

Louisiana Water Quality and Recreational Activities

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Louisiana is blessed with an abundance of opportunities for people to enjoy water related activities. Good water quality is essential to these many outdoor activities such as fishing, boating, and swimming. Most Louisiana residents think of water pollution as toxic chemicals emitted from industrial plants or chemicals used along roadways or farms to control weeds and pests. These materials can pollute surface and groundwater if their application or emissions violate laws or exceed scientifically set standards.

Enforcement agencies are now trying to reduce the amount of point source and nonpoint source pollutants in surface waters to make recreational waters cleaner. Polluted water can be harmful to swimmers and anglers. All people using Louisiana's waters should understand how these pollutants could affect their favorite recreational spots.

Definitions

Point sources originate from a pipe or identifiable locations in a stationary or fixed facility from which pollutants are discharged directly into a water body. Pollution sources, which do not have a single point of origin or are not introduced into a receiving stream from a specific outlet are considered **nonpoint sources** of pollution such as runoff from fields, farms, woodlands, urban lawns, parking lots, and streets.



Why Increased Enforcement?

The U.S. Clean Water Act requires that states' waters be safe for swimming and fishable. Limits known as Total Maximum Daily Loads (TMDLs) are now being set for the amount of pollutants that can be discharged into specific Louisiana water bodies to meet their designated uses. Many bayous, lakes, and streams in the state do not meet minimum standards set by the Environmental Protection Agency (EPA) for one or more of their designated uses, such as fishing, swimming, or drinking water. The Louisiana Department of Environmental Quality (LDEQ) is implementing the TMDL program to improve water quality in the impaired water bodies in Louisiana.

What are the Major Pollutants and How Do They Affect Recreational Waters?

- **Dissolved Oxygen**

Perhaps the most common impairment of surface water in many of Louisiana's water bodies is lack of sufficient dissolved oxygen (DO). The level of DO is below the level necessary for a healthy aquatic habitat during certain times of the year. Fish and many other aquatic animals require oxygen concentrations in various amounts. Without adequate oxygen, some fish species may cease to be present or may be too stressed to reproduce.

Dissolved oxygen in water bodies comes from several sources and is sometimes naturally more abundant. For example, waters that flow at high velocities through variable terrain such as over rocks, sand, and logs generally obtain much oxygen through the air-water interface and subsequent mixing. Microscopic aquatic one-celled plants called algae also generate oxygen in water.

Substances that can reduce oxygen concentrations are called oxygen-demanding substances. These include organic matter such as living and dead plant material, sediment, and fecal material from animals and humans. The normal decay processes consume oxygen and thus contribute to oxygen demand. High temperature decreases water's ability to dissolve and hold oxygen. Cooler water will contain more dissolved oxygen than warmer water.



- **Nutrients**

Excessive algae blooms can be stimulated by an over abundance of nutrients. Nutrient over enrichment or hypoxia is a major concern in many water bodies of Louisiana, especially in coastal areas of the Gulf of Mexico. Two nutrients that have the potential to become pollutants — nitrogen and phosphorous — are essential for all plant growth, and therefore essential for the proper function of ecosystems. However, excessive nitrogen and phosphorous concentrations in water can accelerate algae and plant growth in streams and lakes, resulting in oxygen depletion or low dissolved oxygen. When excess nutrients enter a waterway through unnecessary or improper fertilization of lawns, gardens and farms, effluents from sewage treatment plants, and even manure from wildlife and livestock, the potential for over enrichment or hypoxia can occur and result in low dissolved oxygen. Without adequate oxygen, some fish species may cease to be present or may become too stressed to reproduce.

- **Fecal coliform**

Many of the water bodies in Louisiana that are listed as impaired are polluted with fecal coliform bacteria and do not meet their designated use for swimming. Fecal coliform is a term used to describe bacteria found in the intestinal tract of warm-blooded animals. It is essential for digestion of food, but can cause swimmers to become sick. Sources of these bacteria include improperly maintained sewer treatment facilities, livestock feeding operations, and naturally occurring on some wild animals. Surface waters are monitored for the presence and concentration of fecal coliforms. In addition, the presence of this pollutant may indicate the presence of other pathogens. Some kinds of coliforms such as *E. Coli* can be transmitted from cattle to humans or from person to person. These may be harmful to human health. Fecal material also contains nitrogen and phosphorus and can result in nutrient over enrichment of water bodies.

- **Sediment/Siltation**

Sediment is the largest pollutant by volume of surface water in the nation. It comes from agricultural sources, construction sites and soil disturbing activities in urban settings that leave the soil exposed to rainfall. Sediment increases the turbidity of water, thereby reducing light penetration, impairing photosynthesis, and altering oxygen relationships. It may reduce the available food supply for certain aquatic organisms. Sediment deposits can cover spawning beds, thus affecting fish populations. Over time, increased sediment fills lakes and reservoirs.

Sediment can damage fish spawning areas, reduced light penetration needed by aquatic plants, increase water purification costs, lower recreational value, clog channels and increase flooding, increase dredging to maintain shipping channels, and reduce storage capacity for reservoirs.

In addition, sediment is often rich in organic matter and nutrients from pesticides. The potentially harmful effects of these substances in the sediment include rapid algae growth, oxygen depletion as organic matter and algae decompose, fish kills from oxygen depletion, toxic effects of pesticides on aquatic life, and unsafe drinking water caused by nitrate or pesticide content.

The bottom line — human activities on land impact water quality through runoff. We all contribute to water pollution; therefore we can all contribute to water quality improvement through some simple practices. These include maintaining home sewer treatment systems, soil test before applying fertilizer, and always follow label directions and use the recommended amounts of pesticides.

