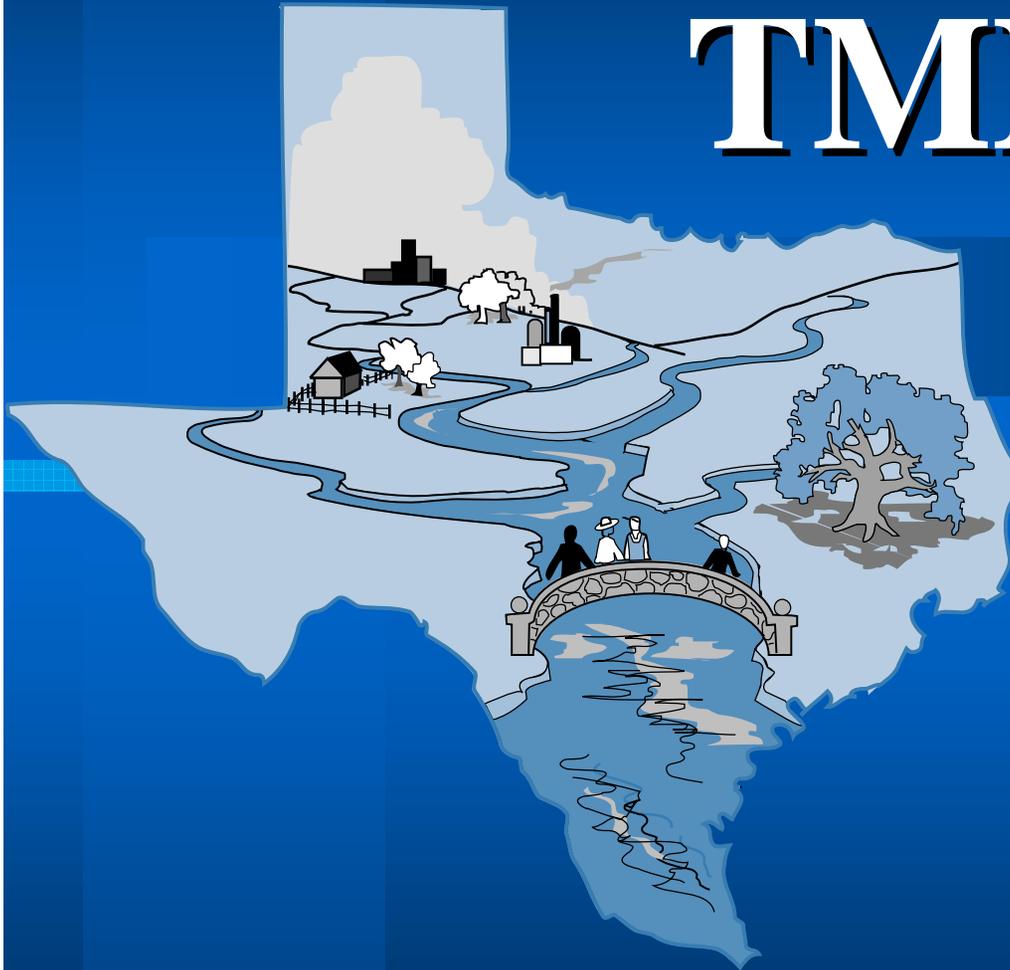




# TMDLs

In

Texas



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**Total Maximum Daily Load Program**  
**Texas Commission on Environmental Quality**



# Why do TMDLs?

- States are required by Section 303 (d) of the federal Clean Water Act and Texas Law to identify water bodies that do not meet applicable water quality standards and develop TMDLs to maintain their designated uses.
- Under federal law, if Texas does not develop its own TMDLs, the U.S. Environmental Protection Agency (EPA) will.



# What is a TMDL?

## (Total Maximum Daily Load)

- Establishes the maximum amount of an impairing substance or load, that a waterbody can receive and still meet Water Quality Standards
- allocates the load to point and nonpoint sources of pollution





# Calculation of a TMDL

TMDLs are the sum of the individual waste load allocations (WLAs) for point sources, load allocations (LAs) for non-point sources and natural background conditions, plus a margin of safety (MOS).

$$\text{TMDL} = \text{WLA} + \text{LA} + \text{MOS}$$





# What are Water Quality Standards?

- Maintain the quality of water in the state and are consistent with
  - Public health and enjoyment
  - Protection of terrestrial and aquatic life
  - Operation of existing industries
  - Economic development in the state





# What are Criteria?

- Criteria are water quality limits which are to be met in order to support and protect designated uses.
- Three (3) main designated uses are:
  - Contact Recreation
  - Domestic Water Supply
  - Aquatic Life





# Bacteria - Criteria

## ● Fecal Coliform

### ● Contact Recreation Criteria

- Geometric Mean - **200 colonies per 100 ml**
- Single Grab Sample - **400 colonies per 100 ml**

### ● Non-contact Recreation

- Geometric Mean - 2000 colonies per 100 ml
- Single Grab Sample - 4000 colonies per 100 ml

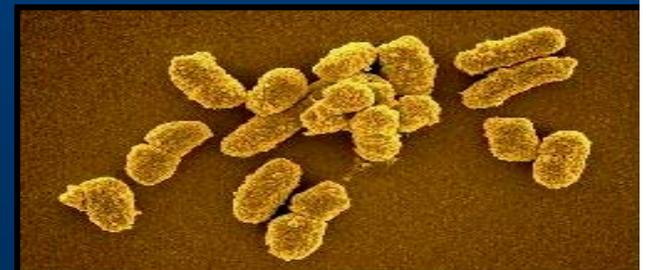
## ● E. coli

### ● Contact Recreation Criteria

- Geometric Mean - **126 colonies per 100 ml**
- Single Grab Sample - **394 colonies per 100 ml**

### ● Non-contact Recreation

- Geometric Mean - 605 colonies per 100 ml



Escherichia coli (E. coli)



# How does E. coli get in the water?



- E. coli comes from human and animal wastes. Rainfall can wash E. coli into waterways or groundwater and ultimately end up in drinking water.



