Instream Flow Study of the Lower San Antonio River and Lower Cibolo Creek

Draft Study Design

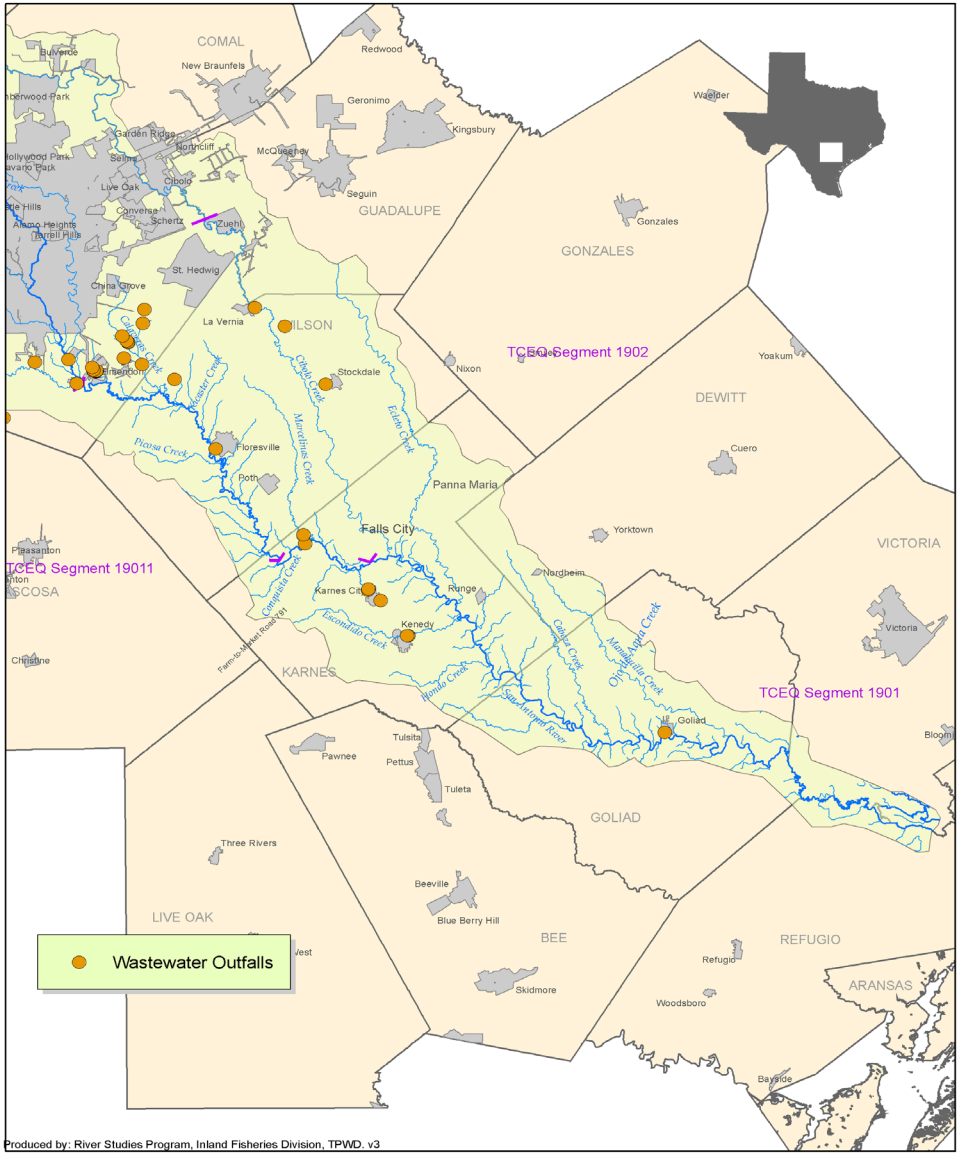
Summary of Available Water Quality Information

- Clean Rivers Program – SARA/TCEQ Historical Water Quality Trends
- Other Sources of WQ Data
  - SWQM Stations
  - USGS
  - TCEQ – UAAs, RWAs, TMDL Implementation

