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Bacteria Total Maximum Daily Load

Task Force

Kevin Wagner

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THE ISSUE – BACTERIA

- 197 waterbodies (i.e. streams, rivers, lakes, bays) do not meet bacteria water quality standards and are considered "IMPAIRED"
  - 183 - contact recreation use (swimming)
  - 14 - oyster water use (oyster harvest)
- **#1 Cause of Impairment in TX!**
- **1 in 3 rivers in U.S. impaired**

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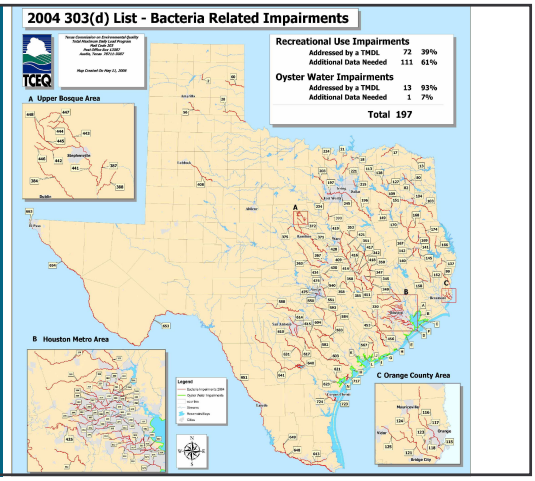

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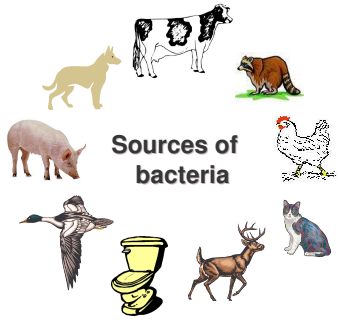
Bacteria: Number One Water Quality Contaminant



TO ADDRESS THE IMPAIRMENTS

- Develop TMDLs & TMDL Implementation Plans
- What is a TMDL?

  TMDL = WLA + LA + MOS + FG
- A TMDL outlines:
  - Pollution reductions needed to restore water quality in "impaired" water bodies
  - Where reductions will come from [point sources (WLA) and/or nonpoint sources (LA)]

BACTERIA TMDL ISSUES

- As the first round of bacteria TMDLs were completed, a number of issues surfaced:
  1. Inadequate communication within the TMDL process
  2. Appropriateness of the water quality standards questioned
  3. Better tools and science needed

How will Texas address these bacteria TMDL issues?

- **WORKING TOGETHER!!!**
- **Triennial Water Quality Standards Review Process**
- **Bacteria TMDL Task Force**
  - Lead by Dr. Allan Jones, TWRI
  - Sept. 27th TCEQ/TSSWCB Meeting

Bacteria TMDL Task Force

- **7 Members:**
  - George DiGiovanni, TAES-El Paso
  - Larry Hauck, TIAER
  - Allan Jones, TWRI
  - Joanna Mott, Texas A&M-Corpus Christi
  - Hanadi Rifai, University of Houston
  - Raghavan Srinivasan, Texas A&M
  - George Ward, UT-Austin

Expert Advisors to Task Force

- ~40 members
- formed to provide input
- represent various stakeholder perspectives

Task Force Scope of Work

1. Review EPA TMDL guidelines and approaches taken by selected states to TMDL and implementation plan development.
2. Evaluate scientific tools, including microbial fate and transport modeling, microbial source tracking, and others.
3. Suggest alternative approaches to TMDL development , emphasizing scientific quality, timeliness, and cost effectiveness.

Task Force Scope of Work

4. Suggest alternative approaches to TMDL implementation plan and watershed protection plan development, emphasizing scientific quality, timeliness, and cost effectiveness.
5. Develop a 3- to 5-year science roadmap to guide and improve our understanding of microbial fate and movement in Texas environments.

Schedule

- Oct. 31 – First DRAFT sent out
- Nov. 13 – Comments on First DRAFT due
- Nov. 27 – Task Force Meeting/Teleconference
- Dec. 4 – Second DRAFT
- Dec. 15 – Response to Second DRAFT due
- Dec. 18 – Task Force Meeting/Teleconference
- Jan. 8 – Third DRAFT delivered to TCEQ and TSSWCB

Components of Report

- Introduction
- Bacteria Fate & Transport Models – Srini and Hanadi
- Bacteria Source Tracking – DiGiovanni and Mott
- Recommended Decision-Making Process
- Research and Development Needs – Hauck and Ward
- Appendices
  - 1-EPA Guidelines
  - 2-State Approaches
  - 3-Model Descriptions
  - 4-Task Force Personnel
  - 5-Comments

Bacteria Fate & Transport Models

- Statistical and mass Balance Bacteria Models
  - •Load Duration Curves
  - •Mass Balance Method
- In-Stream Bacteria Models
  - •HSPF
  - •SWAT
  - •SWMM
  - •WASP

Bacteria Source Tracking

- ERIC-PCR
- Ribotyping
- Pulse Field Gel Electrophoresis
- Kirby-Bauer Antibiotic Resistance Analysis

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