# How does E. coli spread?



- undercooked ground beef
- un-pasteurized milk
- raw vegetables
- contaminated water
- person-to-person.

# Waste Load Allocation/Point Source Pollution



- any discernible or discrete conveyance from which pollutants are, or may be discharged

# Load Allocation/Non-point Source Pollution



- occurs when runoff gathers manure, oil, grease, litter, fertilizer and other toxic substances and washes them into waterways



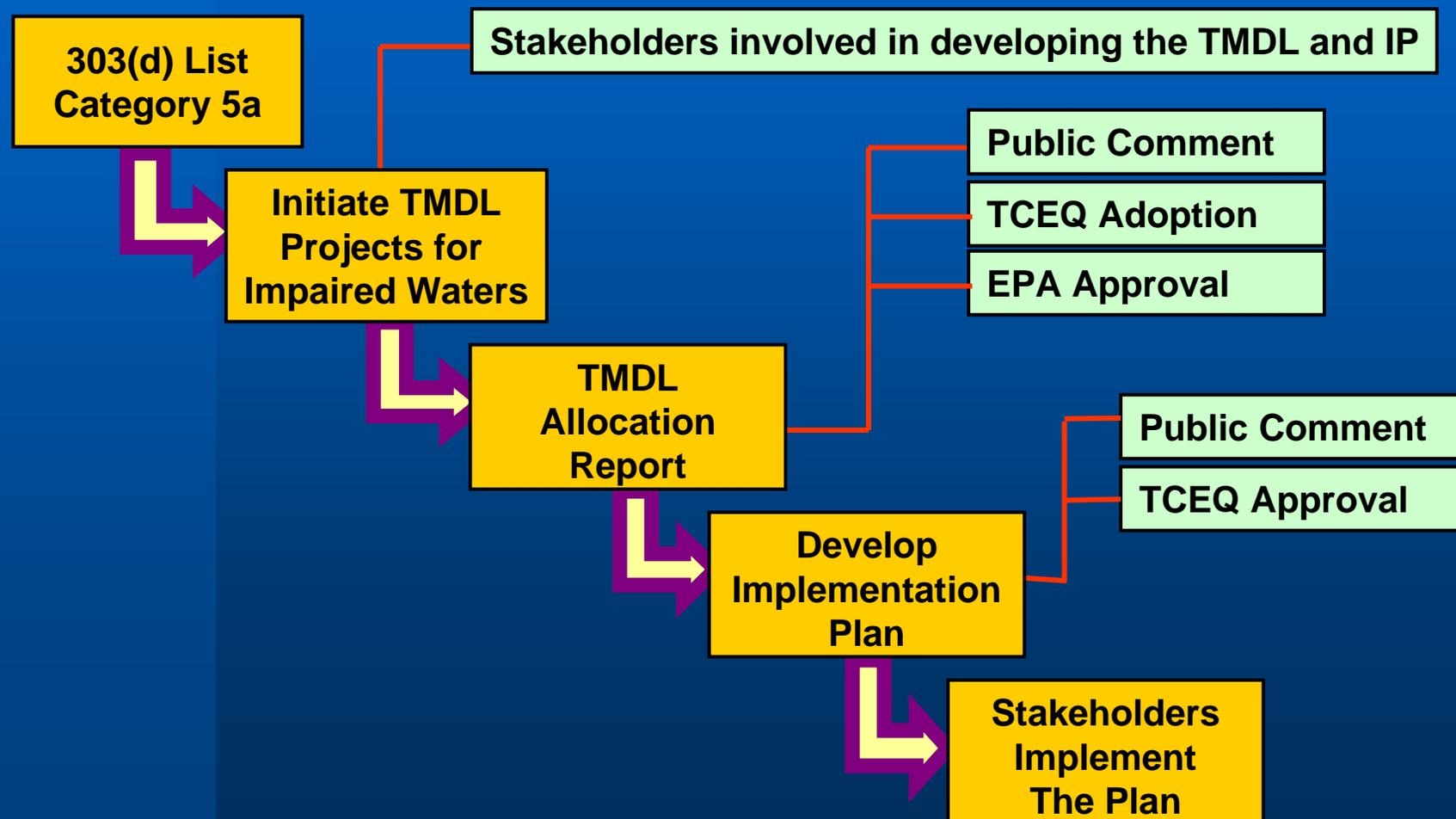
# Suspect Pollutant Sources



- Wastewater Treatment Plants
- Confined Animal Feedlot Operations (CAFO's)
- On-Site Sewage Facilities (OSSF's)
- Domestic Animal Feces
- Wild Animal Feces
- Storm Water Runoff
- Agriculture Practices



# The TMDL/IP Process





# Completed TMDL Status

**64 TMDLs Adopted for 35 Waterbodies  
by the TCEQ**

**61 TMDLs Approved for 34 Waterbodies  
by EPA**



# Questions / Comments

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