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Texas A&M System

Water Quality Update: Monitoring Implementation Success

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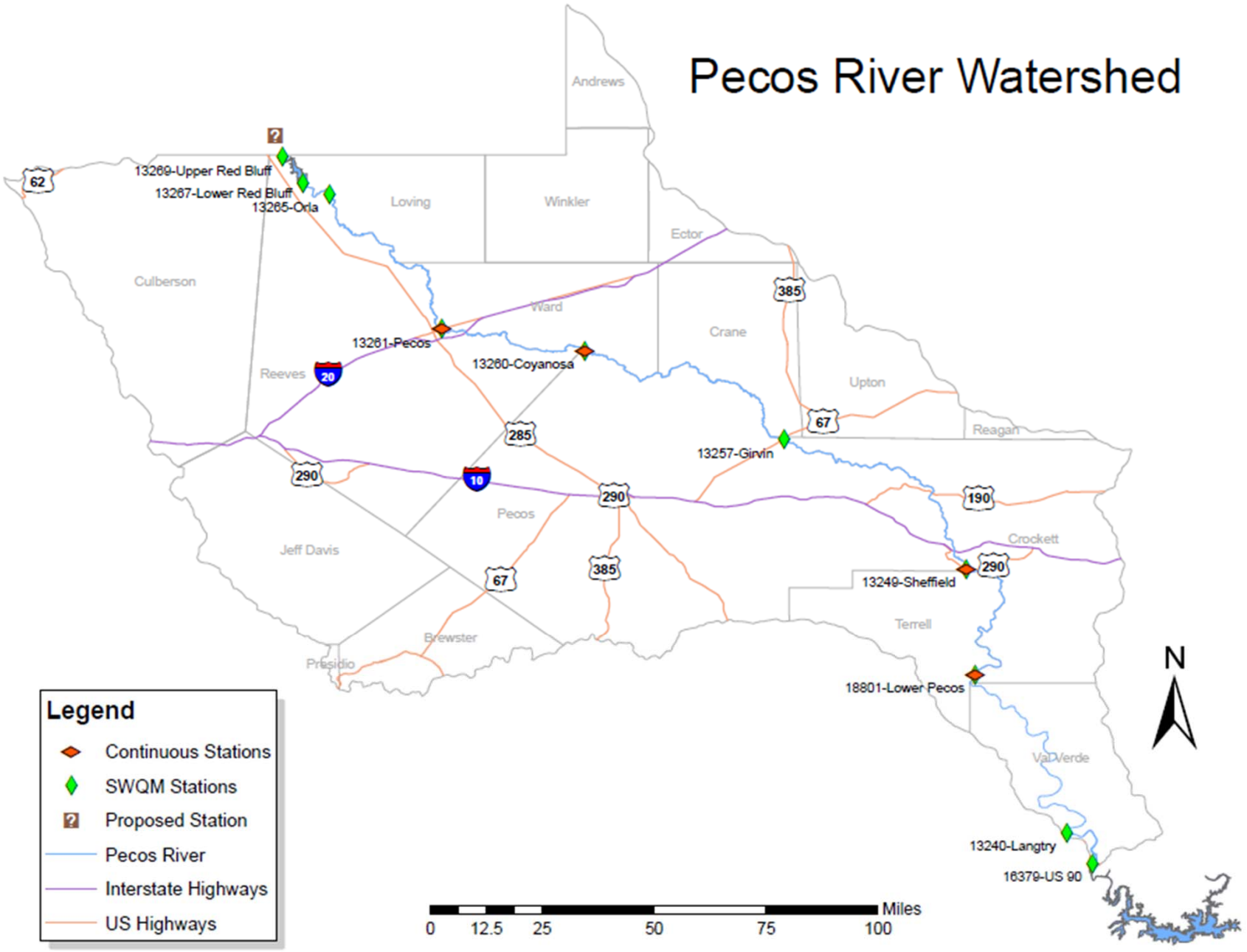
2 Types of Water Quality Monitoring

- Routine, scheduled surface water quality monitoring- grab samples
- Continuous automated sampling

Routine, Scheduled Monitoring

- Through TX Clean Rivers Program
- Coordinated in by IBWC, US Section
- 10 active sites
- Frequency: approximately quarterly
- Parameters
  - Surface temperature
  - Gage height
  - Specific conductance
  - Dissolved oxygen
  - pH
  - Salinity
  - And others…


Pecos River Watershed
Andrews
Loving
Winkler
Ector
Culberson
Ward
Crane
Upton
Reagan
Reeves
Pecos
Jeff Davis
Brewster
Presidio
Crockett
Terrell
Val Verde
13269-Upper Red Bluff
13267-Lower Red Bluff
13265-Orla
13261-Pecos
13260-Coyanosa
13257-Girvin
13249-Sheffield
18801-Lower Pecos
13240-Langtry
16379-US 90
62
20
10
67
285
290
385
190
Legend
Continuous Stations
SWQM Stations
Proposed Station
Pecos River
Interstate Highways
US Highways
0 12.5 25 50 75 100
Miles
N

