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A NEW DECISION SUPPORT SYSTEM TO SUPPORT SPARROW MODEL APPLICATIONS

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ABSTRACT: A new web-based decision support infrastructure has been developed in recent years as part of the U.S. Geological Survey (USGS) National Water Quality Assessment Program's (NAWQA) effort to provide ready access to SPARROW simulation results of stream water-quality conditions and to offer sophisticated scenario testing capabilities for research and water-quality planning via a graphical user interface with familiar controls. The SPARROW Decision Support System (DSS) is delivered through a web browser over an Internet connection, making it widely accessible to the public in a format that allows users to easily display water-quality conditions, allocation of nutrient sources, nutrient delivery to downstream waterbodies, and simulations of altered nutrient inputs. The DSS offers other features for analysis including various background map layers, model output exports, and the ability to save and share prediction scenarios. SPARROW models currently supported by the DSS are based on the modified digital versions of the 1:500,000-scale River Reach File (RF1) and 1:100,000-scale National Hydrography Dataset (medium-resolution, NHDPlus) stream networks. The underlying software framework and server infrastructure illustrate innovations in the information technology field for delivering SPARROW model predictions over the web by performing intensive model computations and rendering map images of the stream network.

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