This thesis deals with chrysophyte scales and stomatocysts as useful tool of paleoecological reconstructions in lake ecosystems. In the first part the geological physical and biological aspects of lake reconstructions are described. The second part contents information about chrysophyte taxa and their utilisation as paleoekological indicators. Chrysophyte microfossils include two major groups of siliceous indicator: stomatocysts and sculptured and ornamented species-specific scales. Using surface-sediment training sets, quantitative inference models have been constructed for eutrophication, acidification, air-born pollution, salinification, climatic change, and other environmental changes. This thesis represents a literature review.