

# Case Study 3: Sunflower River Basin in Mississippi

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**Location:** Harris Bayou and Porters Bayou (HUC 08030207) reside within the Sunflower River Watershed, which is part of the larger Yazoo River Basin which drains 13,355 square miles, covering all or parts of 30 counties. Case study monitoring sites are located in Coahoma, Bolivar, and Sunflower Counties, MS.

**Co-leaders:** Dr. Joby Czarnecki and Ms. Beth Baker, Mississippi State University

**Key Team Members:** Mississippi State University, Delta F.A.R.M, USGS, MS Department of Environmental Quality (MDEQ), USEPA

**Focus:** Tiered monitoring of best management practice efficacy for nutrient reductions following implementation in the Sunflower River Basin.

**Typical Farming Practices:** Row-crop agriculture, major commodities include corn, rice, soybeans, and cotton, surface drainage, and traditional tillage.

**Agricultural BMPs:** Land leveling, controlled drainage structures, vegetated drainage ditches, tailwater recovery, on-farm storage reservoir, irrigation management

**Watershed Scale Approaches:** This data collection and evaluation effort is focused at evaluating three types of BMP structures within the Harris and Porters Bayou watersheds that have the ability to reduce nutrient concentrations. These structures include slotted pipes, low grade weirs, and tailwater recovery system with on-farm storage reservoir. Monitoring evaluation is conducted for sediments, nutrients and hydrology. These evaluations are compared using pre and post analysis and also a paired watershed approach to evaluate the differences in sediment and nutrient concentrations and loads to determine how structures influence the hydrology of each respective system.

**State and Federal Grants Program:** USEPA and MDEQ

**Grants to Support Case Study:** EPA 319h funds

**Outreach and Education:** The REACH program and Mississippi State University Extension Service has aided in education and outreach efforts.

**Socio-Economic Factors:** N/A