responses to Climate Change along the Texas-Mexico Border: Interviews with Water Stakeholders

This project seeks to assess the extent to which the group's recommendations were adopted by water resources policymakers and their level of implementation.



Texas State University – San Marcos Project # 4 Analysis, Evaluation, and Recommendations Regarding Interpretive Programs and Facilities on the Rio Grande

The purpose of this research is to evaluate existing interpretive programs and facilities on the entire Rio Grande and develop recommendations that can lead to a comprehensive interpretive plan for the river.



Texas State University – San Marcos Project # 5 Rio Grande Environmental Literacy and Capacity Building

Since 1991 the Texas Stream Team Program has supported a statewide network of volunteers and partners conducting water resource education and volunteer monitoring. This project will revitalize the Friends of the Rio Grande Program that is supported through the IBWC and transfer the successes of the Dos Laredos Project to the cities of Presidio and Ojinaga.

Biological Factors

Sul Ross State University Project # 2 ***Mapping and Monitoring of Native and Exotic Vegetation in Trans-Pecos, Texas***

Phase I of vegetation mapping of the Trans-Pecos trans-boundary area will include mapping the vegetation on Big Bend National Park and the areas directly south of the park in Mexico using a variety of means including satellite imagery, aerial photos, soil survey and ecological site maps.

Sul Ross State University Project # 6 ***Wintering grassland birds as bio-indicators in the Rio Grande drainage basin***

The purpose of this project is to investigate wintering grassland bird abundance, distribution, community structure, habitat use and inter-annual movements.



Texas State University – San Marcos Project # 2 ***A multi-scale assessment of seasonal vegetation patterns in the Rio Conchos watershed***

This project will analyze seasonal trends in vegetation greenness; create a series of land-cover maps indicating the onset and duration of greenness, as well seasonal greenness maps; and, perform a multi-temporal principle components analysis to assess causal mechanisms of the vegetation greenness patterns.

Biological Factors Cont.

Sam Houston State University Project # 1 *Vegetation Mapping*

This project will utilize techniques to develop vegetation maps for seven of the remaining ten counties along the Texas border.



Sam Houston State University Project # 2 *Ichthyofaunal Diversity and Associated Metrics as Indicators of Water Quality and Land Use Practices along the Rio Grande*



This project will integrate data into a comprehensive model that will explore the potential global warming trend by isolating areas of impact, future threat and sustained biological integrity of the middle Rio Grande.



Texas State University – San Marcos Project # 6 *Relationships of River Flow and Nutrient Loading to Estuarine Communities of the Lower Rio Grande*

This research project will address several critical research objectives related to freshwater inflow needs and ecosystem maintenance of the Rio Grande estuary.

Biology Projects

Giant Asian Tapeworm

Effects on Fish Populations

- Intestinal blockage
- Intestinal perforation
- Distended abdomen
- Necrosis
- Inflammation
- Hemorrhaging
- Loss of intestinal microvilli
- Loss of enterocytes
- Decreased survivorship
- Mortality



Information and Data Management

Sam Houston State University Project # 4 ***Development of Edited Compilation of Rio Grande Research***

Researchers will edit a book incorporating the data collected from all Texas State University System participants of the SAWC.



Texas State University – San Marcos Project # 1 ***Project Management, Database and Clearinghouse***

This project provides for data management and leadership for all projects being done by Texas State University – San Marcos and support of the Rio Grande Research Center, located at Sul Ross State University.



Texas State University – San Marcos Project # 3 ***SAWC Integration of GIS Datasets for Development of a Standardized Watershed Characterization Report Tool***

We are utilizing the existing geospatial datasets developed to date within the Rio Grande Watershed to populate the database structures and generate summary reports for each sub-basin. This effort will also include trend analyses on the changes in the flow regimes and incorporation of aquatic related resource information on the distribution and life stage periodicities.