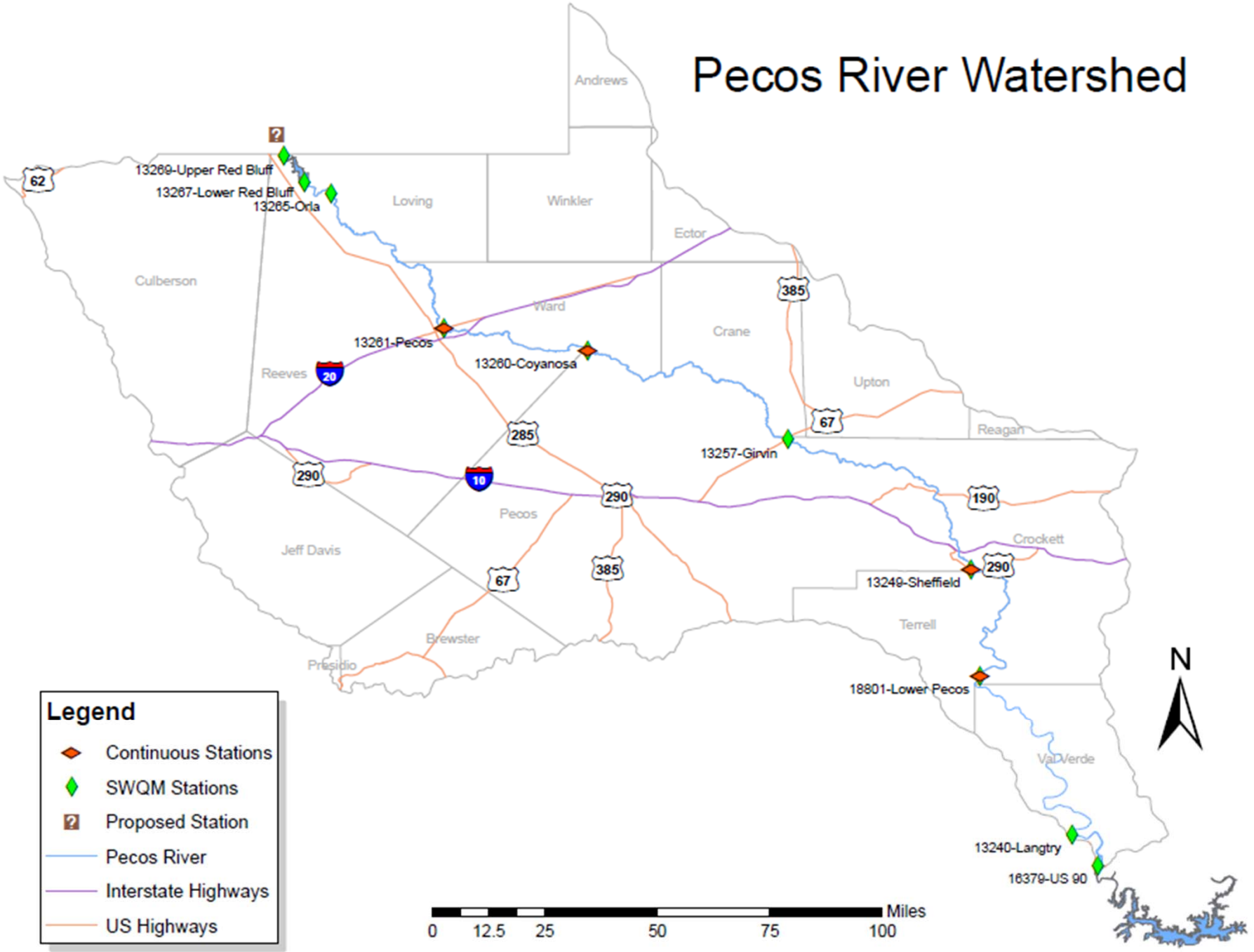
IBWC publishes a Basin Highlights Report Annually

- Discusses monitoring regime, data, and projects
- 2011 currently in draft form
- Available @ http://www.ibwc.gov/CRP/Publications.html
- CRP Coordinated Monitoring Meeting
  - April 28th, Midland TCEQ Office
  - 3300 North A St, Building 4, Suite 107, **Midland** TX

Continuous Water Quality Monitoring

- TCEQ operates and maintains a series of 'continuous water quality monitoring' stations
- Currently 4 active stations on the Pecos
- Parameters monitored every 15 min
  - Surface temperature
  - Gage height
  - Specific conductance
  - Dissolved oxygen
  - pH
  - Salinity

Pecos River Watershed



Pecos River Continuous Sites

- Pecos River at Business 20 Installed September 23, 2004
- Pecos River at Coyanosa (Hwy 1776) Installed September 22, 2004
- Pecos River near Sheffield (Hwy 290) Installed July 19, 2006
- Lower Pecos River Installed February 23, 2006

