Yalobusha River Watershed

Major features of the river system:
(1) Very large watershed (417,000 acres)
(2) Almost entirely channelized
(3) USGS has 6 flow monitoring stations
(4) NSL has 1 flow monitoring station
Yalobusha River Watershed

Land Use

Predominant agriculture is forestry
Cropland limited to flood plains
Predominant crops: Sweet potato, cotton, and corn
"flashy" hydrology,
Low baseflows and shallow depths,
concentrated surface runoff and
subsurface flows, and
steep banks that are prone to failure.
Yalobusha River Watershed

Major water quality issue is sediment.

Historically high rates of sediment yield reaching levels about twice the national average. As much as 85% of the current sediment eroded from channel boundaries may be from bank failure. Stream bank failure results in high sediment loads, destruction of aquatic habitat, and significant loss of crop land and riparian habitat.
YRW Objectives

Subobjective: 1a.
Compile the information collected to date on land use, conservation practices, and soil characteristics.

Subobjective 1b.
Compile the information collected to date on streamflow and sediment, nutrient and pesticide concentrations.
YRW Approach:

Through a Miss. State Univ. Cooperative Extension position, filled on 3/1/05 by Pamela Reid, we will compile baseline data:

1. Identify and locate CPs.
2. Collect historical hydrologic and water quality data including: precipitation, streamflow, suspended-sediment, nutrients, and pesticide concentrations.
3. Develop a detailed land-use inventory.
4. Acquire topographic and soils data in digital format.
5. Potential for socio-economic surveys
Subobjective 2a. Determine the effects of specific management/conservation practices and systems on contaminant and water transport processes at different scales within the YRW.

Approach: Evaluate correlations between CPs and watershed response with historical data.
YRW Objectives and Approach

Subobjective 2b.
Determine the effectiveness of riparian buffers, and drop-pipe structures by the juxtaposing of two or more practices (e.g. an in-field and an edge-of-field practice).

Little Topashaw Creek

Baseline data on runoff and WQ samples from two fields, and one upstream location.
YRW Approach

Subobjective 2b.
Conduct upstream/downstream comparisons, and pre/post implementation comparisons.
Conduct groundwater response monitoring.

Expand to include a downstream, 2 edge of field drop pipes, and 4 transects of groundwater wells

Convert areas to forest buffer, NT, and CT
YRW Objectives

Subobjective 2c.
Evaluate mechanisms of seepage erosion and its contribution to stream bank failure and the impact of soil conservation practices on these processes.
**YRW Objective and Approach**

**Subobjective 2c.**
Quantify hydrologic, soil, and geotechnical characteristics at seepage erosion locations

![Graph showing stream discharge and seep discharge](image)

![Graph showing sediment concentration](image)
Subobjective 2c.
Conduct a series of controlled lysimeter experiments that simulate streambank conditions to quantify the hydraulic properties controlling sapping erosion.

Modify an existing model of stream bank failure to include sapping erosion.