AgriLIFE RESEARCH & EXTENSION
Texas A&M System

Water Quality Update and Next Steps

Lucas Gregory
Texas Water Resources Institute
979-845-1851

Texas Water Resources Institute
make every drop count

Continuous Water Quality Monitoring

- TCEQ currently operates and maintains a series of 'continuous water quality monitoring' stations
- As of September 1, 2011 the operation and maintenance of these sites will be contracted out to USGS personnel from San Angelo
- The data quality will be just the same, if not better and can be accessed the same way

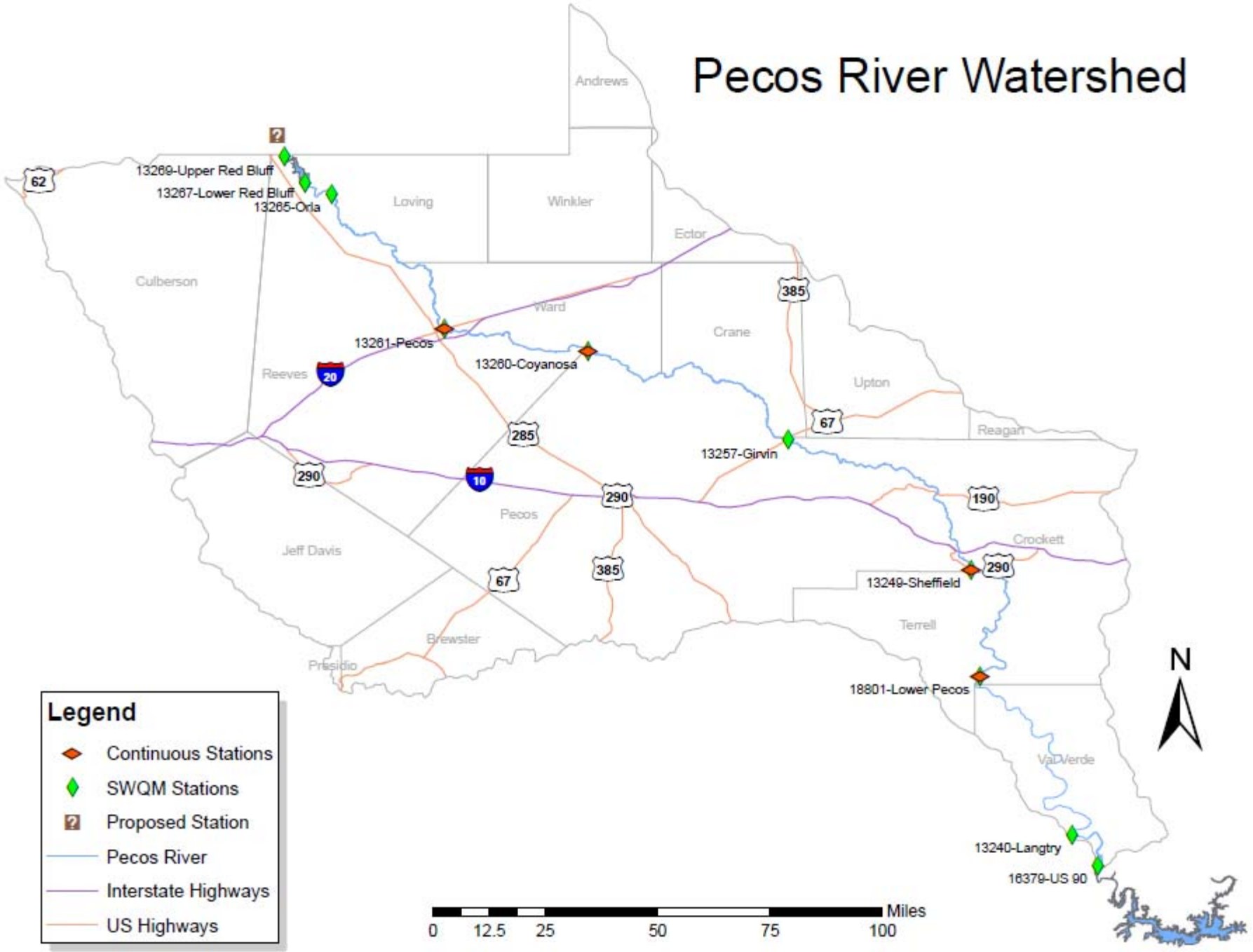
Continuous Water Quality Monitoring

- TCEQ operates and maintains a series of 'continuous water quality monitoring' stations
- Currently 5 active stations on the Pecos
- Parameters monitored every 15 min
  - Surface temperature
  - Gage height
  - Specific conductance
  - Dissolved oxygen
  - pH
  - Salinity

