



REDUCE NONPOINT SOURCE POLLUTION

in Louisiana Waters

Dissolved Oxygen

Limits on the amount of certain potential pollutants that can enter waterways have been set in many Louisiana water basins, and work is ongoing to complete this process in all of the watersheds in the state. This program, more commonly known as the Total Maximum Daily Load (TMDL) program, strives to set reasonable amounts of pollutants that can be discharged into Louisiana water bodies and still have those water bodies 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 charged with implementing the TMDL program as a mechanism to improve water quality in the impaired water bodies in Louisiana. As a result of this program, both point source and nonpoint source contributors may be required to reduce their impact on surface waters.

Perhaps the most common impairment of surface water in many of Louisiana's water bodies is lack of sufficient dissolved oxygen (DO). For example, a river segment might be listed as not meeting its designated use for fishing because the DO levels are below the level necessary for a healthy aquatic habitat during certain times of the year.

Substances, or pollutants, that can reduce oxygen concentrations are often collectively referred to as oxygen-demanding substances. They include organic matter, such as living and dead plant material, sediment and fecal material from animals and humans.

The processes that consume oxygen in normal decay contribute to the oxygen demand; thus, sometimes less oxygen is available for aquatic life. Additionally, increased water temperatures and slow water flow often found in Louisiana waterways help lower the oxygen available for aquatic life. The ability of water to dissolve and hold oxygen decreases as water temperature increases; that is, cool water can contain more dissolved oxygen than warm water.

Sufficient DO concentrations are important because fish and many other aquatic animals require oxygen concentrations in various amounts. Many of the criteria establish DO levels at a minimum of 3 to 5 milligrams of dissolved oxygen per liter of water (mg/l) for the survival and propagation of native fish species. Without adequate oxygen, many fish species may not be present or may be too stressed to reproduce.

Dissolved oxygen in water bodies comes from several sources and is naturally more abundant in some situations than in others. For example, waters that flow at high velocities through variable terrain like rocks, sand, logs, etc. generally obtain much of their oxygen from the air and water interface and subsequent mixing. Another important source of oxygen in waters are microscopic aquatic one-celled plants known as algae.

Individuals, landowners and local governments have a role to play in reducing excessive amounts of organic material and waste that can contribute to DO depletions from entering our streams. For example, many farming industries can reduce animal waste and sediments from leaving their land and entering the creeks and streams by implementing Best Management Practices (BMPs) that reduce the use of fertilizers and other chemicals.

Another reduction measure is to install certain structures or adopt practices that protect streams and tributaries running across or nearby their property from receiving heavy loads of animal waste, sediment and other types of organic material.

Timber harvesters and landowners can prevent some heating of streams and creeks by not cutting trees that shade the banks of water bodies that flow through their property.

Homeowners also can play a role by insuring they are not overusing lawn fertilizers and other lawn chemicals. Those who live in areas that require them to install and maintain an individual



sewage treatment system can play an important role in protecting DO levels by insuring their system is installed properly and maintained according to the manufacture's recommendations.

Homeowner control of organic material from yard and tree clippings also provides reductions in organic waste entering our waterways.

To see more ways you and others can help prevent oxygen depletions in our waterways go to www.lsuagcenter.com and read about Best Management Practices for agricultural commodities and homeowners.

Visit our Web site:
www.lsuagcenter.com

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