Development of a Watershed
Protection Plan for
Geronimo Creek

Debbie Magin
Guadalupe-Blanco River Authority

Geronimo Creek

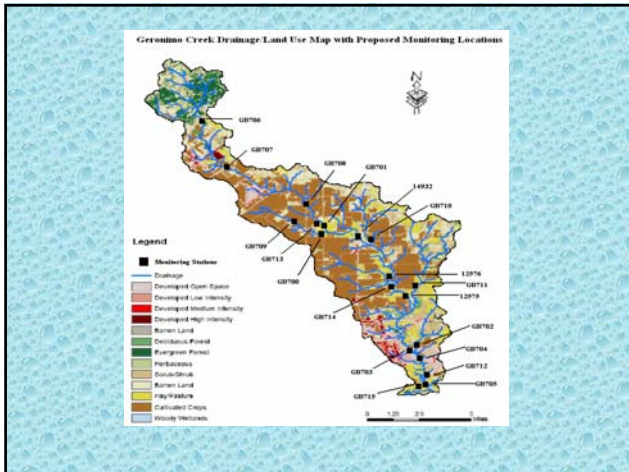- GBRA has been monitoring Geronimo Creek since 1996

Geronimo Creek at SH 123

Geronimo Creek at Haberle Road

Geronimo Creek

- Project
  - Funded by TSSWCB

  - $792,513

  - October 2008 – October 2011

  - Project includes water quality monitoring, modeling, and plan development

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Geronimo Creek

- Project includes Alligator Creek
- Cities of Seguin and New Braunfels in watershed and the community of Geronimo
- Land use – mostly agricultural, urban
- 44,125 acres in watershed
- 45.5% cropland; 31.6% rangeland; 9.8% forest; 11.5% developed land

Geronimo Creek Drainage/Land Use Map with Proposed Monitoring Locations
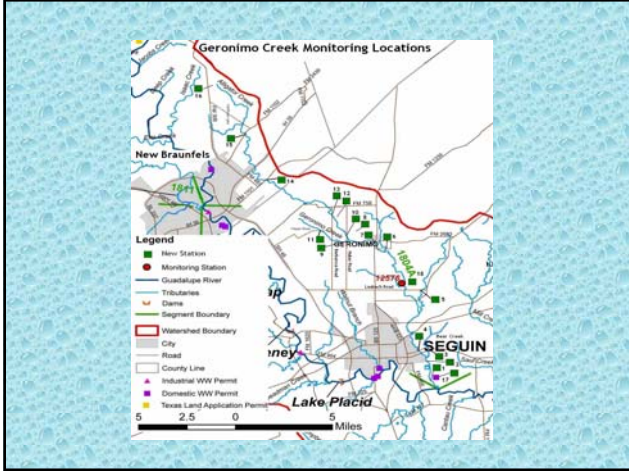
Geronimo Creek

- Creek was listed as impaired for bacteria and a concern for nitrate-nitrogen in 2004 assessment
  - 162 organisms per 100 milliliters
  - Nitrate-nitrogen –
    - Median concentration - 14.5 mg/L
    - Screening criteria – 1.95 mg/L
    - Drinking water standard – 10 mg/L
    - No wastewater impacts
    - Springs from the Leona formation

Geronimo Creek

- Project Partners:
  - GBRA
  - Texas AgriLife Extension
  - City of Seguin
  - Guadalupe County
  - City of New Braunfels (?)
  - Comal County (?)

Geronimo Creek

- Monitoring Project
  - 12 months
  - Routine (8) and Targeted (15)
  - One wastewater plant quarterly
  - Three groundwater sites
  - One metals analysis on each creek

Geronimo Creek Monitoring Locations

Modeling Project

- Texas A&M Spatials Laboratory

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- Using SELECT (Spatially Explicit Load Enrichment Calculation Toal)

Modeling Project
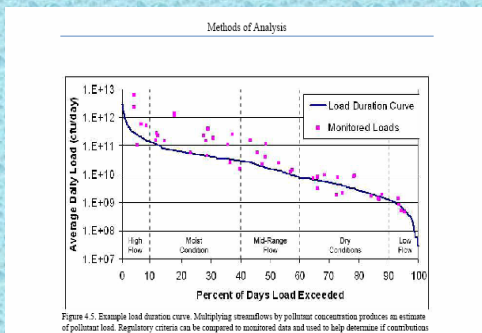
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- Biggest problem – lack of flow data

Modeling Project

- Texas A&M Spatials Laboratory
- Texas AgriLife will manage modeling component
- Using SELECT (Spatially Explicit Load Enrichment Calculation Toal)
- Biggest problem – lack of flow data
- Will use load duration curves to convey information to stakeholders

Methods of Analysis

Figure 4.5. Example load duration curve. Multiplying streamflows by pollutant concentration produces an estimate of pollutant load. Regulatory criteria can be compared to monitored data and used to help determine if contributions are dominated by point or nonpoint sources.

Lessons Learned

- Get monitoring and modeling done before steering committee meets

- Offer *Watershed Stewards* in the area and use as means to select and/or train stakeholders

- Stay aggressive with your timeline