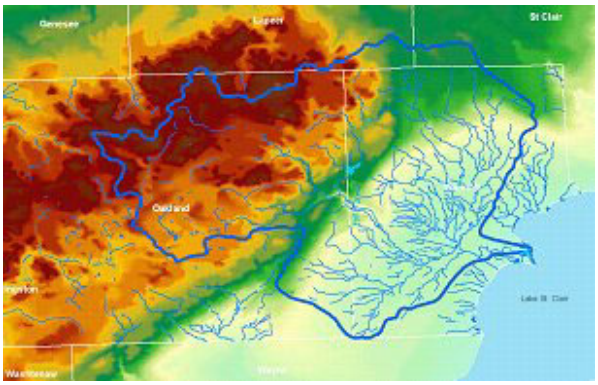
Clinton River (Michigan)



Clinton River Watershed

Watershed location and features:

- tributary to Lake St. Clair at Mt. Clemens, Michigan
- watershed includes portions of Lapeer, Macomb, Oakland and St. Clair Counties
- total watershed area is 760 square miles
- discharges to Federal navigation channel in the Clinton River and the Channels in Lake St. Clair

Watershed characteristics:

- southern portion is urban, the middle section is rapidly-developing suburbs and the northern region is rural
- during dry weather approximately half of the river's flow is treated wastewater
- upper region has more relief and steeper channels, lower region has flatter topography and channel slopes

Soil erosion and sedimentation issues:

- agricultural and overland sources contribute to sediment load in the Clinton River
- bank failure adjacent to an existing land fill which exposes buried trash
- change in flow patterns creates a buildup of sediment at spillway site
- rapid urban expansion has caused flashier flood events and an increase in bank erosion

Contamination issues:

- Clinton and St. Clair Rivers are designated Areas of Concern
- sediment, stormwater quantity and bacteria are the most prominent pollutants
- metals, nutrients, petroleum hydrocarbons, PCB's, DDT and other organic compounds

Other issues:

- rapid urban expansion and loss of wildlife habitat has affected the water quality

Partners on tributary modeling:

- Macomb County, Commissioners, Public Works Department, Planning Commission
- Oakland County Planning Department
- Southeast Michigan Council of Governments (SEMCOG)
- Michigan Department of Environmental Quality (MDEQ)
- U.S. Geological Survey
- USDA Natural Resource Conservation Service (NRCS)
- U.S. Environmental Protection Agency

Modeling approach:

- collection of existing data
- hydrologic modeling will assist in assessing BMP's for the system (GSSHA)
- the sediment delivery model will estimate the amount and gradation of sediment entering the system (GSSHA) for various land use scenarios
- streamflow and sediment load throughout the river and prediction of scour and deposition zones will be determined by the sediment transport model
- models be developed for two subwatersheds, Paint Creek in Oakland County and the Middle Branch of the Clinton River in Macomb County
- 3D model to better understand sedimentation patterns at the confluence of the Clinton River and the spillway

Status:

- modeling to be completed by September 2004
- a training workshop for interested users to be scheduled following the completion of the study (Fall 2004)

Applications:

- Macomb and Oakland Counties will use the model to better manage erosion and sedimentation issues associated with urban development