

Center for Agricultural and Rural Development's Water Quality Research Initiatives

Introduction

The Resource and Environmental Policy (REP) Division of CARD assesses regional and national policies affecting the environment, including local and regional water quality, livestock waste management, cropping and tillage practices, carbon sequestration, valuation, and wildlife habitat. A key component of REP's modeling effort is the Resource and Agricultural Policy System (RAPS) framework which has been applied to the 12-state U.S. North Central Region to analyze federal agricultural policies. Researchers in REP routinely work in multidisciplinary and multi-institutional teams with partners such as the Texas Institute for Applied Environmental Research, Tarleton State University; ISU Extension; and ISU's Animal Ecology, Civil Engineering, and Agricultural and Biosystems Engineering Departments.

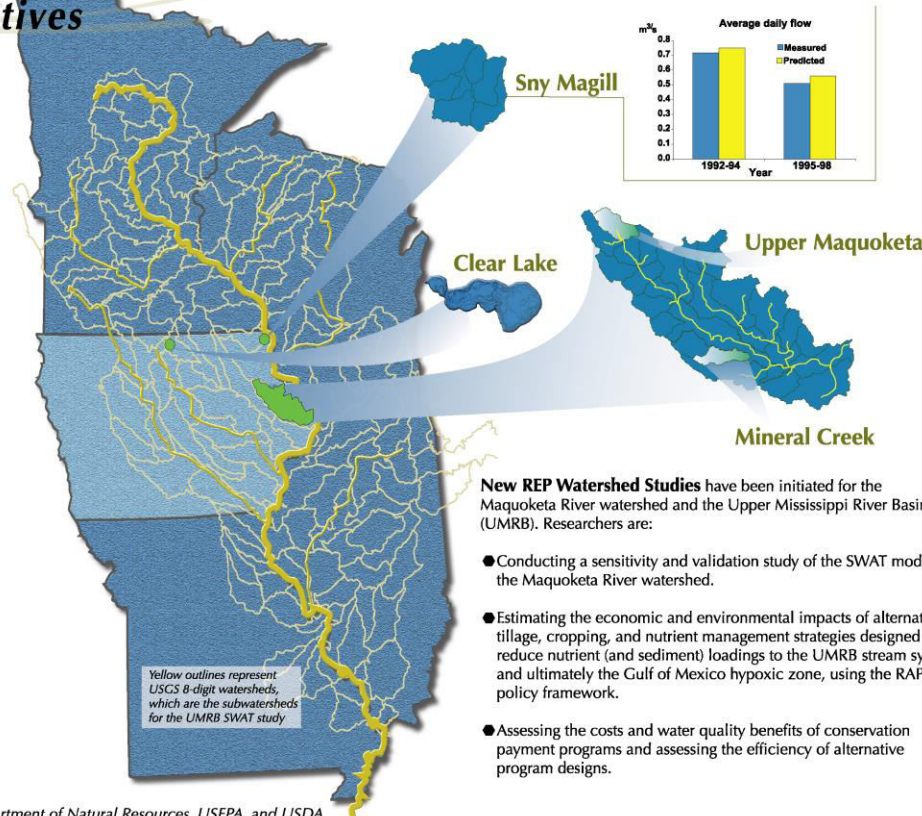
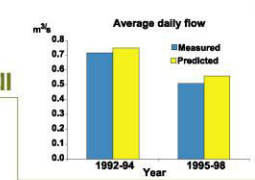
Completed and Ongoing Watershed Studies have focused on four Iowa watersheds: the Upper Maquoketa, Mineral Creek, Sny Magill, and Clear Lake. These studies have:

- Analyzed the economic and environmental impacts of selected management practices for the Upper Maquoketa and Mineral Creek watersheds.
- Evaluated the Soil and Water Assessment Tool (SWAT) model for the Sny Magill watershed.
- Estimated the value of water quality preservation and improvement at Clear Lake to local residents and visitors to the lake.

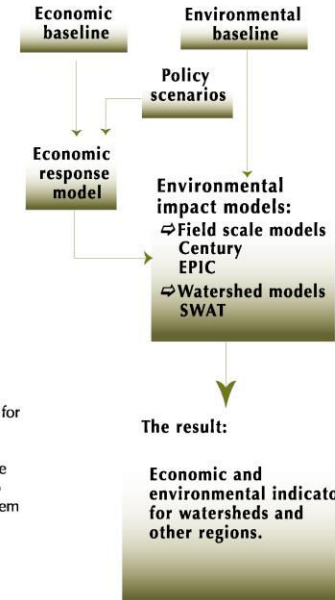
Yellow outlines represent USGS 8-digit watersheds, which are the subwatersheds for the UMRB SWAT study

New REP Watershed Studies have been initiated for the Maquoketa River watershed and the Upper Mississippi River Basin (UMRB). Researchers are:

- Conducting a sensitivity and validation study of the SWAT model for the Maquoketa River watershed.
- Estimating the economic and environmental impacts of alternative tillage, cropping, and nutrient management strategies designed to reduce nutrient (and sediment) loadings to the UMRB stream system and ultimately the Gulf of Mexico hypoxic zone, using the RAPS policy framework.
- Assessing the costs and water quality benefits of conservation payment programs and assessing the efficiency of alternative program designs.



RAPS Framework



For Further Information
www.card.iastate.edu/card_research/rep/rep_home.html

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 Funding support for one or more these studies has been provided by the Iowa Department of Natural Resources, USEPA, and USDA.