New Continuous Stations

Pecos above State Line

- Scheduled for installation this spring 2011
- Will be used to illustrate water quality entering Texas and Red Bluff Reservoir
- Parameters will be consistent with other stations
- Funded thru TCEQ

Pecos River Near Girvin

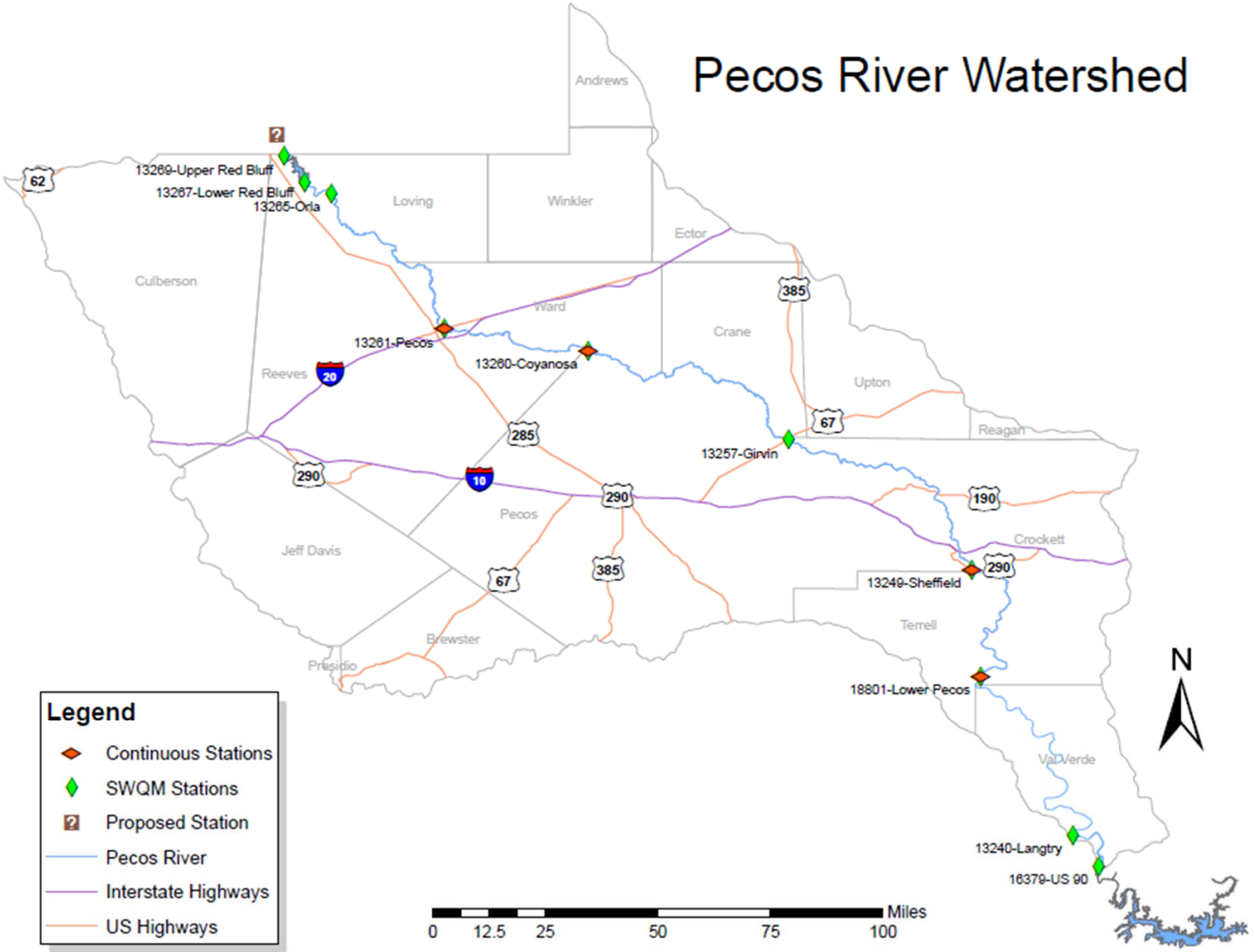
- Scheduled for installation this spring 2011
- Will be used to better monitor salinity and impacts from saltcedar control
- Parameters will be consistent with other stations
- Being funded by TSSWCB thru EPA 319(h) Grant funds

