



Long term trends in the seas surrounding Sweden. Part one - nutrients

P. Andersson (1), **L. Andersson** (1)

(1) Swedish Meteorological and Hydrological Institute, Oceanographic department, Gothenburg, Sweden (Pia.Andersson@smhi.se / Phone: +46-(0)31-751-8973)

The main aim of this work is to present data as typical concentration values for different nutrients in the various sea areas surrounding Sweden, and how these have varied over time. Long term trends and estimates of typical concentrations before the onset of eutrophication are of great importance hence a 30 year trend has been calculated for various nutrient parameters. SMHI is the Swedish National Oceanographic Data Centre (NODC) to where several countries have supplied hydrographical data originating from various platforms (vessels, buoys etc.). Stations that have been in regular use for most parts of the last 30 years are included in the analysis. Due to differentiating water characteristics, 14 sea areas are selected to represent the waters surrounding Sweden. In this report all available data from 1976 up till 2005 is used and presented in diagrams and tables. The figures of the parameters are presented as time series. Each parameter is divided into winter, summer, surface and bottom values. In the tables, information on a yearly basis is given to indicate changes that vary over time. Both a classical linear regression method and a non-parametric method (the Mann-Kendall) are used in the trend analysis to account for normal and non-normal distribution of the data. The trend magnitude and significance are also calculated. An overview of the results of significant trends of all the areas in the surface and the bottom for the winter and the summer are presented as arrows in a summary figure. There are no discussions of what have caused the trends or possible effects that may come from the continuation of the trends.