HAWQS

Hydrologic and Water Quality System Project

EPA Office of Water

The Office of Water ensures drinking water is safe, and restores and maintains oceans, watersheds, and their aquatic ecosystems to protect human health, support economic and recreational activities, and provide healthy habitat for fish, plants, and wildlife.

Collaborators

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Background

The Hydrologic and Water Quality System, or HAWQS, is a national water quality modeling system that integrates the latest environmental data with state-of-the-art computer technology to evaluate the impacts of management alternatives, pollution control scenarios, and climate change scenarios on the quantity and quality of water at a national scale. HAWQS provides the Environmental Protection Agency (EPA) Office of Water with advanced water quality modeling capabilities to assist EPA policy makers and environmental managers to estimate the effectiveness of different pollution control programs and achieve greater progress towards Clean Water Act objectives in the most cost-effective ways possible.

HAWQS is a system of software products that will be centrally managed over the internet. HAWQS input data is organized around the National Hydrography Dataset (NHD) stream reaches and NHDPlus catchments, and supports applications of United States Department of Agriculture's (USDA) Soil and Water Assessment Tool (SWAT).

Soil & Water Assessment Tool (SWAT)

SWAT is widely used around the world for water quality, water supply, and climate change modeling. This dynamic and highly flexible tool is a river basin- or watershed-scale model developed to quantify and predict the impacts of land management practices on water, sediment, and agricultural chemical yields in large complex watersheds with varying soils, land use, and management conditions over long periods of time.

SWAT will model:

- Seven categories of pollutants including sediment, pathogens, nutrients and metals;
- Provide information to estimate the human health risk, and criteria excedence frequencies for these pollutants; and
- Will evaluate the effect of different practices and programs to reduce these pollutants.

By using HAWQS, EPA water resource managers will be able to identify "hot spots" for both point and nonpoint pollution and evaluate changes in land management and other pollution controls.