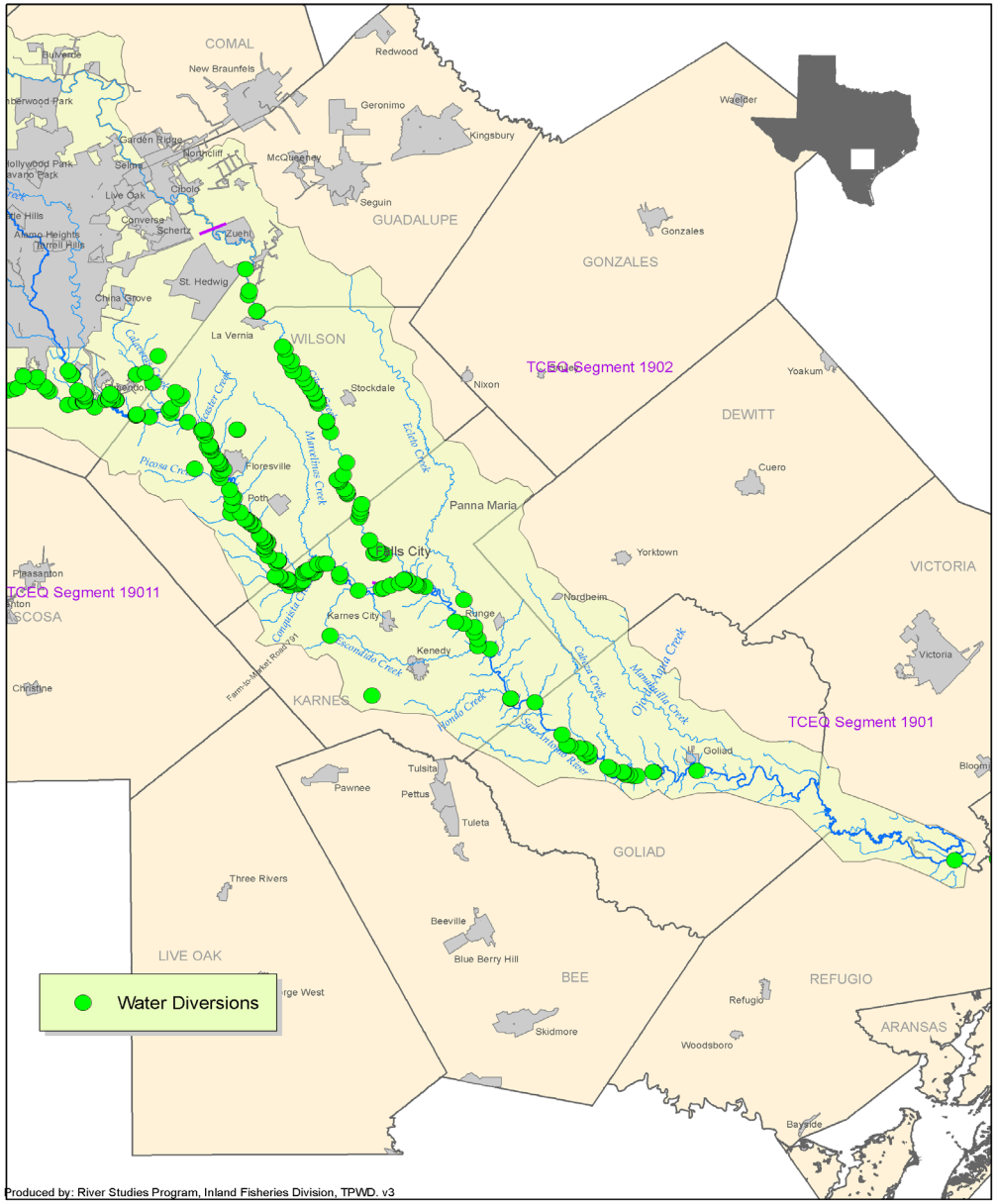
Water Quality Data Points

- Wastewater Discharge Locations – both municipal and industrial (Inputs)
- Diversion Locations (Outputs)
- Monitoring Sites – Surface Water Quality Monitoring Program (SWQM) and Clean Rivers Program