Water Quality Monitoring Data

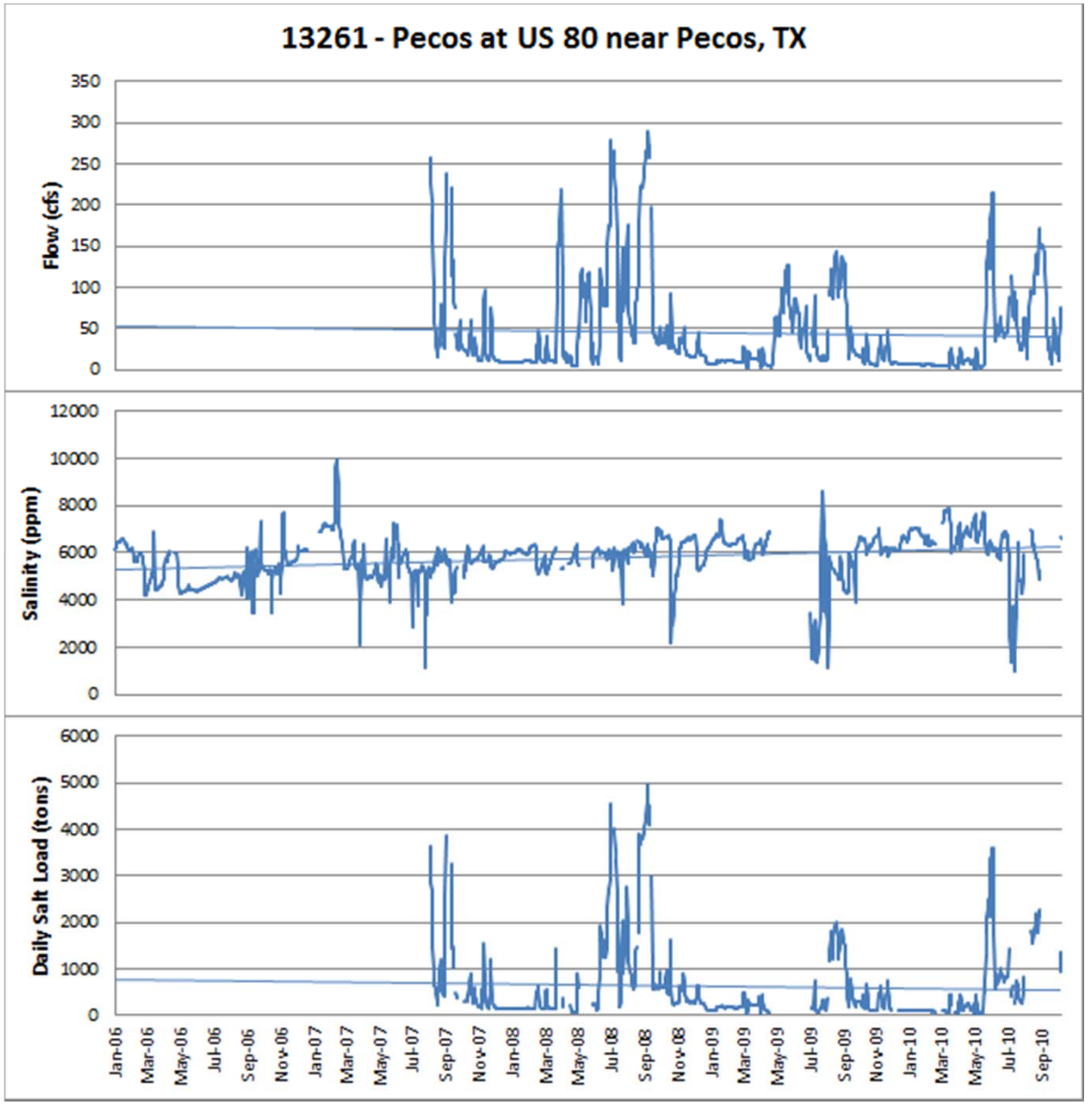
Data Sources

- CWQM data showing recent water quality trends
- Salinity data from TCEQ
- Stream flow from TCEQ and/or USGS
- Salt loads calculated from these data
  - Basically salinity X stream flow

