

Scientific Coordination and Management of Baltic Research

Ingrid Jansson

Swedish Environmental Protection Agency, Sweden

The eutrophication problems of the Baltic Sea have now been obvious and an urgent need of reduction of pollutant loads of nitrogen and phosphorus by at least 50% is considered necessary. The implementation of this reduction has been assigned to a Programme Implementation Task Force, organized by the Helsinki Commission (HELCOM) and several investment banks on behalf of the prime ministers of the states in the Baltic Sea region. By these load reduction it is expected to restore the conditions to those of the 1950s.

Concerns have been shown at the priorities of the new plan, the Baltic Sea Joint Comprehensive Environmental Action Programme (HELCOM). The suggested measures of the plan are concentrated primarily towards approximately one hundred "hot spots," i.e. large industrial or municipal point sources (a total sum of 15 billion US dollars is suggested for this programme, including the reduction of the loads from these hot spots). These point sources release, however, only a minor fraction of the total loads of nutrients to the Baltic Sea. Non-point sources, i.e. pollutants brought to the sea via rivers and atmospheric fallout are of overwhelming importance. No evaluation is given of whether and to what extent loads of different substances should be reduced to meet international versus local (coastal) interests and what improvements in the marine environment are expected from these measures. Since the need for investments is enormous, particularly in the Eastern Europe, it is important to discuss how priorities should be set to obtain a real and cost-efficient improvement of the Baltic environment.

The understanding of critical processes governing the whole Baltic environment must be of main importance when discussing these priorities. During recent decades large scale effects of pollution on the entire seas have become apparent. The prevalence of anoxic deep basins, the reducing of large populations of seals in the Baltic and toxic phytoplankton blooms are all examples of phenomena governed by large-scale processes. So far, however, most scientific studies have been concentrated on local recipients in the coastal zones. The understanding of the factors controlling the large-scale processes is limited.

Some results from a current project "Large-scale Environmental Effects and Ecological Processes in the Baltic Sea," financed by the Swedish Environmental Protection Agency, will be presented. Within this project budget calculations of critical substances are combined with models of biogeochemical cycles in order to predict the future development at different levels of loading. New research concerning eutrophying nutrients (phosphorus, nitrogen and silicate) and some toxic substances (PCB and PAH) has been combined with evaluation of existing data from other research and monitoring programmes in countries around the Baltic Sea. The project has been the incentive for increased co-operation between scientists in different disciplines as well as a way of stimulating international co-ordination. This project will be a scientific base for future monitoring programmes, where data can be used for modelling in combination with empirical experiments.