

BE ON THE TEAM TO THINK DOWNSTREAM: TURBIDITY

WHAT IS TURBIDITY?

Turbidity is an optical measure of the clarity of water impacted by the presence of suspended particles, such as silt, clay, organic matter and microorganisms. It is typically associated with the cloudiness or haziness of water caused by the presence of suspended particles or microorganisms. Turbidity is measured in nephelometric turbidity units (NTU) and is measured based on the principles of light scattering.

Small ponds can have increased turbidity from runoff events. Photo by M.P. Hayes



WHAT AFFECTS THE PARAMETER?

Natural erosion, agriculture and construction sites can introduce large amounts of sediment into water bodies during rainfall events, which leads to suspended particles in streams and rivers. Additionally, effluent from industrial sites can contribute to turbidity through the release of

particles and organic matter. Excessive algal growth can also increase turbidity as dead algae contribute to particulate matter. Turbulent water flow and animals walking across rivers or streams can resuspend sediments from the bottom, increasing turbidity.

WHERE DOES IT COME FROM BROADLY AND SPECIFICALLY TO LOUISIANA?

In Louisiana, 9.5% of waterways are impaired because of turbidity. This can be from various sources that introduce or resuspend organic material and sediments in the water column. Additionally, areas of high flow can maintain constant water movement, resuspend particles. The Louisiana Department of Environmental Quality uses the Water Quality Integrated Report to identify impairments and sources. The following sources were identified as causing turbidity impairments around the state:

- Source unknown
- Forced drainage
- Natural source
- Highways, roads, bridges, infrastructure and new construction
- Sewage discharge
- Erosion and sedimentation
- Silviculture activities and harvesting
- Site clearance
- Tidal circulation
- Agriculture
- Water diversions
- Crop production (non-irrigation)

HOW DOES IT AFFECT THE SURROUNDING ENVIRONMENT?

Turbidity can have a great effect on ecosystems, as high turbidity can clog fish gills, hinder visibility and make it difficult for predators to find prey. These impacts cause food web disruption and an imbalance of ecosystem

response to change. For the water quality, suspended sediments can decrease light penetration into the water, inhibiting photosynthesis in aquatic plants. This can lead to decay of plant organic matter and oxygen depletion.

WHAT ARE TRADITIONAL MANAGEMENT PRACTICES?

Planting vegetation, using silt fences and constructing terraces to reduce soil erosion and runoff are some of the main practices associated with turbidity control. Developing infrastructure to manage and prevent storm-water or construction runoff, including retention basins, can also reduce the impact on immediate streams. Agri-

cultural practices using cover crops, no-till farming and contour plowing to reduce soil disturbance and runoff from agricultural lands can help reduce turbidity. In some areas, it may be necessary to change land hydrology to reduce flow to local streams or tributaries.

RESOURCES

https://www.epa.gov/system/files/documents/2021-07/parameter-factsheet_turbidity.pdf

<https://www.usgs.gov/special-topics/water-science-school/science/turbidity-and-water>

<http://www.deq.louisiana.gov/page/louisiana-water-quality-integrated-report>

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