

IMPACT OF OIL SHALE MINE WATER DISCHARGES ON PHYTOPLANKTON COMMUNITY OF PURTSE CATCHMENT RIVERS

A. RÄTSEP, E. RULL, V. LIBLIK

Tallinn University of Educational Sciences,
Institute of Ecology
North-East Estonian Department
15 Pargi St., Jõhvi, 41537 Estonia

The multivariate relationship between phytoplankton abundance and different factors both natural and generated by oil shale mining in the Purtse catchment rivers (Purtse, Kohtla, and Ojamaa) in Augusts 1996–2000 was studied. Impact of oil shale mine water discharges, causing the input of sulfates and chlorides into the rivers, on phytoplankton abundance in river water was characterized by significant negative linear correlation. The amount of annual precipitation influenced positively the characteristics of phytoplankton abundance in river water. The complex of linear regression formulas was derived for characterising phytoplankton abundance in the lower course of the Purtse River using meteorological, hydrological and hydrogeological as well as geochemical data of water circulation.

Closing the Sompa, Tammiku and Kohtla mines in 2000–2001 decreased essentially anthropogenic stress on ecological condition of the Purtse catchment rivers.