Bi-Lingual SAWC Website

SUSTAINABLE AGRICULTURAL WATER CONSERVATION IN THE RIO GRANDE
A TEXAS STATE UNIVERSITY SYSTEM RESEARCH PROJECT

English

HOME
BACKGROUND
About SAWC
Facts
Meetings
Partners
Contact Us
PROJECTS
Components
Deliverables
RG INSTITUTIONAL DATABASE
Geographic Area
Alphabetical Order
Theme
RG Pubs DATABASE
Browse By Author
Browse By Category
Search
MAPS AND DATA
Rio Grande GIS Data Viewer
GIS Data
ArcIMS Viewer (Texas ABM)
GIS Links

SUSTAINABLE AGRICULTURAL WATER CONSERVATION IN THE RIO GRANDE BASIN

A Texas State University System Research Project funded by a grant from the United States Department of Agriculture

- Focuses on facilitating sustainable water use for agriculture and other major water uses in the Rio Grande drainage basin
- Includes major research in groundwater, surface water, biology, GIS and remote sensing
- Coordinates the dedicated research efforts and related data compilation of five universities in the Texas State University System
- Creates partnerships with relevant institutions in United States and Mexico

PROJECT RIO - Joint project of Texas State University and Universidad Nacional Autonoma de Mexico
Ciudad Juarez, Mexico
October 3-5 2006

Joint Rio Grande Basin Initiative Annual Conference
South Padre, Texas
May 15-17, 2007

English

SUSTAINABLE AGRICULTURE WATER CONSERVATION IN THE RIO GRANDE
A TEXAS STATE UNIVERSITY SYSTEM RESEARCH PROJECT

English

INICIO
ANTECEDENTES
Sobre SAWC
Hechos
Reuniones
Socios
Contacto
PROYECTOS
Componentes
Entregables
BASE DE DATOS DE RB/G POR INSTITUCION
Area Geográfica
Orden Alfabético
Por Temas
BASE DE DATOS DE RB/G POR PUBLICACIONES
Búsqueda por Autor/a
Búsqueda por Categoría
Búsqueda Básica
MAPAS Y DATOS
Datos SIG de Rio Bravo/Grande
Datos SIG
Herramienta ArcIMS (Texas ABM)
Enlaces SIG

CONSERVACION DE AGUA SUSTENTABLE PARA LA AGRICULTURA EN LA CUENCA DEL RIO BRAVO/GRANDE

(Sustainable Agricultural Water Conservation in the Rio Grande o SAWC)

Un proyecto de investigación del Sistema Universitario del Estado de Texas (Texas State University System) subsidiado por el Departamento de Agricultura de los Estados Unidos (United States Department of Agriculture).


- Enfocado en facilitación del uso sustentable del agua para la agricultura y otros usos en la cuenca del Rio Bravo/Grande
- El proyecto incluye investigación a fondo de aguas subterráneas, aguas superficiales, biología, SIG (Sistema de Información Geográfica) y teledetección
- Coordina esfuerzos dedicados a investigación y relacionados con la compilación de datos de cinco universidades que forman parte del Texas State University System
- Crea asociaciones entre instituciones pertinentes en los Estados Unidos y México

PROJECT RIO - Proyecto Conjunto de Texas State University y la Universidad Nacional Autonoma de Mexico
Ciudad Juárez, México
3-5 de Octubre, 2006

Spanish

www.rivers.txstate.edu/rg

Searchable Institutional and Publications Databases



SUSTAINABLE AGRICULTURAL WATER CONSERVATION IN THE RIO GRANDE
A TEXAS STATE UNIVERSITY SYSTEM RESEARCH PROJECT

RG INSTITUTIONAL DATABASE > Alphabetical Order

RG INSTITUTIONAL DATABASE: ALPHABETICAL ORDER

Use the links below to browse the database alphabetically:

| ALL | A | B | C | D | E | F | G | H | I | J | K | L | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |

W


Water Environment Federation; WEF

Water Environment Federation
601 Wythe Street / Alexandria VA 22314-1994
800-666-0206
(more...)

