

# Water Pollution

Each time we use water, we change its quality by adding substances to it. These materials are such things as municipal sewage, toxic chemicals, automotive oils, fertilizers, detergents and pesticides. Some materials, even in small quantities, can damage water quality to the point that it is unusable. A single quart of motor oil, for example, could pollute as much as 250,000 gallons of water.

Densely populated urban areas (like San Antonio), which are covered by impervious surfaces like streets, sidewalks, roof tops and buildings, increase the amount and decrease the quality of storm water run-off. The high concentrations of people in these areas tend to produce greater quantities and varieties of pollutants. Think about your neighborhood, for example. Have you ever considered what happens to the fertilizers and insecticides that wash off your yard during a thunderstorm? When it rains, these types of pollutants are washed into neighborhood gutters and storm drains which are not connected to any wastewater treatment plant and therefore not treated. These urban pollutants flow through the storm drain system and empty directly into our local rivers, creeks and lakes. In San Antonio, all rivers and creeks in Bexar County drain into the San Antonio River and eventually drain into the Gulf of Mexico. These pollutants could harm wildlife and fisheries and ruin recreational areas from here to the Texas coast.



Water pollution is identified in two categories. Point Source Pollution is contamination that comes from a single, clearly identifiable source, such as a pipe which discharges material from a factory into a lake, stream, river, bay or other body of water. Point source pollution is relatively easy to identify. Non-point Source Pollution is more difficult to identify. This is pollution which originates over a broad area from a variety of causes. Examples of non-point source pollution include improperly applied pesticides and fertilizers, sediment from construction and petroleum-based products from streets and parking lots. Non-point source pollution usually originates from storm water runoff.

## Hazardous Waste

Have you ever thought about what you pour down the drain? What about your old motor oil or your household chemicals and cleaners? Did you know that the average household generates 20 pounds of hazardous waste each year from household cleaners and chemicals? What you put down the drain could eventually re-enter the water cycle.

Ways to avoid this are to recycle oil and other petroleum-based chemicals at service stations or recycling centers. Avoid using hazardous chemicals when possible and substitute more environmentally friendly materials. The city of San Antonio has a Household Hazardous Waste Disposal Center where individuals can take hazardous waste for proper disposal.

Here is a list of some Garden/Lawn/Outdoor hazardous waste:

- Weed Killer (herbicide)
- Bug Killer (insecticide or pesticide)

- Rat/Mouse poison
- Roach and ant killers
- Swimming pool chemicals

Here's a list of typical household hazardous waste:

- Oven cleaner
- Cooking grease
- Rug cleaner
- Mothballs/flakes
- Nail polish & remover
- Old medicine
- Kerosene

Here's a list of clean alternatives:

- Vinegar with salt and water is a good surface cleaner.
- Dissolve baking soda in water for a general cleaner.
- Use toothpaste to remove crayon from surfaces.
- Use mild, biodegradable detergents.

## **Stream Health**

All these forms of pollution talked about previously can add up to a very sick stream. So how do scientists gauge overall stream health? In addition to water measurement characteristics such as temperature, pH, conductivity, turbidity, dissolved oxygen and hardness, scientists look at four other important factors. They include:

Bacteria-Bacteria is a good indicator of drinking and recreational water quality. Total bacteria and fecal coliform bacteria are the most widely used "indicator bacteria." High levels of bacteria are not desirable.

Algae-Algae are good water quality indicators. High quality lakes and streams contain sparse to moderate amounts of algae assuring an adequate food supply for fish communities.

Phosphates- Phosphates are chemical compounds that are made from the element phosphorus and are sometimes used in detergents and fertilizers. Urban activities such as washing cars and applying fertilizers can greatly increase phosphate levels.

Nutrients-Urban runoff can also carry nutrients in streams and creeks. With the right quantity and proportion, these nutrients can contribute to an overabundance of plant growth which could "choke" the waterway.