



Influence of catchment factors on the water quality in Finnish Lakes

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The aim of this study is to find cause-effect relationships between water quality and catchment factors on different kind of lakes and different regions of Finland. Furthermore, an additional goal is to recognize possibilities to use remote sensed data in estimating condition of the lake and in the lake restoration planning. This study is a first full scale experiment to reconcile the whole data of Finnish lake register and the available remote sensed data. The methods developed in this study can be used in analysing e.g. the trends and the trophic state of lakes on country and regional levels. Results can also be utilised concretely in implementation of Water Framework Directive (WFD).

This research is based on data from 2000 Finnish lakes. Data contains some of the most important variables that influence the lake water quality. In order to get better results lakes are divided into subgroups according to their eutrophic level, geographical location and lake classification according to WFD. Upper catchment of each lake is defined and data concerning catchment and hydromorphological characteristics are attached to the database. The land use data of each catchment includes the share of agricultural land, water and other land.

To provide a new viewpoint for the research, remote sensed data is utilized in the study using ULAPPA database which has been developed to collect and analyse remote sensed data in the Finnish Environment Institute. All the relevant hydromorphological elements, water quality data and catchment characteristics, including total phosphorus are collected into the geographical information system ULAPPA. Statistical analysis

of water quality effects is carried out.