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福島 悟・福島 博：排水流入の減少が河川の付着珪藻群集に及ぼす影響

Satoshi Fukushima and Hiroshi Fukushima : Effects of reduction of sewage effluent on periphytic diatom assemblage in a lotic system

Abstract

Changes in the species composition in diatom assemblage with recovery of water quality were studied by long-term (1973-1993) monitoring of periphytic diatom in a small river flowing through an urban area. When the cover by sewer services was low and the water was polluted organically, pollution-tolerant species occurred abundantly in mid-region assemblages. The recovery in water quality was reflected in the decrease of *Nitzschia palea* and *Navicula seminulum*, which are regarded to be the most tolerant species. The assemblage composition changed to ones dominated by other tolerant species such as *Nitzschia amphibia*, *Navicula gregaria* and *Synedra ulna*. Subsequently, when the spread of sewer services was over 95% and the recovery of water quality in winter was clear, that decreased to BOD₅ 6mg·l⁻¹, NH₄-N 0.64mg·l⁻¹ and PO₄-P 0.01mg·l⁻¹, sensitive species which were observed on the headwater region spread and the diversity increased in mid-region assemblages. However, a change in the species composition in assemblage with the increase of sensitive species, typically *Nitzschia dissipata* and *Rhicosphenia abbreviata*, was observed later. In these assemblages a high abundance of the species indicating the eutrophic condition was the same as before, but increasingly the indicator species for the mesotrophic condition characterized the diatom assemblages.

Key index words

diatom assemblage, long-term monitoring, river, water quality.