Continuous Water Quality Monitoring

Station	Location	Date Installed	Parameters Monitored
C788	Pecos River near Red Bluff, NM	6/23/2011	Specific Conductance, Water Temp
C710	Pecos River at Business 20	9/23/2004	DO, gage height, pH, Salinity, Spec. Conductance, Water Temp
C709	Pecos River near Coyanosa	9/22/2004	DO, gage height, pH, Salinity, Spec. Conductance, Water Temp
TBD	Pecos River near Girvin	SOON	DO, gage height, pH, Specific Conductance, Water Temp
C735	Pecos River near Sheffiled	7/19/2006	DO, gage height, pH, Specific Conductance, Water Temp
C729	Lower Pecos River (Brotherton Ranch)	2/23/2006	DO, gage height, pH, Salinity, Spec. Conductance, Water Temp
C764	Independence Creek	17-Jul-08	DO, pH, Specific Conductance, Water Temp

Pecos River Watershed



Potential New Continuous Stations

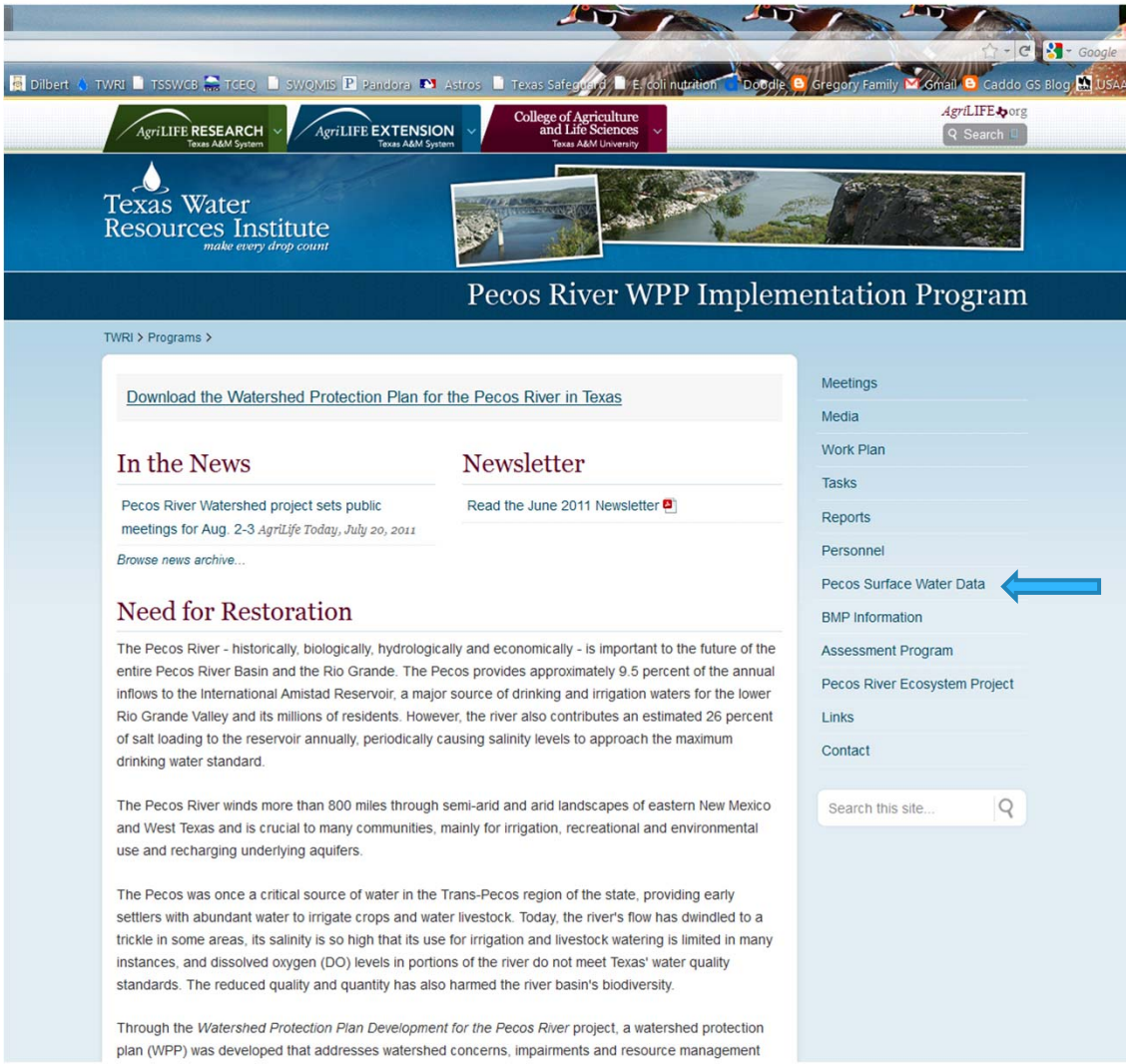
Pecos River near Orla

Pecos River above Lake Amistad

- TSSWCB is working with TCEQ to establish an agreement to allow for the purchase and transfer of ownership of station components
- TWRI will begin purchasing equipment as soon as TSSWCB & TCEQ get their agreement worked out
- TSSWCB is working on an operation and maintenance agreement with USGS
- Stations likely won't be deployed until after January 1, 2012
- Stations will be identical to other stations in the monitoring network

Finding Water Quality Monitoring Data Online

http://pecosbasin.tamu.edu/



AgriLIFE RESEARCH Texas A&M System | AgriLIFE EXTENSION Texas A&M System | College of Agriculture and Life Sciences Texas A&M University

AgriLIFE.org Search

Texas Water Resources Institute
make every drop count

Pecos River WPP Implementation Program

TWRI > Programs > Pecos River >

Pecos Surface Water Data

- TCEQ Surface Water Quality Monitoring Database
- How to access surface water quality monitoring data
- USGS Daily Surface Water Data for Texas
