



# A Collaborative Geospatial Decision Support System for Managing Coastal River Basins

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Alex Sun<sup>1</sup>, Ron Green<sup>1</sup>, Femi Osidele<sup>1</sup>, Hongjie Xie<sup>2</sup>, & Ron Stein<sup>3</sup>

<sup>1</sup>Southwest Research Institute<sup>®</sup>

<sup>2</sup>University of Texas, San Antonio

<sup>3</sup>Texas Commission on Environmental Quality

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# Project Vision

- Develop a web-based Collaborative Geospatial Decision Support System (CGDSS)
- Extract and seamlessly integrate important components related to the Total Maximum Daily Loading (TMDL) planning and implementation process
- Provide a common ground for decision-making and for communication among stakeholders of coastal basins

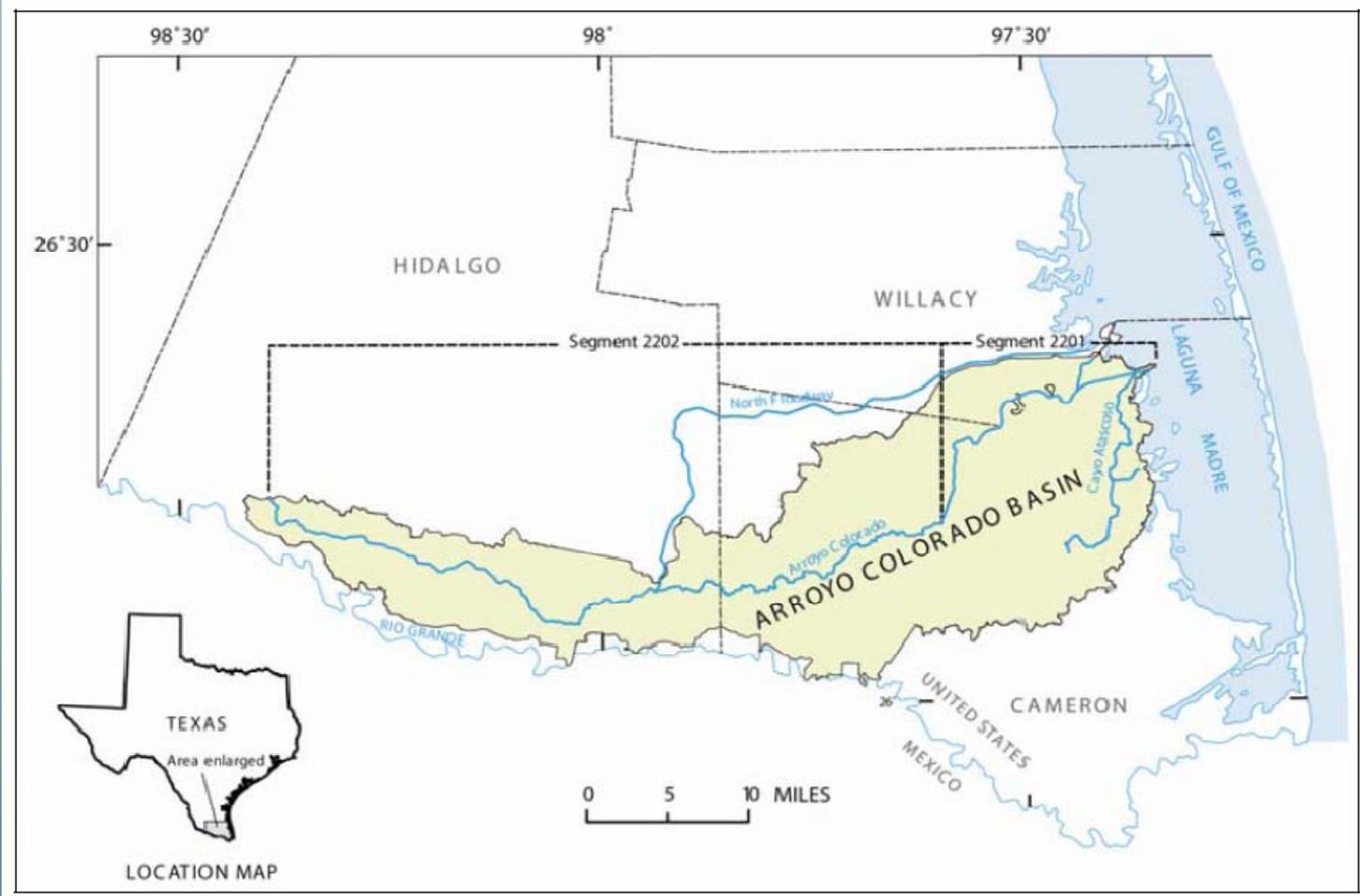


# Total Maximum Daily Loading (TMDL) Program: Improving Water Quality

- TMDL Program works to improve water quality of impaired or threatened water bodies
- Determines how much pollutant a water body can assimilate and still meet its quality goals
- An effective coastal basin TMDL program would mitigate nutrient outflow into the Gulf



# Demonstration Site: Arroyo Colorado Coastal Basin





# Participants

- Operational organizations
  - Southwest Research Institute
  - University of Texas-San Antonio (UTSA)
  
- End users
  - Texas Commission on Environmental Quality (TCEQ)
  - Arroyo Colorado Watershed Management District



# Decision Support System Development and Implementation

- Data management
- Knowledge management
- Geospatial decision analysis
- Consensus management

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# Project Goals

- Support a multigroup decision-making process that is potentially extended and asynchronous
- Integrate NASA Earth observation products, in-situ water quality monitoring data, and watershed models for real- or near-real-time watershed management
- Implement a tool for decision makers and stakeholders to conduct pre- and post-implementation scenario analysis and identify concerns and uncertainty factors, and
- Promote adaptive management and achieve cost reduction by standardizing common decision-making elements



# Transition Approach

- Closely work with TCEQ collaborators
- Clearly define user requirements
- Focus on standardization, interoperability, and reusability of the CGDSS
- Apply software release planning
- Develop training and technical support protocol
- Implement technology transfer

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# Performance Measures

- Usability
- Reusability
- Productivity improvement
- Cost reduction
- Communication improvement