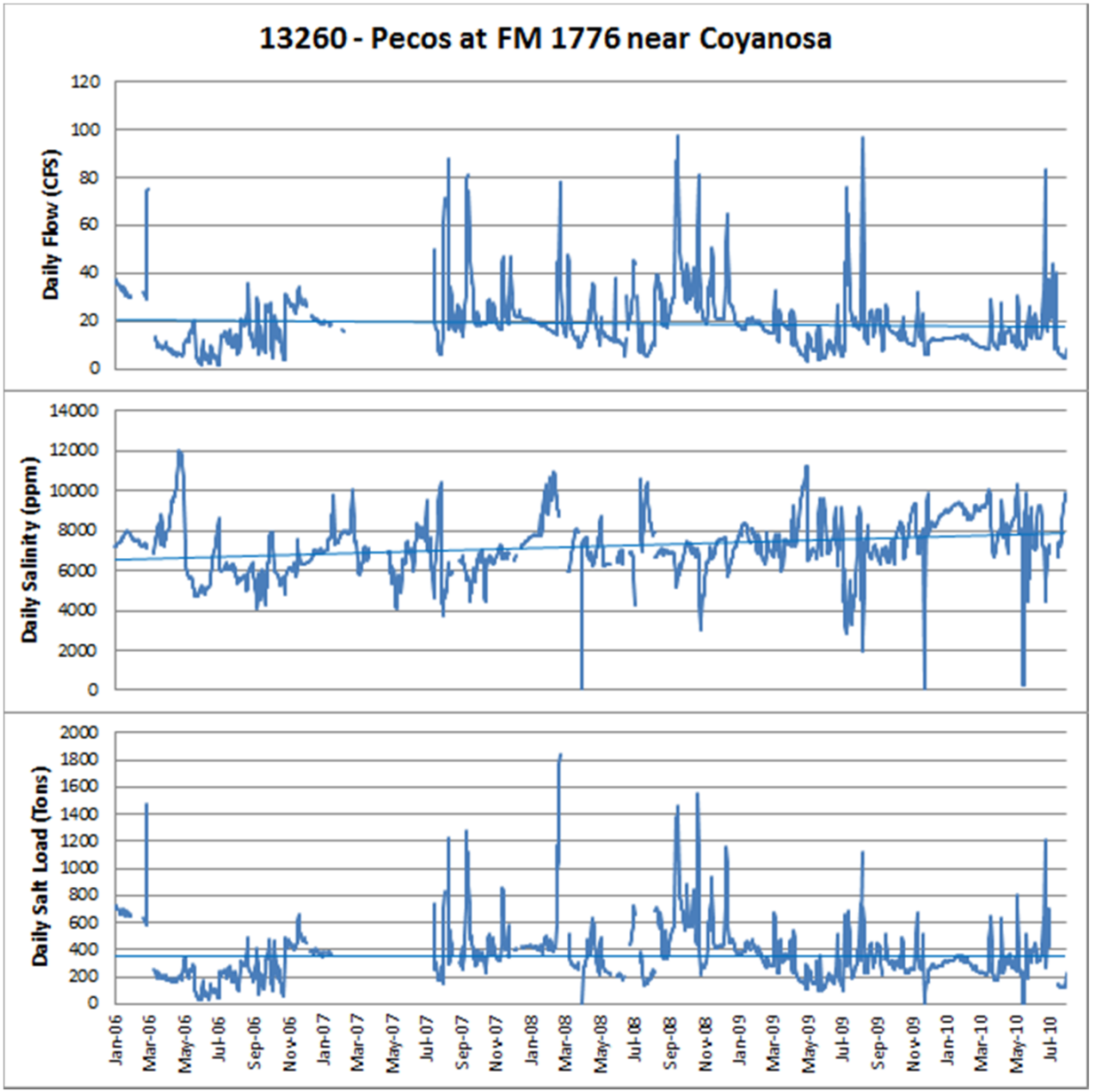
Pecos River Watershed



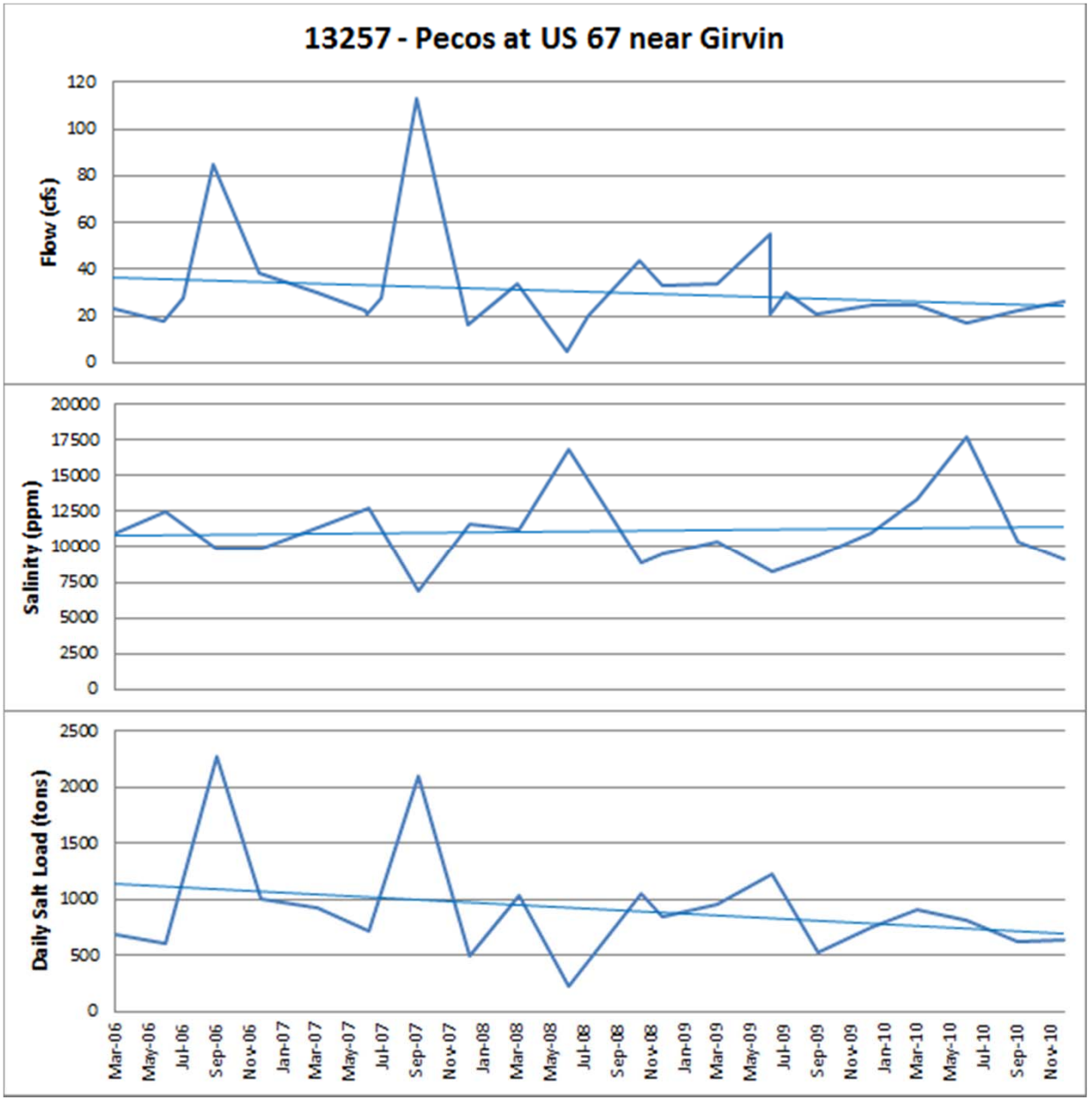
- Flows are slightly decreasing since 2007
- Salinity slightly increasing since 2006
- Decreasing flow leads to generally decreasing salt loads



