The Mission and Aransas Rivers and Copano Bay TMDL

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Texas Commission on Environmental Quality

What is a bacteria TMDL?

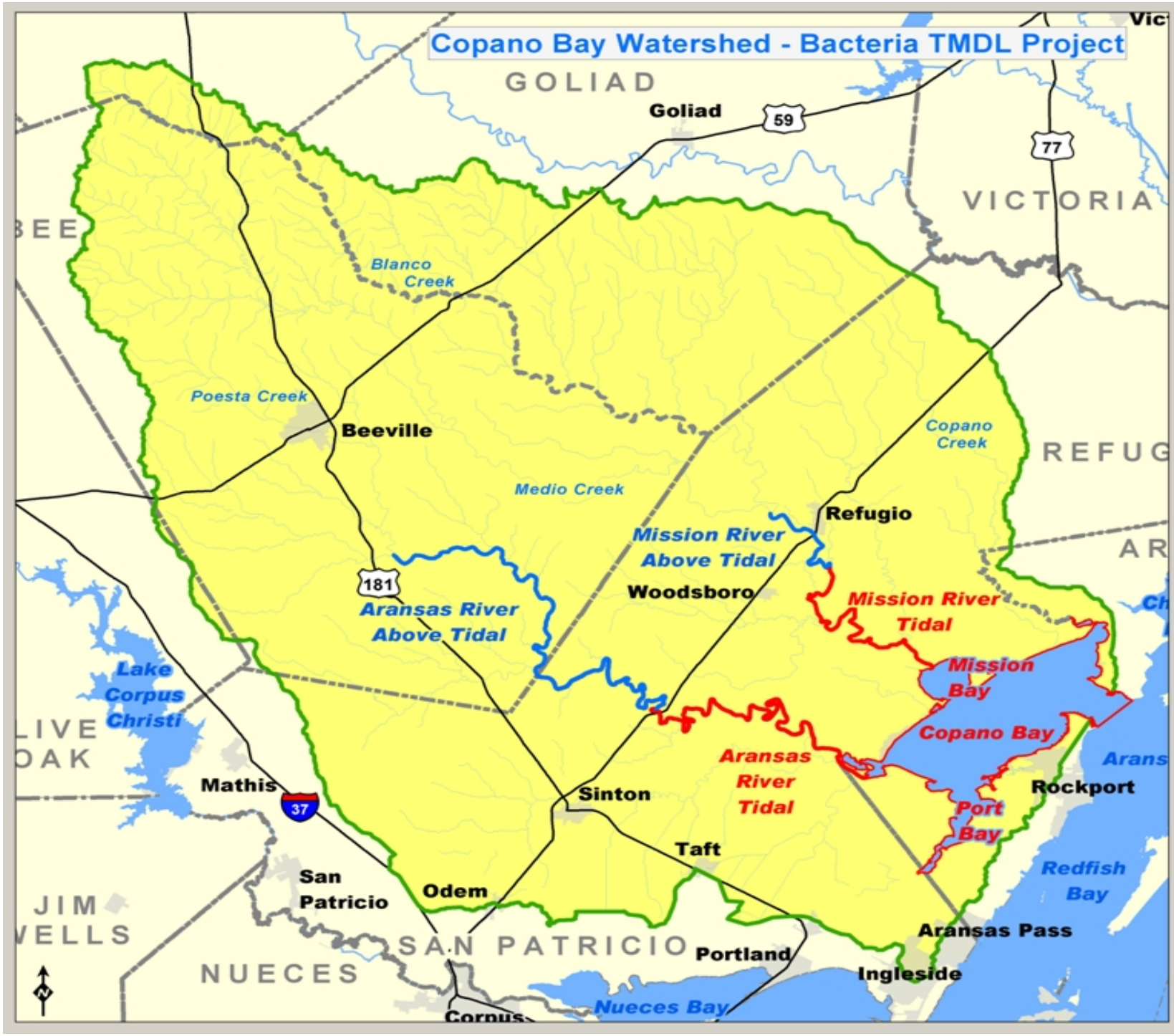
- A total maximum daily load (TMDL):
  - Determines the maximum amount (or load) of bacteria that a water body can receive and attain and maintain its standards
  - Broadly allocates this allowable load to point and nonpoint sources of bacteria in the watershed

Why do TMDLs?

