Diatom 25: 2-7（和文）

加藤和弘：DAIpo （付着珪藻群集に基づく有機汚濁指数）の概要と課題

Kazuhiro Katoh: An outline and problems of DAIpo (Diatom Assemblage Index to organic water pollution)

Abstract

DAIpo (Diatom Assemblage Index to organic water pollution) is a biological index calculated from the species compositional data of a diatom assemblage. DAIpo itself is a simple index, but it is based on the original classification system of diatom taxa. First, diatom samples collected at more than 1000 stations in Japanese freshwaters were analyzed by the original ordination technique to obtain an order of diatom taxa, of which the endpoints were forced to be *Nitzschia palea* and *Achnanthes japonica*. Then, the taxa were classified into three groups according to the obtained order. It is assumed that this classification reflects the pollution tolerance of each taxon because water pollution is regarded as the most important environmental gradient in Japanese freshwaters.

In the present paper I point out that there are problems to be solved or explained in this ordination procedure.

1) Why do the endpoints need to be *Nitzschia palea* and *Achnanthes japonica*?

2) Why should the endpoints of the taxon ordination be determined? If water pollution is truly the most important environmental gradient, usual ordination techniques such as corresponding analysis can extract the first axis representing water pollution.

3) Were there other community gradients in the data set used to construct the classification system of diatom taxa for DAIpo? Such gradients might disturb the community gradient corresponding to the water pollution gradient. If this happened, the classification of diatom taxa used in DAIpo could also be disturbed by these other gradients.

The relationship between DAIpo and other biological indices is still unclear. The relationship between DAIpo and Shannon's diversity index has been discussed in a few previous papers, though it should be noted that some of the structure observed in the relationship is caused by the formulae of DAIpo itself.

Key index words: *Achnanthes japonica*, biological index, DAIpo (Diatom Assemblage Index to organic water pollution), *Nitzschia palea*, ordination, Shannon's diversity index