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Water Quality Project

**Water Quality Assessment for
Eagle Mountain Lake and
Watershed**

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Ambient Water Quality Testing

- In reservoir sampling of water quality at designated locations
- Watershed sampling at designated tributary locations.
- Laboratory Analysis



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Water Quality Parameters

- Chemical
 - Electrical conductivity
 - Dissolved Oxygen
 - pH
 - Fecal Bacteria
 - Nutrients



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Water Quality Parameters

- Physical
 - Temperature
 - Total suspended solids (TSS)
 - Turbidity
 - Stream Flow (discharge)



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Water Quality Parameters

- Biological Water Quality Indicators
 - Benthic Macroinvertebrates
 - Biochemical Oxygen Demand
 - Submerged aquatic vegetation



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Texas Surface Water Quality

- Federal Clean Water Act Sections 305(b) and 303(d)
 - Requires state wide report on impaired water bodies
 - Biannual list is referred to as “303 (d)” list
- State of Texas has established Standards to protect the purpose for which water bodies will be used
- Designations for 303(d) list
 - 5a: TMDL is underway or has been scheduled
 - 5b: Review of water quality standards for water body will be held prior to a TMDL
 - 5c: Additional data will be collected before a TMDL is scheduled

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2008 Texas Water Quality Inventory

- Eagle Mountain Reservoir (0809) – 305(b) concern
 - Chlorophyll-a
 - Ammonia
 - Dissolved Oxygen
- Eagle Mountain Watershed – (0810) – 303(d) impaired for bacteria
 - West Fork Trinity River below Bridgeport
 - Big Sandy Creek
 - Garrett Creek
 - Martin Branch
 - Salt Creek

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Water Use Categories

- Aquatic Life
 - Designated to protect aquatic species
 - Dissolved Oxygen, toxic chemicals
- Contact Recreation
 - Estimates the relative risk of swimming and other water sports
- Public Water Supply
 - Indicator of whether water is available as a source for a public water system
 - Metals, pesticides, other toxic chemicals
- Fish Consumption
 - Protect public from consuming fish that may be contaminated

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Water Quality Standards

- Used by TCEQ regulatory programs to establish reasonable limits on permitted dischargers
- Numeric Standards
 - Segment specific numbers
- Narrative Standards
 - Descriptive standards to protect aesthetics and designated uses
 - Screening limits non-segment specific numeric standard for nutrients

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Criteria Applicable to Eagle Mountain

- Numeric Criteria
 - Dissolved Oxygen
 - pH
- Narrative Criteria
 - Nitrogen
 - Phosphorus
 - Excessive Algal Growth
 - Chlorophyll-*a*



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Nutrients

- Compounds which stimulate and sustain the growth and development of aquatic plants and algae
- Nitrogen
- Phosphorus



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Fecal Coliform

- Bacteria derived from the waste of warm-blooded mammals.
- Indicator of harmful pathogens such as *E Coli*.



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Surface Water Quality Standards

Substance	Eagle Mountain Lake Concentration	Proposed Criteria
Chlorophyll- <i>a</i>	16.3 ug/L	21.19 ug/L
Nitrogen	.79 mg/L	.995 mg/L
Phosphorus	.065 mg/L	.0666 mg/L
Dissolved Oxygen	7.5 mg/L	5.0 mg/L
pH	7.8	6.5-9

Bacterial Concerns in Eagle Mountain Watershed

West Fork Trinity Below Bridgeport Reservoir
Segment 0810

