

Environmental Health Research at the Catchment Scale: Issues, Problems and Challenges in Data Integration and Analysis

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ABSTRACT

An analysis of environmental health issues at the catchment scale involves integration of data from a wide range of sources and a variety of spatial scales. We discuss the issues and challenges arising from this process in relation to the Taieri Catchment and Community Health Project (TCCHP), a multi-disciplinary study being undertaken by the University of Otago. The TCCHP aims to investigate links between community health and freshwater resources in the Taieri River Catchment (Otago, New Zealand). The project will involve integration of environmental data (e.g. land use, climate and water quality data) with health data (e.g. communicable disease notification data and GP data).

Environmental data is usually collected from a small number of sample sites within the catchment, and thus can be classified as point data. Interpolation techniques can be applied to point data in order to represent points and areas that have not been sampled. The application of these techniques to this research will be discussed.

Health data, such as notified cases of disease, cannot generally be represented as point data for ethical reasons. Instead, rates of disease are calculated for specified areas. These areas are usually administrative units such as mesh-block, territorial authority (TA) or health district. These administrative units may not overlap with ecologically meaningful units, such as the catchment, or sub-catchments.

Successful environmental health research at the catchment scale therefore requires the development of techniques to integrate data from different sources and spatial scales. This process will be improved when data collection is integrated across the various stakeholders (e.g. regional councils, public health units, researchers) who are working in this area. It is also important that such research is both accessible and relevant to the community living within the catchment.

Keywords and phrases: environmental health, catchment scale, data integration, interpolation