Monitor lake water quality to assess the effectiveness of best management practices that reduce contaminants and improve lake ecology and productivity.

Watershed Description
• Part of the Big Sunflower River watershed within the Yazoo River Basin.
• 2,100 acres
• Surface area of the receiving oxbow lake is approximately 62 acres.
• 77% cropland

• A Total Maximum Daily Load (TMDL) has been established for pathogens, low dissolved oxygen, pesticides, sediment, and nutrients.

Issues: Runoff is contaminated with sediments, nutrients (phosphorus, nitrate, ammonium), and pesticides. The receiving oxbow lake is impacted by suspended sediments that suppress the aquatic food chain.

*Agricultural Research Service
Approach

Water Sampling: Water sampled from oxbow lake and wetlands

Watershed Models: AnnAGNPS (Annualized Agricultural NonPoint Source)

Water Quality Monitoring: Runoff, sediments, total organic carbon, nutrients, and pesticides

Assess Practices: Vegetative buffers, conservation tillage, constructed wetlands, grade control pipes, and conversion of row cropland to Conservation Reserve Program (CRP).

Communicating Results

Reports and papers on individual research projects within the watershed and complementary studies in nearby areas. Examples include: Delta oxbow limnology, effects of CRP on runoff and soil characteristics; lake sediment toxicity in various lakes, including Beasley Lake; assessment of wetlands in mitigating pesticide effects; and edge-of-field effects on pesticide in runoff.

Collaborators

- Mississippi Department of Wildlife, Fisheries, and Parks
- Mississippi State University
- Arkansas State University

Contacts

- Martin Locke, Watershed Leader and ARS contact (mlocke@ars.usda.gov)
- Al Garner, NRCS contact (al.garner@usda.gov)
- James Johnson, NRCS contact (james.johnson@ms.usda.gov)
- Paul Rodrigue, NRCS contact (Paul.Rodrigue@ms.usda.gov)

NRCS State Conservationist

Homer L. Wilkes

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