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Financial Challenges & Opportunities


Danielle Supercinski
 Texas Water Resources Institute
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Agriculture is Life.




Growth & Related Issues


- Flooding
- Land Subsidence
- Water issues
 - Water supply
 - Water quality



© 2007 TWRRI, Looking upstream from Main St., 10/27/07



Photo from Harris County Flood Control District



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Water Quality

- Tightly linked with:
 - Storm water management
 - Wastewater treatment
 - Point & nonpoint source pollution







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Water Quality


- 197 waterbodies in Texas do not meet bacteria water quality standards
- TCEQ: lead agency in Texas
 - Prevention
 - Abatement & management of point and nonpoint sources
 - <http://www.tceq.state.tx.us/compliance/monitoring/nps/grants/grant-pgm.html>
- TSSWCB:
 - Agriculture and silvicultural NPS
 - www.tsswcb.state.tx.us/managementprogram


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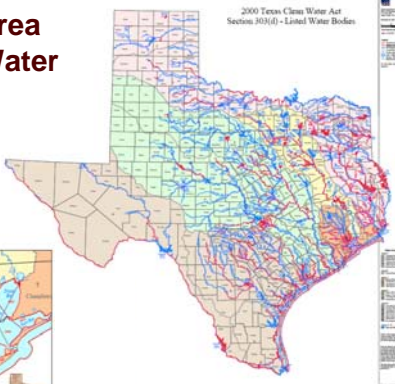


Water Quality


- Recommendations for bacteria TMDL
 - Implementation lacks focus
 - Improperly classified water bodies
 - Inadequate monitoring & assessment
- Make adjustments to bacteria water quality standards
- Reflect use of waterbody
- Need to redefine goals


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Houston-Area Impaired Water Bodies



2000 Texas Clean Water Act Section 303(d) - Listed Water Bodies



Houston Area


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Water Quality Clean-Up

- Improve existing infrastructure
- Develop better, new environmental infrastructure
 - Improve wastewater treatment
 - Improve storm water management



Photo from <http://blog.kir.com/archives/Houston%20skysline3.jpg>

Subsidence

- Some locations in and around Houston have seen as much as 10 feet
- Brownwood subdivision of Baytown
- Harris-Galveston Coastal Subsidence District
 - Prevent subsidence, manage groundwater, assure adequate supplies



<http://www.hgsubsidence.org/>

What's Needed?

- Resources
 - Local funds
 - State funds
 - Federal funds
- Coordination

Funding Possibilities

- Harris County Flood Control District
- 319 Funds
- State Revolving Fund
- Federal Initiatives

Harris Co. Flood Control District

- Capital Improvement Program (CIP)
 - 5 year plan
 - \$975 million, 20% reserved for land acquisition
- Includes:
 - Engineering studies
 - Planning efforts
 - Actual construction of identified projects
- Partners with federal agencies

Harris Co. Flood Control District

- Funding for past 20 years totals \$1.5 billion
- **Active Projects (FY07-FY12):**
\$365,976,957
- **Future Projects Estimated Cost:**
\$2,482,200,000

Houston-Area Bacterial Impairments



Map from TCEQ

319 Funds

- Nonpoint Source Management Program
- Funded by EPA through TCEQ
- Grant money supports:
 - Technical assistance
 - Financial assistance
 - Education
 - Training
 - Technology transfer
 - Demonstration projects
 - Monitoring implementation projects

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319 Funding History

- Texas Funding History:
 - FY09 ~ \$1.5 - 1.7 million
 - FY08 ~ \$1.6 - 1.8 million
 - FY07 ~ \$1.7 - 1.9 million
 - 05-06 ~\$3.5 - 3.7 million

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Houston-Area 319 Projects

- TCEQ working with Houston-Galveston Area Council on TMDL Studies
- Completed TMDL Studies:
 - Clear Creek Above Tidal (TDS and Chloride)
 - Clear Creek (Volatile Organic Compounds)
 - Clear Creek (Chlordane)
 - Houston Ship Channel (Nickel)
 - Dickinson Bayou (DO) – Dickinson Bayou Watershed Partnership

