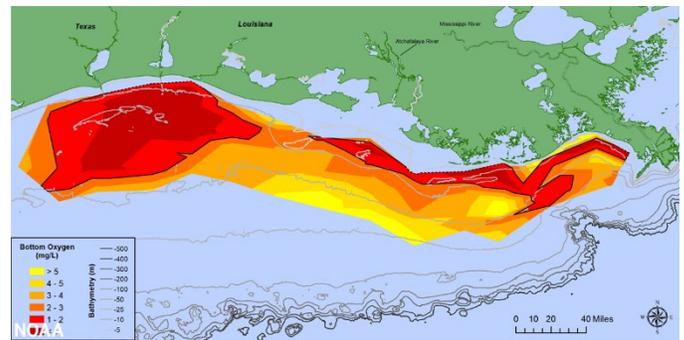




Our Pathway to Clean Water

Problem

Nutrient pollution is a costly problem that affects waters throughout Arkansas and downstream to the Mississippi River and Gulf of Mexico. Nitrogen and phosphorus from fertilizer, animal waste, and other sources enter waters via surface runoff and wastewater discharges. Although plants and animals need nutrients to grow, excessive nutrients in waters can cause environmental problems. Nutrient pollution can lead to overgrowth of algae, which can form harmful algal blooms that produce dangerous toxins in lakes and streams. Plus, when the algae die and decompose, the breakdown process uses dissolved oxygen in the water, which contributes to the Gulf of Mexico’s hypoxic zone.

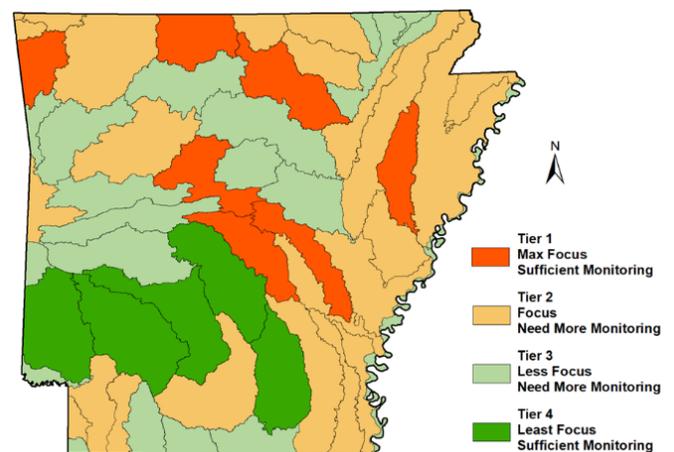


Hypoxic Zone on July 25-July 31, 2021, 6,334 square miles. (LUMCON-NOAA)

Introduction to the Arkansas Nutrient Reduction Strategy

The Arkansas Nutrient Reduction Strategy (ANRS) is a strategic framework that outlines opportunities, both regulatory and voluntary, to reduce nutrient concentrations in Arkansas waters—providing local benefits while also helping to shrink the Gulf of Mexico hypoxic zone. In 2021 the Arkansas Water Resource Center used monitoring data to analyze watersheds statewide and assign priorities using a four-tiered framework:

- **Tier 1** – Maximum focus on nutrient reduction; based on sufficient data.
- **Tier 2** – Focus on nutrient reduction activities; needs more monitoring.
- **Tier 3** – Less focus for nutrient reduction activities; needs more monitoring.
- **Tier 4** Least focus for nutrient reduction activities; sufficient monitoring in place.



Four tiers of watersheds developed using statewide monitoring data.

Strategic Framework and Goals

The ANRS Strategic Framework lays out the actions and strategies that will help to achieve its goals. Using the four-tiered framework, ANRS is targeting watersheds with the greatest potential for nutrient reduction to:

1. Increase or maintain downward nutrient trends in Tier I watersheds.
2. Enhance water quality monitoring and increase or maintain downward nutrient trends in Tier 2 watersheds.
3. Continue efforts to reduce nutrients in all watersheds (Tiers 1–4).

Actions to Reduce Nutrients

Nutrient pollution in Arkansas waters comes from both point sources (mostly wastewater treatment plant discharges) and nonpoint sources (i.e., polluted runoff, mostly during rainstorms). The Strategic Framework prioritizes actions for the two primary sources of nutrients in Arkansas—point sources and nonpoint sources.

Addressing Point Sources

Point source nutrient impacts are small relative to the much larger statewide nonpoint source contribution, but they can be significant during low streamflow conditions. Point source discharges in Arkansas are managed through the National Pollutant Discharge Elimination System using state-regulated permits that require nutrient reductions via various treatment processes.

Addressing Nonpoint Sources

Lowering nutrient runoff requires managing livestock waste, calibrating fertilizer applications, reducing stream channel and upland erosion, and addressing other nutrient sources. In agricultural areas, farmers use conservation practices (e.g., manure management, stream buffers) to reduce, control, and trap nutrients. Other types of nutrient reduction practices are used in urban areas (e.g., increasing rainwater infiltration to reduce runoff), on residential properties (e.g., reducing fertilizer applications), and for forestry operations (e.g., preserving stream vegetation). Implementing nutrient reduction practices for nonpoint sources is mostly voluntary, which requires sustained public interest and support.

Measuring Progress

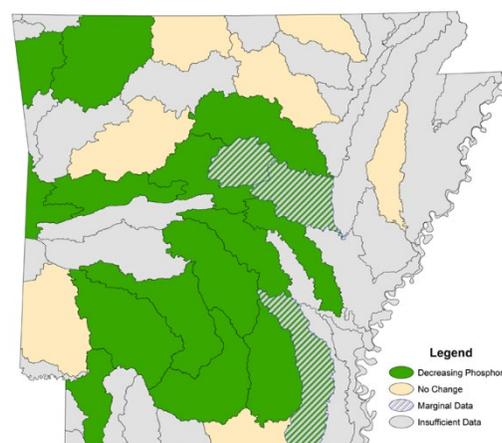
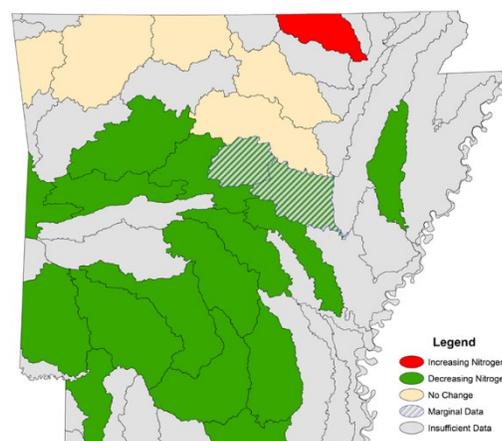
ANRS is based on scientific analysis with input from stakeholders and public agencies. Every two years, the ANRS will be evaluated and periodically updated as scientists, technical experts, and key partners provide new information. This adaptive management approach assumes that new knowledge will be gained as nutrient reduction strategies, projects, and programs are implemented and evaluated. Progress reports will be issued every other year.

More Information

The *Arkansas Nutrient Reduction Strategy 2022* can be downloaded here: <https://www.agriculture.arkansas.gov/natural-resources/divisions/water-management/arkansas-nutrient-reduction-strategy/>

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Trends in watershed total nitrogen (top) and phosphorus (bottom) concentrations, 1990-2019.