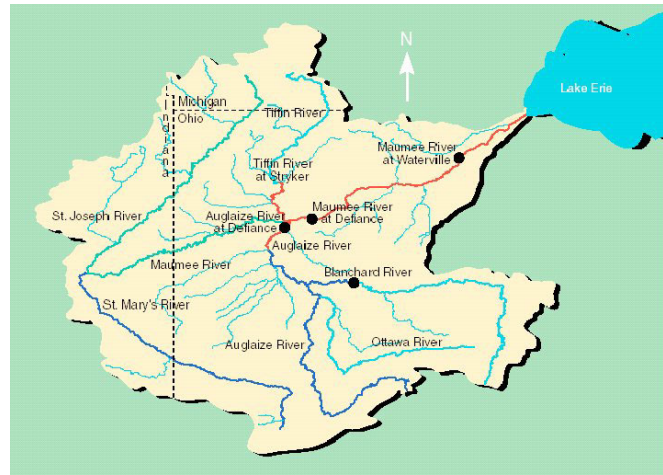# Maumee River (Ohio, Indiana & Michigan)



Maumee River Watershed

Watershed location and features:
- tributary to Lake Erie at Toledo, OH
- total watershed area is 4.23 million acres
- eight major sub-watersheds: Auglaize River, St. Mary's River, Indiana River, St. Joseph River, Tiffin River, and the upper, middle, and lower, main stem watersheds
- drains all or part of Wood, Lucas, Henry, Putnam, Hancock, Hardin, Allen, Auglaize, Mercer, Van Wert, Paulding, Defiance, Fulton, and Williams Counties in Ohio, Adams, Wells, Allen, Dekalb, Noble, and Steuben Counties in Indiana, and Hillsdale, Lenawee, and Monroe Counties in Michigan
- discharges to Federal navigation channel at Toledo Harbor

Watershed characteristics:
- 3.2 million acres agricultural cropland (80% of total watershed), remaining land uses are forested, industrial and urban

Soil erosion and sedimentation issues:
- soil erosion and removal of stream bank vegetation for cultivated cropland contribute to sediment loading of Maumee River
- largest tributary source of suspended sediment to Lake Erie
- stream habit modification by agriculture

Contamination issues:
- Maumee River (lower portion) designated Area of Concern
- beneficial use impairments affected by increased urbanization
- dredged material from portions of the navigation channel are not suitable for open water disposal

Partners on tributary modeling:
- Universities of Toledo and Ohio State
- Heidelberg College
- Lake Plains Resource Conservation & Development members
- Maumee Remedial Action Plan Committee
- Toledo-Lucas County Port Authority
- Ohio Department of Natural Resources
- Ohio Environmental Protection Agency
- USDA-Natural Resource Conservation Service
- U.S. Geological Survey

Modeling approach:

➢ with FY 1999 funding, a sediment transport model based on QSNET (modified HEC-UNET) was developed for the Maumee River from Defiance to Waterville and the lower 6 miles of the Auglaize River using one year of daily flow data

➢ existing GIS database expanded using Landsat-7 remote sensing data with a focus on DEM development, identification of buffer zones, and changes in urban land use/land cover

➢ AGNPS - Agricultural Non-Point Source model developed for the Upper Auglaize River watershed

➢ modeling of scenarios to predict erosion, sediment yield, changes in sediment delivery from watershed to main stream channel, and track use of conservation tillage practices

Status:

➢ modeling of the Upper Auglaize River watershed to be completed in September 2004

Applications:

➢ local universities to use model to develop land cover and land use databases for watershed and sediment transport models

➢ soil and water conservation districts will use model to assist landowners in installing conservation and best management practices to reduce runoff (i.e., ditches and stream buffers), and promote conservation tillage

➢ Ohio DNR to use model to predict sheet & rill erosion, sediment discharge and its associated contaminant movement, and evaluate role of channel morphology in restoring biological function to agricultural ditches