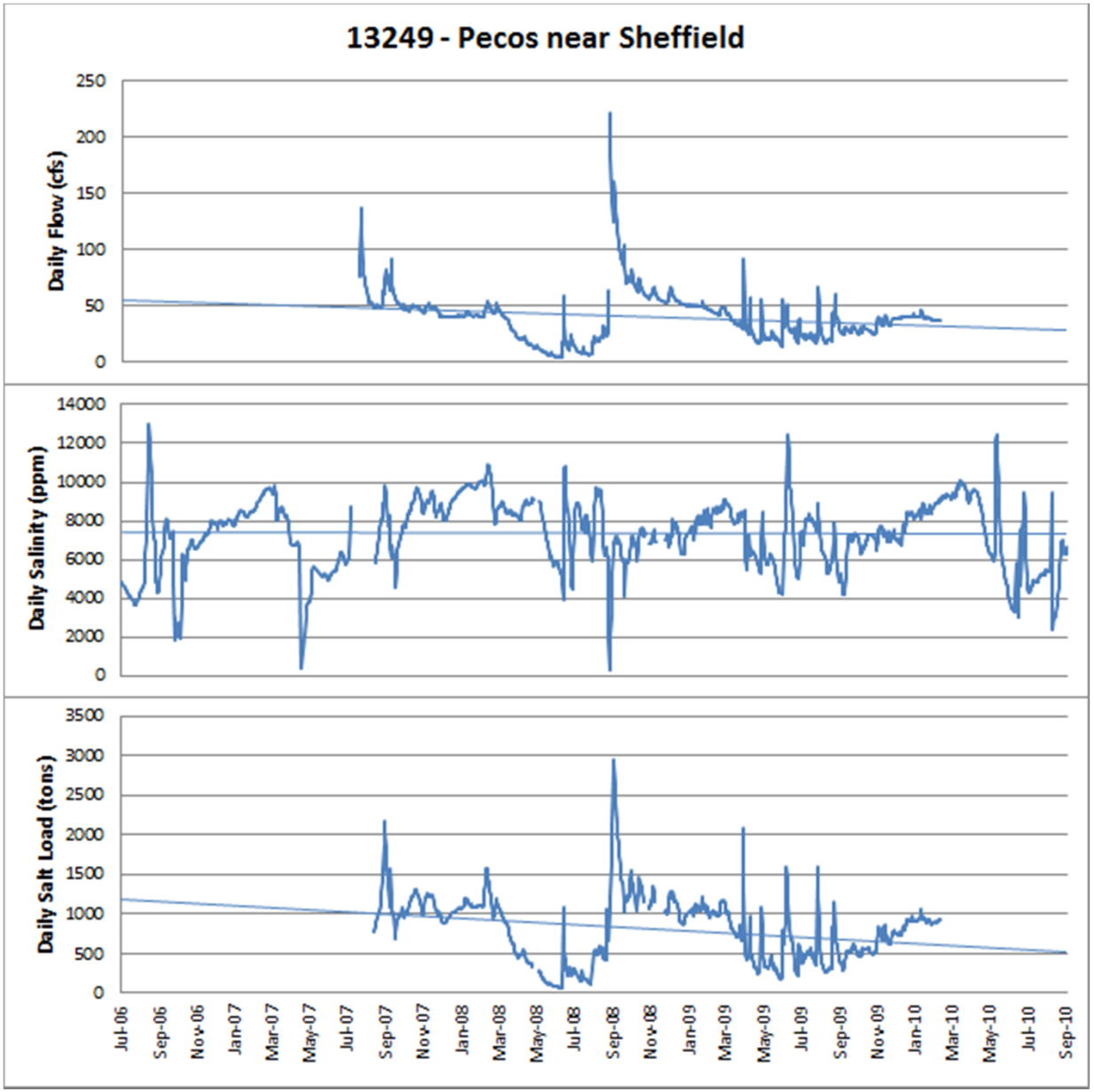
- Flows generally decreasing since 2006
- Salinity generally increasing since 2006
- Salt loads are generally stable over time
- Salt loads are generally lower than those at the Pecos site