- Real-Time River Data:
  - USGS Streamflow
  - CRP - Pecos
  - CRP - Coyanosa
  - CRP - Sheffield
  - CRP - Lower Pecos
  - CRP - Independence Creek
  - CRP - Red Bluff, NM
    - Red Bluff Discharge Data

Meetings
Media
Work Plan
Tasks
Reports
Personnel
Pecos Surface Water Data
BMP Information
Assessment Program
Pecos River Ecosystem Project
Links
Contact

Search this site...

Texas Water Resources Institute

1500 Research Parkway A240
2118 TAMU
College Station, TX 77843-2118

Phone: 979.845.1851
Fax: 979.845.8554
Email: twri@tamu.edu

TWRI and the Texas A&M Institute of Renewable Natural Resources are working together to foster and communicate research and educational outreach programs focused on water and natural resources science and management issues in Texas and beyond.

Firefox

Pandora Radio - Listen to Free Int... | SWQMIS Instructions - Texas Wat...

http://twri.tamu.edu/resources/swqmis-instructions

huffington post

RFT | eLearning | Google Maps | KBTX | FOXNews | Dilbert | TWRI | TSSWCB | TCEQ | SWQMIS | Pandora | Astros | Bookmarks

AgriLIFE RESEARCH Texas A&M System | AgriLIFE EXTENSION Texas A&M System | College of Agriculture and Life Sciences Texas A&M University

AgriLIFE.org Search

Texas Water Resources Institute
make every drop count

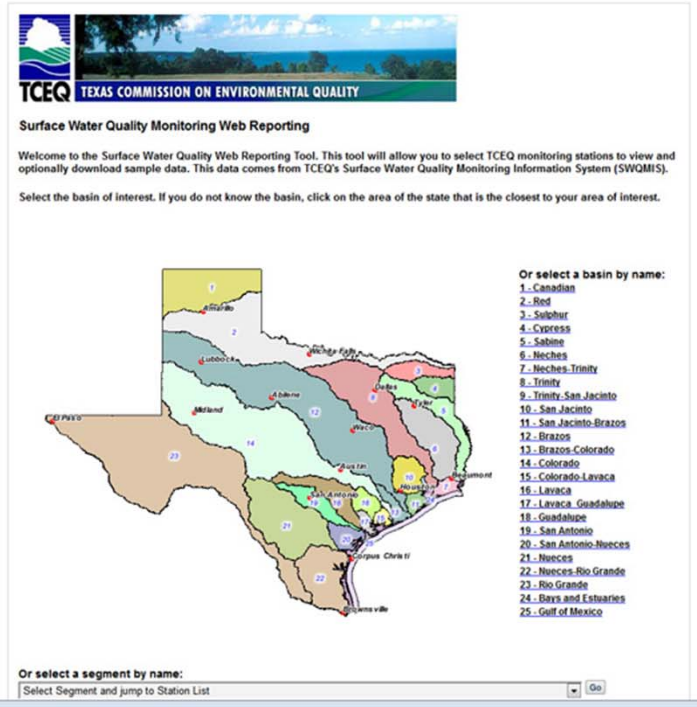
About | People | Programs | Publications | Funding Opportunities | Resources

TWRI > Resources >

Instructions for accessing and downloading water quality data from SWQMIS

TCEQ has an online viewer/database called the Surface Water Quality Monitoring Information System (SWQMIS) that contains all of these data but can be a bit difficult to navigate for first-time users. The document presented here will take you step-by-step through the process to access water quality data from this database. Visit the application to download the data.

