

Diatom 16: 27-36 (英文)

福嶋 悟・奥山美峰・青木節男・福島 博：他水系の水が流入する都市河川における水質回復に伴う珪藻群集の長期的変化

Satoshi Fukushima, Miho Okuyama, Setsuo Aoki and Hiroshi Fukushima : Long-term changes in the periphytic diatom assemblage due to the improvement in water quality of an urban river receiving water from a geographically different system

#### Abstract

Changes in the periphytic diatom assemblage with improvement in water quality were studied over a 25-year period (1973-1998) of the Katabira River, discharged tap water that had originated from a geographically different system. For the first 10 years, mid-stream assemblages were represented by a few species and dominated by the most tolerant species. Thereafter, the structure of the assemblage changed slightly, and after 1993 the water quality in winter recovered to the same level as that in summer, and the number of species showing a marked increase. During this period, species adapted to clean water conditions - *Cocconeis pediculus*, *Melosira varians*, *Nitzschia dissipata* and *Nitzschia fonticola* were added to the newly developing periphytic diatom assemblages. After 1993, species transported from a different water system via the discharged tap water began to appear at the downstream site from the discharge point of the water purification plant on the Katabira River. In 1997 over a wide area downstream from the discharge point, species that had transported from a different water system were appeared throughout the year. In this area during summer, the transported species, *Fragilaria construens* f. *venter* and *Skeletonema potamos*, were abundant, and during winter when the water temperature was low, *Diatoma vulgare* and *Gomphonema quadripunctatum*, which prefer cool water, appeared. These changes in the periphytic diatom assemblage in the Katabira River reflect the improvement in water quality and the rehabilitation of the physical habitat.

Key index words

diatom assemblage, improvement, long-term monitoring, urban river, water quality