Bacterial Pathogen Monitoring and Assessment in Texas
Recreation Use

- **Contact Recreation**

  recreation activities involving a significant risk of ingestion of water, including wading by children, swimming, water skiing, diving, and surfing.
Recreation Use

- **Non-contact Recreation**
  aquatic recreational pursuits not involving a significant risk of ingestion: including fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity.
Indicator Bacteria

- *Escherichia coli* – freshwater
- *Enterococci* – tidal waters and some inland waters with high conductivities (> 10,000 µS/cm)
- *Fecal coliform* – freshwater and tidal waters (no longer collected)
Indicator Bacteria Criteria

- **Escherichia coli**
  - Individual samples: 394 colonies/100 mL
  - Geometric mean: 126 colonies/100mL

- **Enterococci**
  - Individual samples: 89 colonies/100 mL
  - Geometric mean: 35 colonies/100mL

- **Fecal coliform**
  - Individual samples: 400 colonies/100 mL
  - Geometric mean: 200 colonies/100mL
Bacteriological Sampling

- Baseline bacteriological samples are collected under all flow conditions.
- Current holding time for *E. coli* is 6 +2 hours (6 for holding and 2 for analysis).
- Texas has provisional approval from EPA Region 6 for a 48 hour hold time.
- An additional study is being conducted to substantiate permanent approval.
- Holding time for Enterococci is 8 hours.
Bacteriological Analyses

- *E. coli* and Enterococci samples are analyzed with IDEXX Colilert® and Enterolert® methods, respectively.
- Colilert-24® is used for *E. coli* samples from water bodies with specific conductance of < 3000 µS/cm.
- Colilert-18® is used when specific conductance is between 3,000 and 10,000 µS/cm.
Since July 1, 2008 all bacteriological data submitted to TCEQ for assessment purposes must be analyzed by a lab accredited by NELAC.
305(b) Assessment of Contact Recreation Use

- TCEQ uses a 7-year period of record for assessment.
- Support of the use is determined using both individual sample and geometric mean criteria.
- Bacteriological samples may be eliminated if they were collected below the 7Q2 in perennial streams.
Use Determination Methodology

- Individual samples are assessed using the binomial system
- The Use may be identified as:
  - Fully Supporting
  - Concern
  - Not Supporting
  - Not Assessed
Current Bacteria Concerns
2008 Assessment

- 0204 – Red River above Lake Texoma
  - From headwaters of Lake Texoma upstream to Fish Creek
- 0205 – Red River below Pease River
  - From the confluence with China Creek upstream to the end of segment
- 0206B – South Groesbeck Creek
  - Entire segment
- 0214 – Wichita River below Diversion Lake Dam
  - From FM 2393 upstream to River Road WWTP
Current Bacteria Impairments
2008 Assessment

- 0206B – South Groesbeck Creek
  - Entire segment
- 0207 – Lower Prairie Dog Town Fork Red River
  - SH 70 to upstream end of segment
- 0207A – Buck Creek
  - From Oklahoma state line upstream to House Log Creek
- 0214 – Wichita River below Diversion Lake Dam
  - From FM 2393 upstream to River Road WWTP
  - From Beaver Creek upstream to Diversion Dam
Current Bacteria Impairments
2008 Assessment

- **0214A – Beaver Creek**
  - From the confluence with Bull Creek upstream to Santa Rosa Lake Dam
- **0230A – Paradise Creek**
  - Lower 5 miles of segment
- **0299A – Sweetwater Creek**
  - From the Oklahoma state line upstream to the confluence with Graham Creek