You will hopefully end up on a page that looks like this:



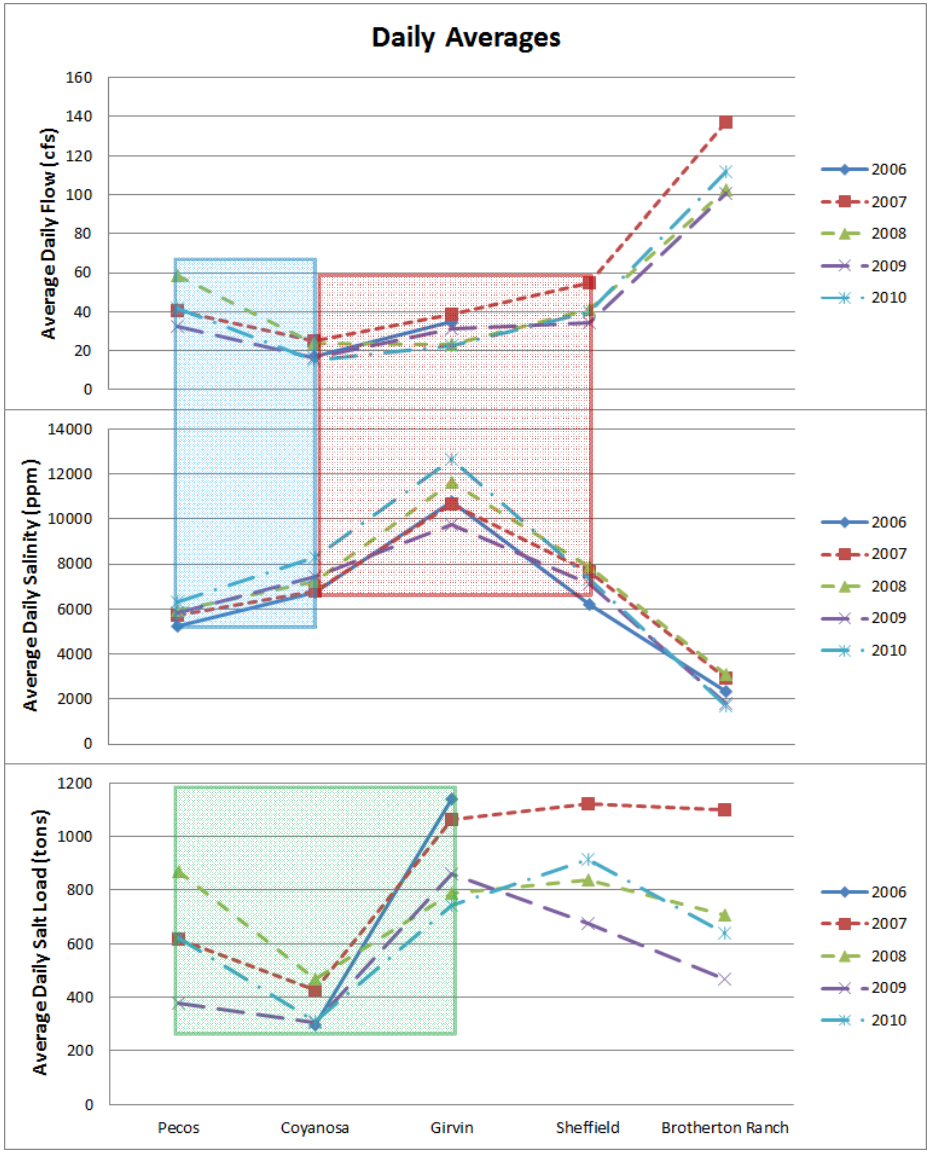
Salinity Source Evaluation

Aaron Hoff
Master of Science
Water Management & Hydrological Science

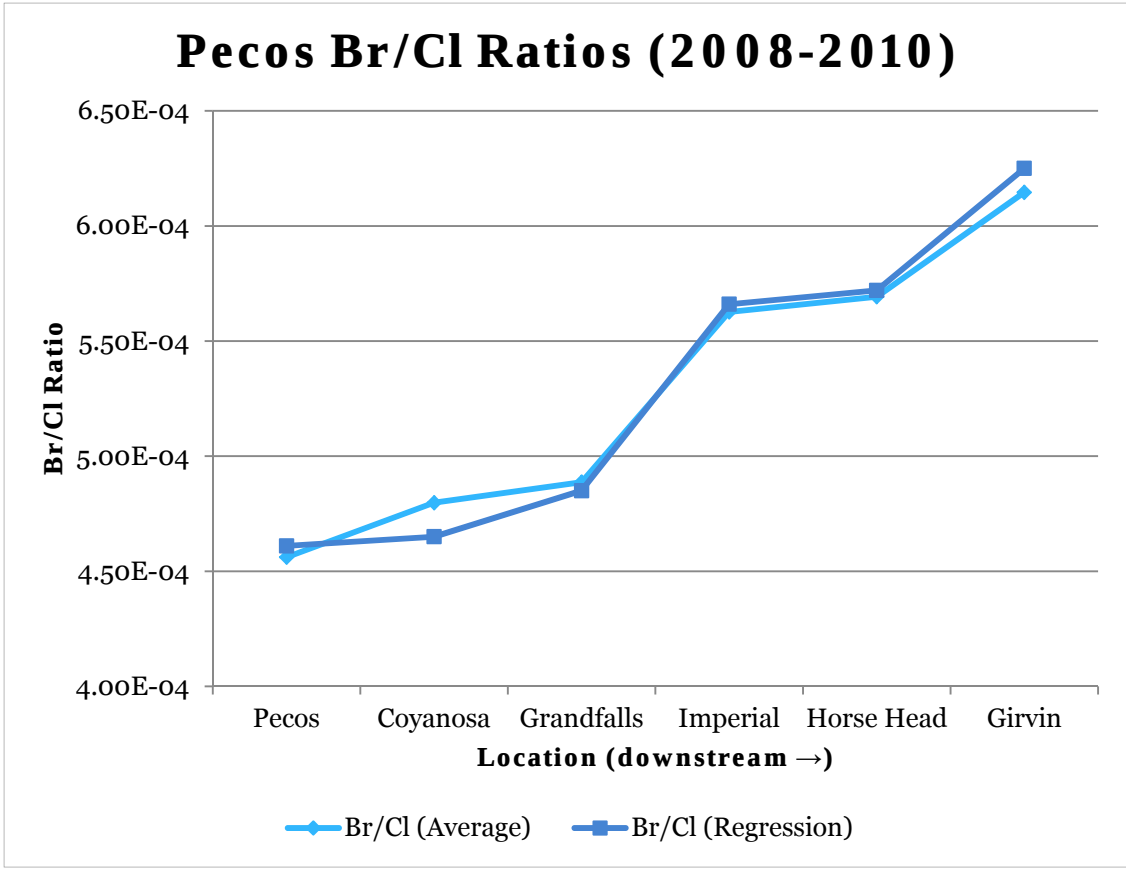
Trends in Salinity and Flow

- Flows decrease from Pecos to Coyanosa while salinity gradually increases
- Flows continually increase downstream of Coyanosa
- Salinity peaks at Girvin, but increasing flows downstream dilute the salt concentrations
- Salt loading is sporadic and is highly dependent upon flow
  - Generally decreases down to Coyanosa, increases to Girvin and varies south of there

(colored text corresponds with colored areas on graph)



Bromide/Chloride Ratio



- Br/Cl ratio is a "fingerprint" for a water source
- If the ratio changes significantly, it's a good indication that a different source of water is entering the river

Conclusions

- Flow reduction at Coyanosa is due mostly to irrigation diversions, but evaporation does play a role. Salinity increases while salt load decreases indicating that evaporation is quite influetial
- Decreasing salt load at Coyanosa indicates a deposition of salts, most likely through irrigation diversions
- Salt loads increase quickly at Girvin, indicating that new sources of saline water are entering the river
- Br/Cl analysis shows significant changes for river between Grandfalls and Girvin, further indicating the influence of groundwater intrusion

