A Geographic Data Base for Studying the Effects of Urbanization on Water Quality in Anchorage, Alaska

Edward H. Moran, U.S. Geological Survey, Alaska Science Center, Anchorage; and
Carl Markon, U.S. Geological Survey, Alaska Science Center, and Raytheon Corporation

As part of the U.S. Geological Survey National Water-Quality Assessment Program, a geographic information system data set was constructed for the purpose of studying the temporal and spatial effects of urbanization on water quality in Anchorage, Alaska. The data-base components were used in conjunction with water-quality data to assess which factors were important in determining water quality along a gradient of urbanization.

The spatial data sets represent characteristics of or features within the Municipality of Anchorage and immediate vicinity. The data include watershed boundary, population density, streams, roads, sewers, land use, impervious area, soils, precipitation, and mean annual temperature for the following watersheds: Ship Creek, Chester Creek, Campbell Creek, Rabbit Creek, and Little Rabbit Creek. These data were obtained from several different sources, which include the Municipality of Anchorage, U.S. Geological Survey topographic maps, IKONOS and Landsat satellite imagery, and aerial photography. For instance, comparative land-use data for circa 1970, 1980, 1990, and 2000 were manually interpreted from IKONOS satellite imagery and aerial photography and were used to analyze land-use change from the early 1970s to the present.