

## BE ON THE TEAM TO THINK DOWNSTREAM: **TOTAL SUSPENDED SOLIDS**

### WHAT ARE TOTAL SUSPENDED SOLIDS?

Total suspended solids (TSS) are the concentration of solids in the water column. This concentration includes soil particles (clay, silt and organic matter), algae and microscopic organisms. Water samples are filtered and dried to determine the mass of particulates. Particle size can affect both the overall mass and the settling behavior, which influences water quality.

Sediments can be easily resuspended from streams during high flow events. Photo by M.P. Hayes



### WHAT AFFECTS THE PARAMETER?

Similar to turbidity, natural erosion, agriculture and construction can introduce large volumes of sediments into water bodies. This is magnified by high rainfall events or specific hydrology that carries particles downstream. During operations like dredging, forced pumping or effluent discharge from ponds, organic matter and particles can be resuspended or transported into tributaries. High-flow water can cause resuspension in areas that have fine particulate materials, while erosion events can contribute larger particles to the water column.

### WHERE DOES IT COME FROM BROADLY AND SPECIFICALLY TO LOUISIANA?

Like turbidity, TSS 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. Though the Louisiana Department of Environmental Quality's Water Quality Integrated Report does not identify TSS as an impairment, it is closely associated with other impairments like turbidity, total dissolved solids and color.

## HOW DOES IT AFFECT THE SURROUNDING ENVIRONMENT?

TSS can have a great effect on ecosystems, as particulate matter can clog fish gills, hindering visibility, making it difficult for predators to find prey. For aquatic plants, it can decrease light penetration into water, decreas-

ing water column oxygen. Sedimentation from TSS is linked to clogged piping and infrastructure when settling occurs. It can also cause a build-up in locations of stagnant water.

## WHAT ARE TRADITIONAL MANAGEMENT PRACTICES?

Similar best management strategies for turbidity can be used for TSS including planting vegetation, using silt fences and constructing terraces to reduce soil erosion and runoff. Designing ponds, retention basins and streams for sediment collection basins allows for settling

and can reduce downstream TSS. Agricultural practices using cover crops, no-till farming and contour plowing to reduce soil disturbance and runoff from agricultural lands can help reduce TSS.

## RESOURCES

[https://www.epa.gov/system/files/documents/2021-07/parameter-factsheet\\_turbidity.pdf](https://www.epa.gov/system/files/documents/2021-07/parameter-factsheet_turbidity.pdf)

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

[https://www.epa.gov/sites/default/files/2015-10/documents/method\\_1684\\_draft\\_2001.pdf](https://www.epa.gov/sites/default/files/2015-10/documents/method_1684_draft_2001.pdf)

## AUTHORS

M.P. Hayes, Assistant Professor in the School of Plant, Environmental and Soil Science and Louisiana Sea Grant

Edward Bush, Professor in the School of Plant, Environmental and Soil Science

Ruth Nolan, Undergraduate Student at LSU College of Agriculture



Visit our website: [www.LSUAgCenter.com](http://www.LSUAgCenter.com)

P3975-L (online) 12/25

The LSU AgCenter and LSU provide equal opportunities in programs and employment.