World Wildlife Fund; WWF

U.S. Headquarters
World Wildlife Fund / 1250 Twenty-Fourth St, NW / P.O. Box 97180
Washington D.C. 20090-2180

Navigation: HOME, BACKGROUND, About SAWC, Facts, Partners, Contact Us, PROJECTS, Components, Deliverables, Meetings, RG INSTITUTIONAL DATABASE, Geographic Area, Alphabetical Order, Theme, MAPS AND DATA, GIS Data, ArcIMS Viewer (Texas State), ArcIMS Viewer (Texas A&M), GIS Links



SUSTAINABLE AGRICULTURE WATER CONSERVATION IN THE RIO GRANDE
A TEXAS STATE UNIVERSITY SYSTEM RESEARCH PROJECT

your binder is empty

HOME > Browse by Category

BROWSE BY CATEGORY

Select a category from the list below, and press the Select button to view all references within that category:

geo range: TX Big Bend
geo range: TX El Paso
geo range: TX Forgotten
geo range: TX Lower Valley
geo range: US side - Rio Grande

Select

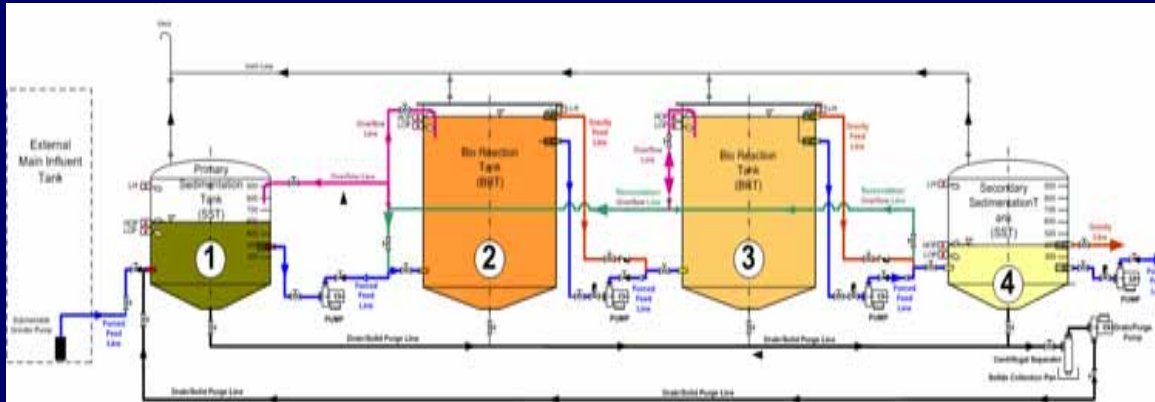
Add to Binder	Title	Year	Type
<input type="checkbox"/>	view A Cohort Study of Injuries in Migrant Farm Worker Families in South Texas	2006	Journal
<input type="checkbox"/>	view Health Information Hispanic outreach in the Texas Lower Rio Grande Valley	2006	Journal
<input type="checkbox"/>	view Regreening the Lower Rio Grande	2006	Journal
<input type="checkbox"/>	view Boll weevil eradication by 2009?: Boll weevil eradication by 2009?	2006	Journal
<input type="checkbox"/>	view Valley farmers seek drought relief; Valley farmers seek drought relief	2006	Journal

Navigation: HOME, BACKGROUND, About SAWC, Facts, Partners, Contact Us, PROJECTS, Components, Deliverables, Meetings, RG WEBSITE DATABASE, Geographic Area, Alphabetical Order, Theme, RG PUBS DATABASE, Browse By Author, Browse By Category, Search, MAPS AND DATA, GIS Data



Associated Projects

Deployable Aqueous Aerobic Bioreactor (DAAB)



The DAAB is a project that employs a mobile wastewater treatment unit to be used by both military and commercial entities.

Military, disaster relief and border relevant applications

- Developed at Texas Research Institute for Environmental Studies
- \$2 M DOD funding for FY07
- Project builds upon TSUS relationships developed under SAWC project
 - Microbiology (SRSU)
 - Lamar University (Engineering)
 - Sam Houston State University (Design & Build-Texas Research Institute for Environmental Studies)