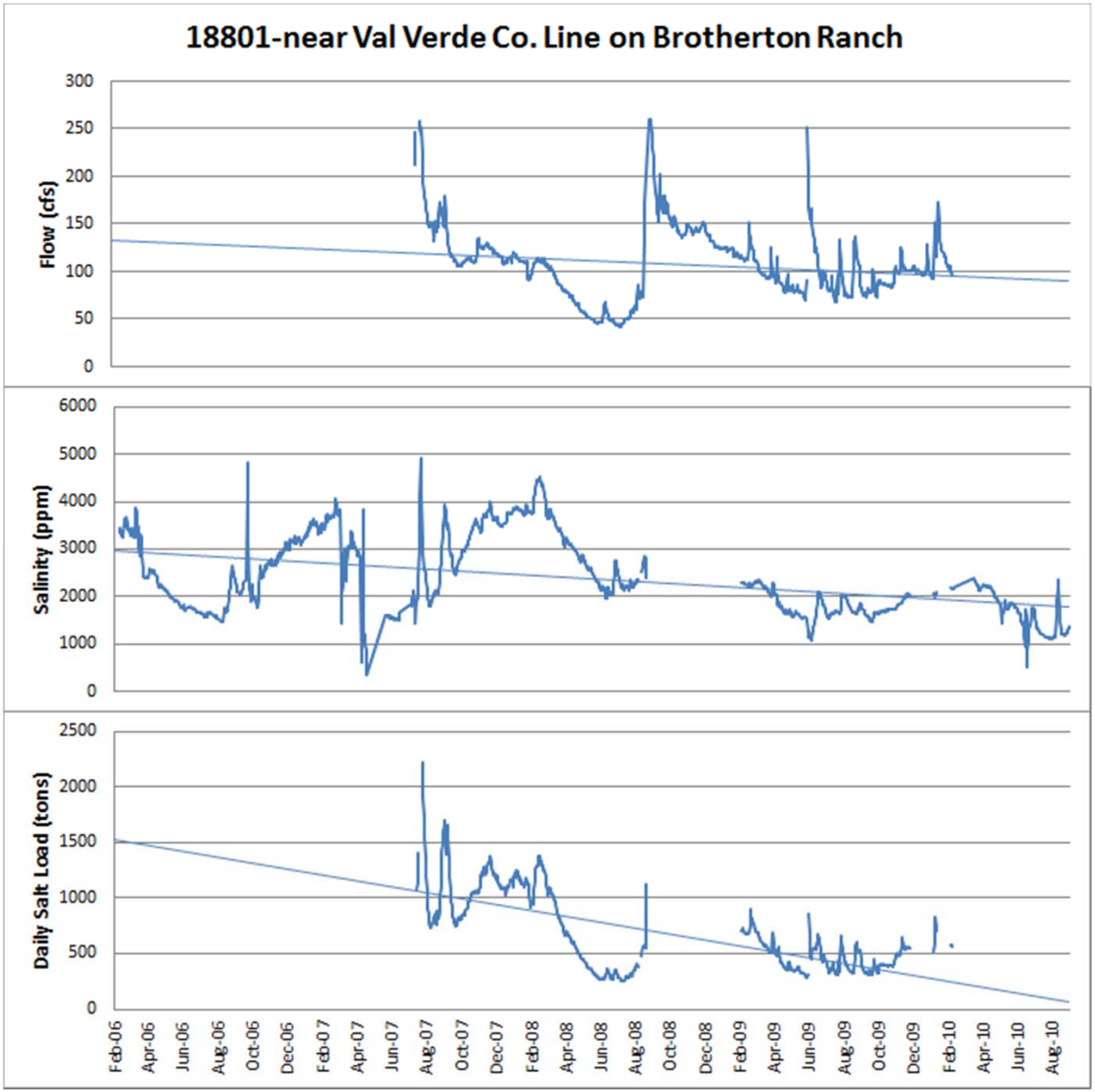
- Much less data available (not a CWQM site)
- Flows show decreasing trend since 2006
- Salinity levels slightly increasing since 2006
- Salt load shows strong decreasing trend due to diminishing flows
- Installation of CWQM station will add much needed data at this site