- First step to restore water quality in rivers, lakes, and bays affected by bacteria
- Effective tool for determining sources of bacteria
- Required under Section 303(d) of the federal Clean Water Act (CWA) for all water bodies that do not meet water quality standards
- Identify the percent reduction in loading of bacteria needed from sources to restore water quality

What is impaired?

- Mission/Aransas Rivers Tidal- Contact Recreation
  - Elevated bacteria concentrations
    - Enterococcus (35 cfu/100ml)
- Copano Bay- Oyster Harvesting
  - Elevated bacteria concentrations
    - Fecal coliform (14 cfu/100ml)
- Goal: Decreased bacteria concentrations in these waters


Copano Bay Watershed - Bacteria TMDL Project
GOLIAD
Goliad
59
77
VICTORIA
BEE
Blanco Creek
Poesta Creek
Beeville
Medio Creek
Copano Creek
REFUG
Refugio
Mission River Above Tidal
181
Aransas River Above Tidal
Woodsboro
Mission River Tidal
Mission Bay
Copano Bay
Aransas River Tidal
Lake Corpus Christi
LIVE OAK
Mathis
37
Sinton
Rockport
Port Bay
Taft
Redfish Bay
San Patricio
Odem
JIM WELLS
SAN PATRICIO
Aransas Pass
Portland
Ingleside
NUECES
Nueces Bay
Corpus

Issues

- The need for more data from rivers
- The need for more data from wastewater treatment facilities (WWTFs)
- Bacteria Source Tracking data
- Data analysis
- Texas State Soil and Water Conservation Board (TSSWCB) involvement

We needed more data from rivers

- TSSWCB funded Nueces River Authority (NRA) to collect more samples
  - Has already started—collecting bacteria, flow and field parameters
  - Sampling during “dry weather” in rivers and tributaries
  - Sampling during rain events in rivers and tributaries
  - 3 yr sampling plan which ends November 2009


KARNES
GOLIAD
BEE
REFUGIO
ARANSAS
SAN PATRICIO
Project Sites

We needed data from WWTFs

- All WWTFs are permitted by TCEQ and require treatment, disinfection, etc
- TCEQ began unannounced sampling at WWTFs at the effluent outfall
- Completed first sampling event in October
- Lab analysis is funded by grant to NRA from TSSWCB


KARNES
GOLIAD
BEE
REFUGIO
ARANSAS
SAN PATRICIO
WWTP Sites

Bacteria Source Tracking (BST)

- The process of “tracing” bacteria back to its host
- Can be used to simply tell if bacteria is from human or non-human
- Can be refined to determine the specific host

Bacteria Source Tracking

- Previous BST work was done only in the Bay
  - CBBEP is now funding BST work in the Mission and Aransas Rivers
  - New sampling will include feral hog isolates, WWTF isolates
- BST may be used to identify presence or absence of a source, but not to determine the percent of contribution

Data Analysis

- First analysis
  - Difficult to reproduce
  - Incorrectly included CAFO population
  - Did not use current livestock populations
  - Data gaps
- Fresh new approach
  - Easier to understand
  - Removed CAFO population
  - Will use the latest livestock populations available
  - More data on rivers and WWTFs

Other Concerns?

Approaches to Estimate Loadings*

- Load Duration Curve for rivers above tidal to estimate loadings to downstream tidal segments that are impaired
- Mass Balance for tidal portion of rivers
- Prism analysis for the bay

***Bacteria Task Force Approved Methods**

TSSWCB Involvement

- TCEQ and TSSWCB are working more closely together
- TSSWCB facilitated a critical meeting in preparation for tonight’s public meeting
- TCEQ and TSSWCB are working more closely with other agencies (NRCS, TCE, TDA, etc) and the public

We need feedback on:

- Sample locations
- Accurate livestock populations
- TMDL strategy/data analysis
- Any other potential bacteria sources
- Frequency, format and content of public meetings