TexPREP

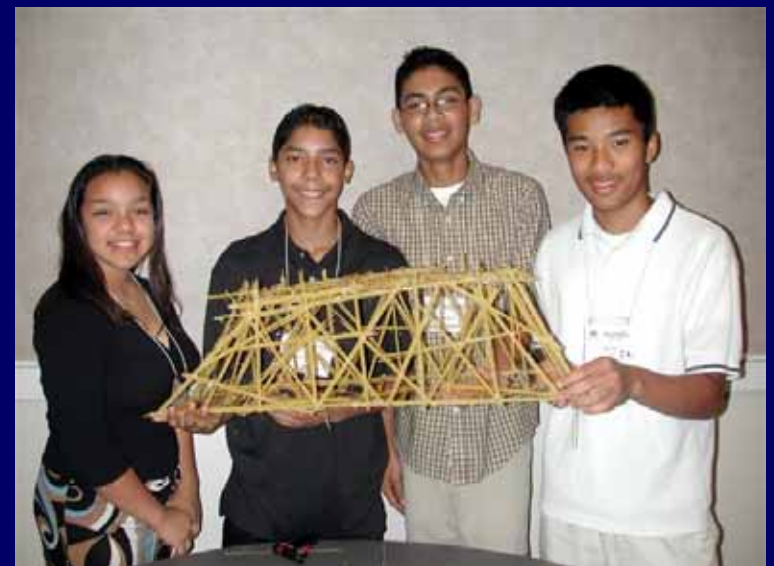
Mission

- Identify students with an interest in math, science, engineering, and technology and increase their potential for careers in these areas.



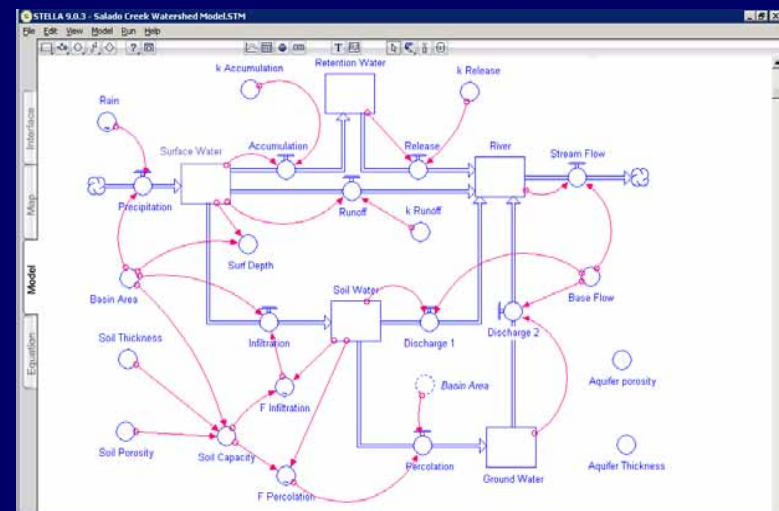
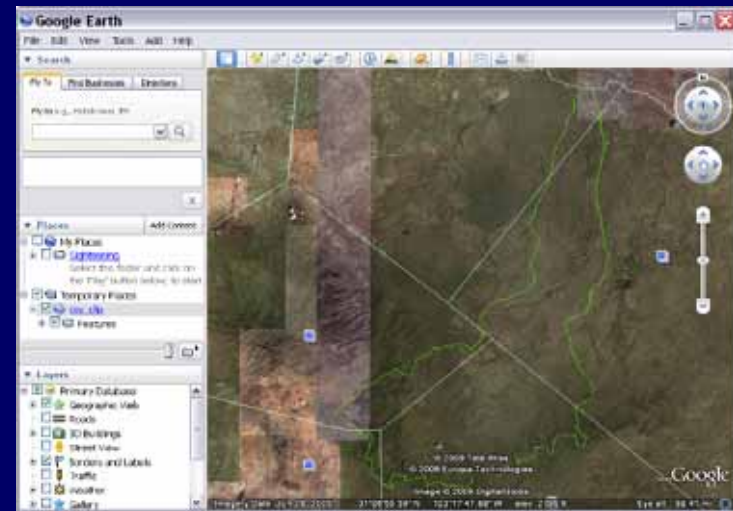
Academic Program

- Seven to eight-week summer program
- Three year curriculum
- Texas Education Agency credit
- Career component
- Field trips
- Scholarships
- Watershed component with Google Earth and Stella



TexPREP Watershed Component

- Google Earth to view watershed
- Stella to build model to predict hydrographs and groundwater levels





Rio Grande Sustainability

RSI secured funding from the Global Environment Facility and began transferring research results to “shovel ready” projects