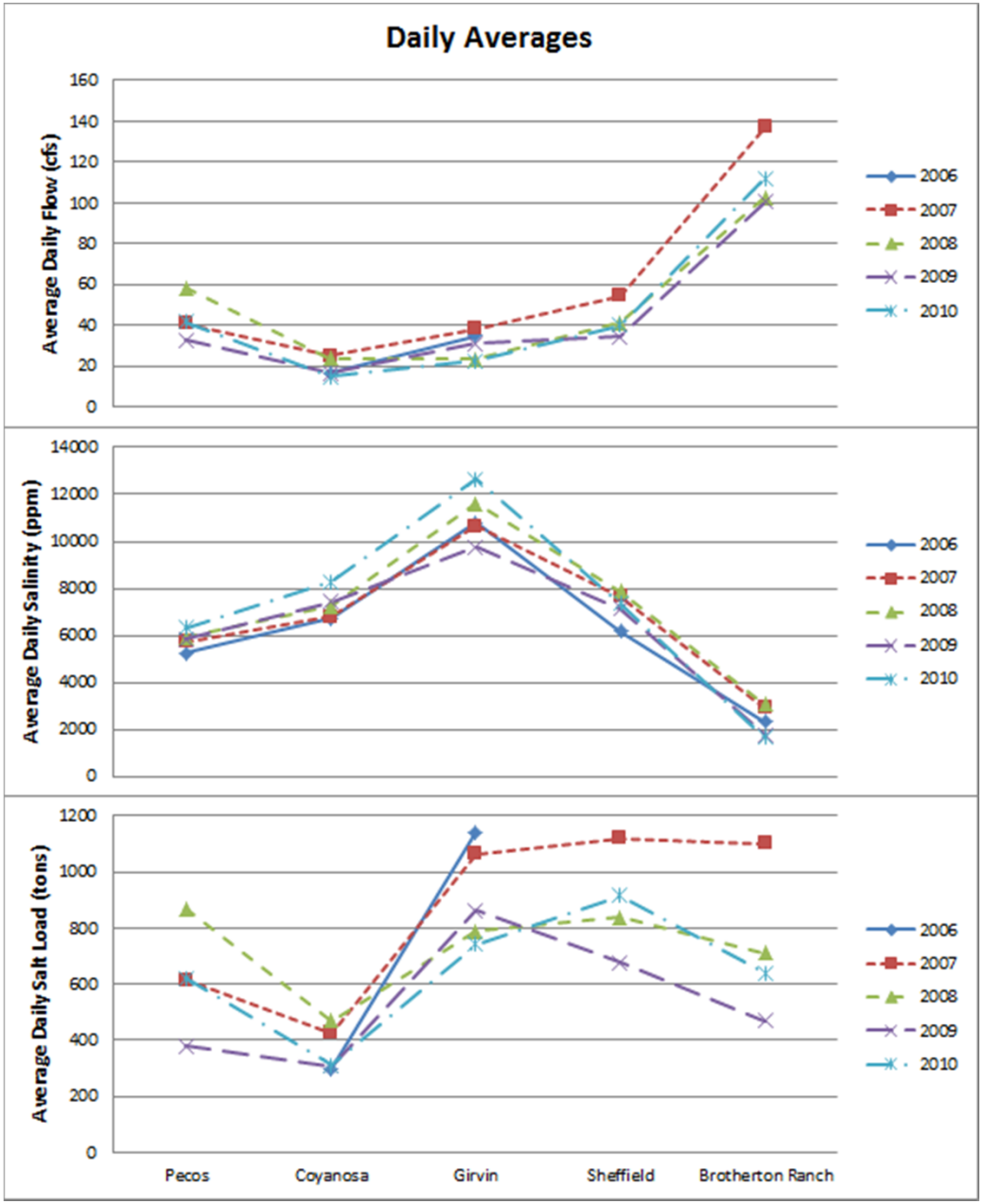
- Flows show decreasing trend since 2007
- Salinity levels very slightly decreasing trend since 2006
- Salt loads remain high but shows a decreasing trend due to lowers flows in recent years



- Flows generally decreasing since 2007
- Salinity levels showing strongly decreasing levels since 2006
- Daily salt load showing strong decreasing trend over time due to decreasing flows and salinities
- Only very slight decrease in daily salt loading from Sheffield



- Average daily values for each year
- Illustrates differences between stations
  - Moving downstream from left to right
- Trends for flow and salinity fairly consistent
- Salt loading much more erratic
  - Due to changes in flow and salinity



Conclusions

CWQM Stations

- Provide excellent illustrations of water quality changes over time
- Fills data gaps left from quarterly sampling
- Addition of Girvin and Pecos above State-Line stations will greatly enhance our understanding of water quality changes in the river

Water Quality Trends

- Mixed bag of water quality trends
- Weather plays a key role in determining water quality
- Additional years of data from CWQM stations will provide better idea of real trends in water quality

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.

Thanks!

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