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Houston-Area 319 Projects

- Current TMDL Studies
 - Buffalo and White Oak Bayous (Bacteria)
 - Houston Ship Channel (Dioxin)
 - Clear Creek (Bacteria)
 - Houston Metropolitan Area (Bacteria)
 - Lake Houston (Bacteria)
 - Upper Coast Oyster Waters (Bacteria) – GBEP
 - Upper Oyster Creek (Bacteria & DO) – TIAER
 - Dickinson Bayou (Bacteria) – Dickinson Bayou Watershed Partnership
 - Gulf Coastal Waters (Evaluating Safety of Oyster Harvesting in 14 Bays)

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Clean Water State Revolving Fund

- Provided more than \$5 billion annually nation-wide
- Powerful partnership
 - EPA provides grants or “seed money” to all 50 states and Puerto Rico
- TWDB is leading agency in Texas

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Clean Water State Revolving Fund

- Texas funding history:
 - FY 2007: \$ 49.4 million
 - FY 2006: \$ 40.4 million
 - FY 2005: \$ 49.7 million
 - FY 2004: \$ 61.2 million
 - FY 2003: \$ 61.1 million
 - FY 2002: \$ 61.5 million
 - FY 2001: \$ 61.4 million
 - FY 1989-2000: \$ 781.9 million



Clean Water State Revolving Fund

- Water quality protection projects for:
 - Wastewater
 - Nonpoint source pollution
 - Watersheds and estuaries
 - Wet weather flow, including storm water and sewer overflows
 - Alternative treatment technologies
 - Water reuse and conservation



Clean Water State Revolving Fund

- Loans can be used for planning, design and construction of:
 - Wastewater treatment facilities
 - Wastewater recycling and reuse facilities
 - Collection systems
 - Storm water pollution control projects
 - Nonpoint source pollution control projects



Clean Water State Revolving Fund

- Houston-area projects:
 - City of Houston (\$56 mill) – inspection & sanitary sewer rehabilitation
 - City of Houston (\$46 mill) – wastewater system improvements
 - Harris Co. MUD 148 (\$2.8 mill) – collection system rehabilitation
 - Harris Co. WCID (\$985,000) – facilities rehabilitation



Clean Water State Revolving Fund

- Wastewater Improvements
 - \$7.5 mill loan to Harris Co. WCID No. 89 to finance wastewater system improvements
 - \$5 mill loan to Harris Co. WCID No. 36 for wastewater system improvements



Other EPA Funding Options

- <http://www.epa.gov/owow/funding.html>





U.S. Army Corps of Engineers

- U.S. Army Corps of Engineers (USACE), Galveston District
 - Entire Texas coast from Louisiana to Mexico 50,000 square miles, 47 counties
 - Includes major metro areas – Houston
- Annual budget of \$200 million



USACE Galveston District

- Mission: Planning, designing, building and operating water resources and other civil works projects
 - Navigation
 - Flood damage reduction
 - Hurricane-flood protection (disaster response)
- Priority – protecting citizens and property along the Texas coast from flood damages
- Partners with Harris County FCD



USACE Galveston District Projects

- Houston Ship Channel widening and deepening improvement (\$13.2 mill for 07)
- Galveston Ship Channel (\$2.6 mill)
- Buffalo Bayou & Tributaries Flood Control Project (\$387 mill)
 - Addicks and Barker Dams & Reservoirs
- Brays, Hunting & White Oak Bayou projects (HCFCD)
- Sims Bayou, Houston, Texas (\$22.4 mill)



Federal Initiative

- Land Management for Flood Control in Northern Harris County
 - Measure effects of land management on storm water runoff
 - Estimate local and downstream flooding
 - Educate policy makers on benefits of large-scale landscape management
- Joint with Harris County Flood Control District and Katy Prairie Conservancy
- Request from Texas Department of Agriculture



Federal Initiatives: Land Management

- Rural land management viable strategy
- Katy Prairie Conservancy acquiring open space in rural areas
- Cypress Creek watershed – frequent & costly flooding affects structures
- How management can complement structural measures to detail storm water & reduce flooding



Harris County MOA

- Microbiology, wastewater treatment & wetland issues
- Staff seminars
- Contributions of fish populations
- Effects of bat colony on Buffalo Bayou
- Quantify load reductions resulting from constructed wetlands



Texas Water Resources Institute

- 5 Project Managers
- Manage/facilitate 70+ projects
- Bring water-related project ideas to project managers
- Work with you to
 - Look for RFPs
 - Develop proposals
 - Develop budgets
 - Conduct reporting



Texas Water Resources Institute

Danielle Supercinski
Project Manager

DMSupercinski@ag.tamu.edu

TWRI Web site:

<http://twri.tamu.edu>