Dissolved Oxygen Modeling Update

Data Obtained and Processed

- CWQM data are the primary source of information for the model
- Algae and other biological material build up on sensors causes the data to 'drift'
- Only data collected the first day after the sensor is changed are considered reliable
- Sensors change twice a month
- Despite missing days, still a very good data set
- Approximately 192 data points per month
- Statistical analysis was performed to try to find any patterns in water quality trends relating to flow or seasons
  - No patterns were found as expected

Model Development

- Process has just begun and will take several months
- GIS used to segment the river into 5 km segments
- Irrigation turn outs identified and will be included in the model
- Irrigation data currently being formatted so that it is in a consistent format

Next Steps for Modeling

- Continue to format data
- Complete model set up
- Begin model calibration and validation
- Begin to run the model
- Present initial modeling results at next meetings

Funding

Funding and support for the development and implementation of the Pecos River Watershed Protection Plan is provided through federal Clean Water Act §319(h) Nonpoint Source grant from the TSSWCB and the U.S. Environmental Protection Agency.

Future Projects and Project Ideas

Salinity Source Isolation Proposal

- Proposal submitted to TSSWCB for Clean Water Act Section 319(h) funding consideration
  - Use helicopter based Electromagnetic Survey to identify salinity hotspots
  - Verify Electromagnetic Survey results with hydrogeological assessment

Proposal is still undergoing review

Implementation Outlined in WPP

- Riparian revegetation
- Well plugging
- Nutrient management plans
- Irrigation canal water audits
- Upstream irrigation delivery timing

Upcoming Meetings

AgriLife Extension Range Management Webinars

- http://naturalresourcewebinars.org
- $10 per person per event
- 1st Thursday of each Month starting this Thursday at Noon; recorded for later watching
- TDA Pesticide License CEUs awarded
  - August: Common Herbicide Use Mistakes: Will Hatler
  - September: Do-It-Yourself Brush Control Equipment: Dr. Bob Lyons
  - October: Invasive Plants of Texas Rangelands: Dr. Barron Rector
  - November: Rangeland Herbicide Laws: Dr. Alyson McDonald
  - December: Online Resources for Plant ID and Management: Dr. Megan Dominguez

Ecotourism Business Workshop

- August 10th at 1 p.m. at the Texas AgriLife Research and Extension Center: 1380 A&M Circle in El Paso
  - Plan for business or project success
  - Integrate your product into the tourism industry
  - Internet marketing
  - Economic costs and benefits

  - $50 registration by August 1st. Contact Ray Bader 915-860-2515
  - http://naturetourism.tamu.edu

Basic Prescribed Burn Workshop

- August 11 – 13 at the Texas AgriLife Research Station at Sonora
  - Prescribed burning and drought
  - Managing fuels
  - Weather monitoring
  - Fire suppression equipment
  - Prescribed burn plan development

  - $395 includes meals and on-site lodging
  - To register call 325-387-3168 or visit http://ranchmangement.org

West Texas Beef Conference

- August 20th, 8 a.m. at the San Angelo Stock Show and Rodeo Fairgrounds Sale Pavilion
- Some of the topics are:
  - Low Stress Cattle Handling
  - Long-term Market Implications of Drought
  - Working Facility Design

  - To pre-register go to: https://agriliferegister.tamu.edu and type in keyword: Beef. Cost is $60 and includes lunch

Meeting of the Monitors

- Texas Stream Team's annual meeting
- September 29th thru October 1st at the Hilton Houston NASA Clear Lake
- Free for volunteer water quality monitors, $50 registration for others

- http://txstreamteam.rivers.txstate.edu/mom

Permian Basin Small Landowner College

- Tuesday Nights: September 13 thru October 11
- $25/class or $100 for all
- Targets landowners of 5 to 100 acre tracts
  - The Land, The Location & The Vegetation: Dr. Alyson McDonald
  - What it Takes to Manage Livestock on Small Acreage: Dr. Bruce Carpenter
  - Pecans, Wine and Greenhouse Options: John Begnaud
  - Plants, Birds and Bugs that Attract Tourists: Burr Williams & Michael Nickell
  - Am I Going to do Some of This, What Happens to My Land Values

  - http://www.co.midland.tx.us/ext/PBSLC.html

Texas Watershed Steward

- August 30, 2011 in Baytown
- September 28, 2011 in Uvalde

- Very similar to those delivered here in Pecos and Iraan back in June

- Registration is free
- http://tws.tamu.edu/workshops/online-registration

Thanks!

Lucas Gregory
Texas Water Resources Institute
979-845-1851
lfgregory@ag.tamu.edu

AgriLIFE RESEARCH & EXTENSION
Texas A&M System

Texas Water Resources Institute
make every drop count