

North Central Texas
Water Quality Project

**Watersheds 101:
Terms to Know**

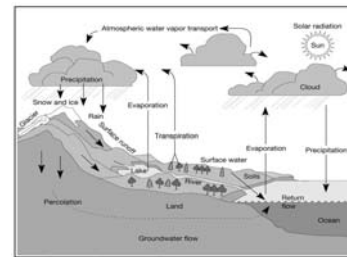
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TARRANT REGIONAL
WATER DISTRICT



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Hydrology: The Water Cycle



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Stormwater

Rainfall runoff, snow melt runoff, and drainage on urban and rural landscapes..

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Pollutant

Any substance that, when present in a hydrologic system at sufficient concentration, degrades water quality in ways that are or could become harmful to human and/or ecological health or that impair the use of water for recreation, agriculture, industry, commerce, or domestic purposes.

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Pollutants: Types and Impacts

POLLUTANT	NONPOINT SOURCE	IMPACTS
Bacteria	Livestock, pet waste, septic systems, and boat discharge.	Introduces disease-bearing organisms to surface water and ground water, resulting in shellfish bed closures, swimming restrictions, and contaminated drinking water.
Nutrients (phosphates & nitrates)	Fertilizers, livestock, pet waste, septic systems, suburban/urban development, and soil erosion.	Promotes algae blooms and aquatic weed growth which can deplete oxygen, increase turbidity, and alter habitat conditions.
Sediment (soil)	Construction, driveways, ditches, earth removal, dredging, mining, gravel operations, agriculture, road maintenance, and forest operations.	Increases surface water turbidity which in turn reduces plant growth and alters food supplies for aquatic organisms, decreases spawning habitat and cover for fish, interferes with navigation and increases flooding risk.
Toxics and Hazardous Substances	Landfills, junkyards, underground storage tanks, hazardous waste disposal, mining, pesticides/herbicides, auto maintenance, runoff from highways and parking lots, boats, and marinas.	Accumulates in sediment posing risks to bottom feeding organisms and their predators; contaminates ground and surface drinking water supplies; some contaminants may be carcinogenic, mutagenic and/or teratogenic and can bioaccumulate in tissues of fish and other organisms including humans.

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Point Source Pollution

Pollution resulting from collection and discharge at a defined point

- Waste Water Treatment Plant Discharges
- Industrial Waste Discharge
- Confined Animal Feeding Operations

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Nonpoint Source Pollution

Pollutant sources that are spread over a landscape

- Fertilizers, herbicides, and insecticides
- Oil, grease, and toxic chemicals
- Sediment
- Salt (irrigation)
- Acid (abandoned mines)
- Bacteria (livestock/ pet waste, septic systems)
- Atmospheric deposition
- Hydromodification (channel modification and dams)

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Chlorophyll-*a*

Photosynthetic pigment found in all green plants. The concentration of Chlorophyll-*a* is used to estimate phytoplankton biomass (all of the phytoplankton in a given area) in surface water..

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Best Management Practice (BMP)

Structural or behavioral practice intended to reduce to flow of nutrients, sediment, and other pollutants on the landscape and within water bodies.

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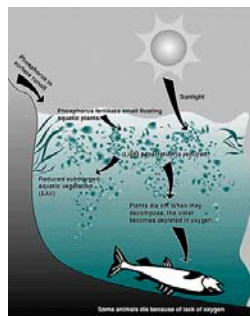
Channelization

Straightening and deepening of streams so water will move faster, a method of flood control that alters fish and wildlife habitats and the ability of a water body to assimilate waste.

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Eutrophication

- Increase in chemical nutrients - typically compounds containing nitrogen or phosphorus in an ecosystem
- Promotes excessive plant growth and decay and is likely to cause severe reductions in water quality



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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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Texas Surface Water Quality Standards

Each body of water is managed for one or more uses

- Contact/Noncontact Recreation
- Domestic Water Supply
- Industrial Water Supply
- Fish Consumption
- Aquatic life
- Navigation
- Livestock Watering and Wildlife
- Irrigation

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Water Quality Parameters

Chemical

- Dissolved Oxygen (DO)
- Electrical Conductivity
- pH
- Fecal Coliform
- Nitrogen
- Total Phosphorus

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Water Quality Parameters

Physical

- Temperature
- Turbidity
- Total Suspended Solids
- Stream Flow (Discharge)

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Total Maximum Daily Load (TMDL)

The total amount of a pollutant that a water body can assimilate and still meet established surface water quality standards. Used as a management tool for impaired water bodies by TCEQ.

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NPDES

National Pollution Discharge Elimination System

- Regulates Waste Water Treatment Plant discharges
- Industrial Waste Discharge
- Confined Animal Feeding Operations (CAFO)
- Municipal Separate Storm Sewer Systems (MS4)
- Administered by TCEQ