Wastewater Discharge Locations on the LSAR and Cibolo Creek

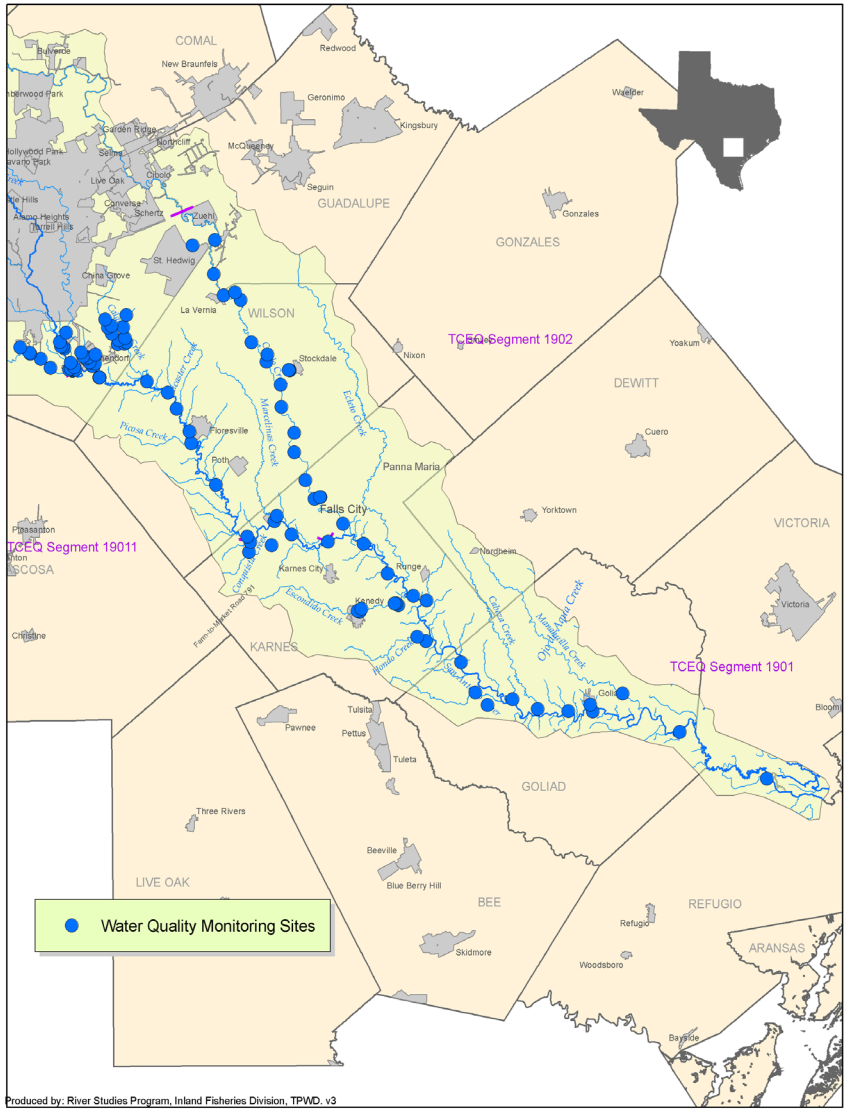


Water Diversions on the LSAR and Cibolo Creek

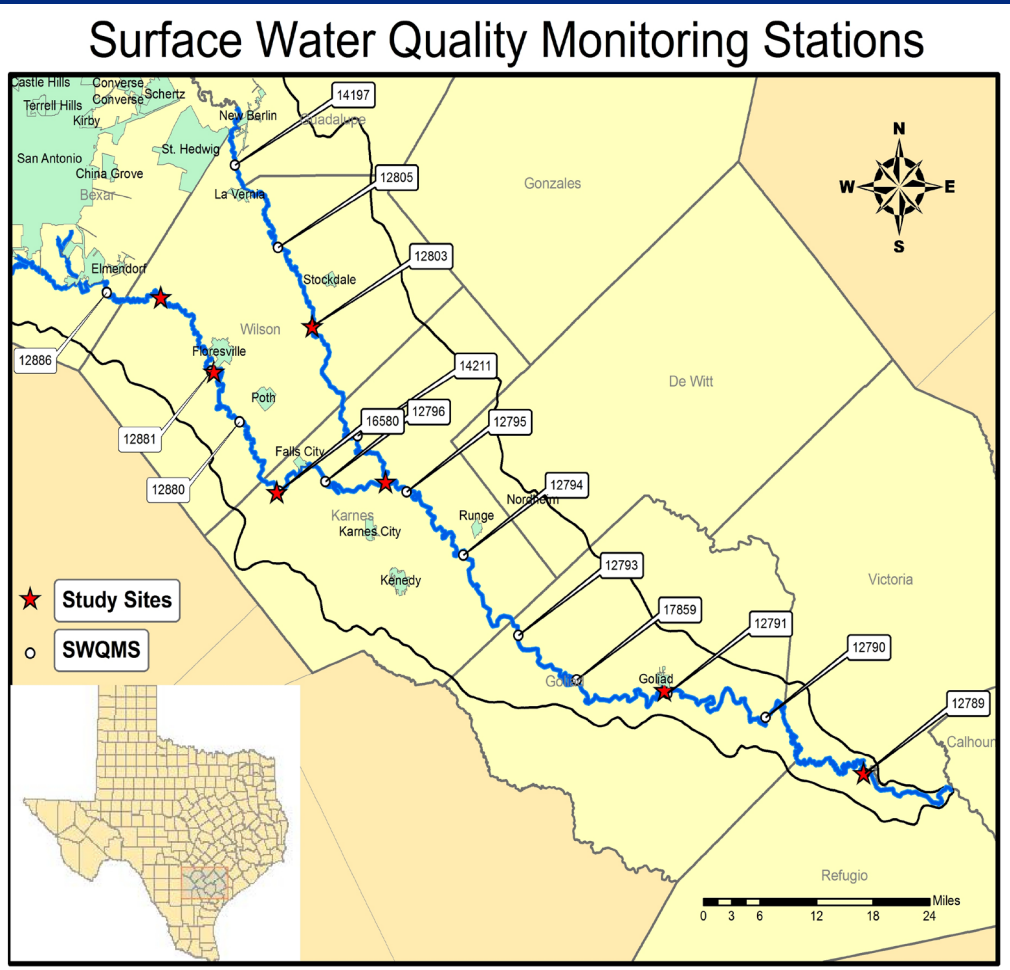


SWQM Monitoring Sites on the LSAR and Cibolo Creek

Historical

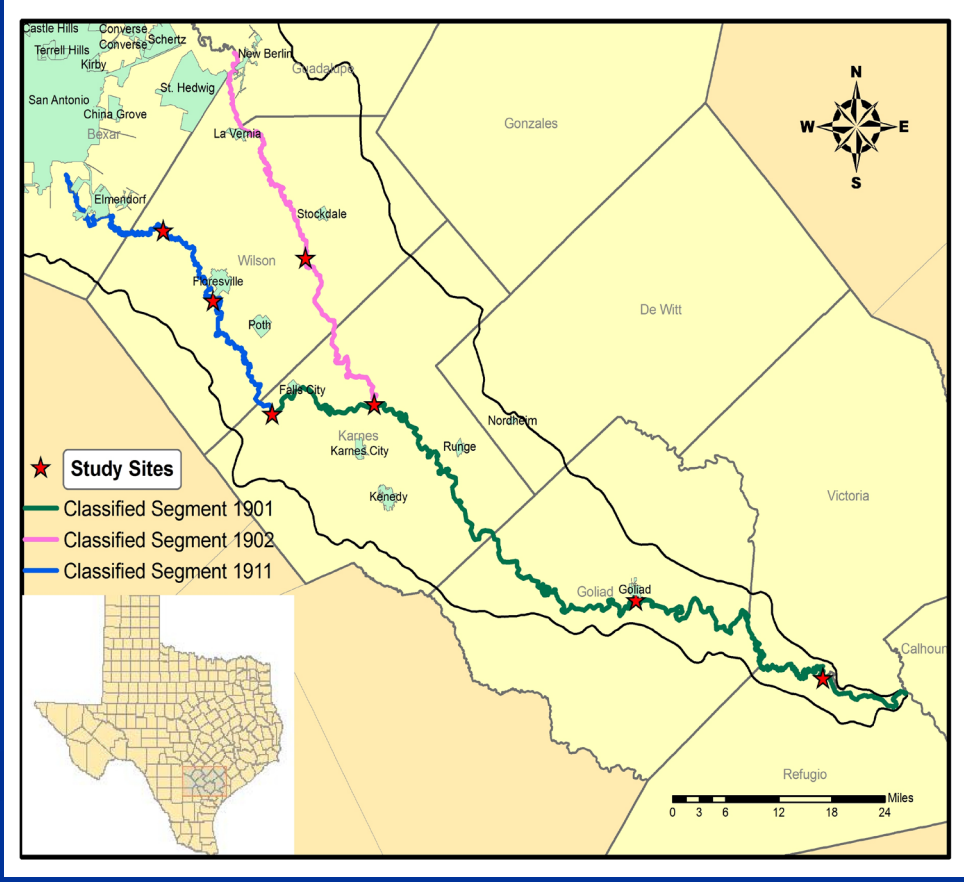


2008 Basin Summary Report



Assessment of Current WQ Conditions

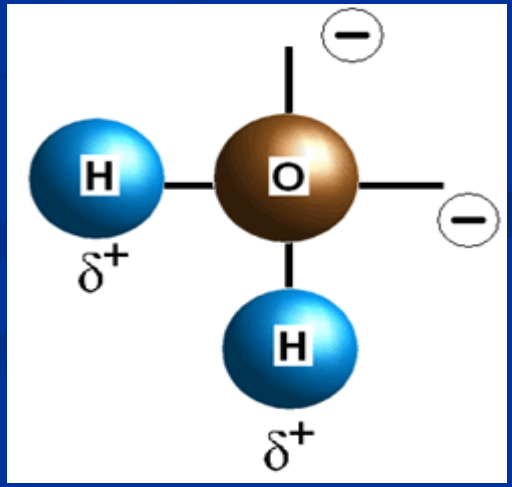
- WQ in the San Antonio River Basin continues to improve (SARA 2008)
- Concerns
  - Nutrients
    - Seg. 1902 Lower Cibolo
    - Seg. 1901 LSAR
  - Bacteria
    - Seg. 1902 Lower Cibolo
    - Seg. 1901 LSAR
    - Seg. 1911 Upper SAR



Stakeholder Involvement – Goals, Objectives, and Indicators

- The goal for the Lower San Antonio River system is a naturally functioning and sustainable ecosystem that supports a balance of ecological benefits and economic, recreational and educational uses.

- The Water Quality Objective is to maintain flow in order to sustain water quality to support:
  - Biodiversity,
  - Economic uses, and
  - Recreational uses



Water Quality Indicators

- Nutrients – Nitrogen and Phosphorus Spp. Promote Growth of plants and algae in water.
- Dissolved Oxygen – Most important factor of water's ability to support aquatic life
- Temperature – Controls biological activities and chemical processes
- Bacteria – *E. coli.* Indicator of recreational health

WQ Related Technical Studies

- Water Quality Evaluation from existing programs, e.g. CRP, TPDES, TMDL
- Use of existing WQ models, i.e. QualTX – Steady State Surface Water Quality Model
- Development of a WQ model
  - Ability to model WQ parameters under a range of flow conditions at Control points or study sites along a river basin.
  - A contract is currently being initiated with SARA to develop such a model.

Recreational Health

- Bacterial Loading – Ongoing bacterial TMDL in the LSAR and future Watershed Protection Plans
- SARA initiated River Recreation Monitoring Program. Provides most recent *E. Coli* levels along with flow measurements, weather and other information for recreational users.

Questions???

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