

Distributional process of brackish diatom assemblages along the Pacific coast of eastern Hokkaido

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This paper presents the results of a survey of the contemporary diatom distributions in four tidal marshes in eastern Hokkaido, northern Japan. Distribution of living diatom cells, as defined by cluster analysis, have a positive correlation with vegetation and substratum, and clearly relate to tide level. Comparison between living and dead diatoms in each cluster provides synecological information relating to diatom taphonomy in the tidal wetland environments. They are summarized as follows. (1)Upland assemblage; This autochthonous assemblage consists of freshwater diatoms adapted to relatively dry conditions. (2)High marsh assemblage; This assemblage is formed at or slightly above mean high tide level (MHTL). There are only few allochthonous components in this assemblage. (3)Low marsh assemblage;This assemblage is formed below MHTL. Dead valves within this assemblage are repeated widely redistribution by tidal and wind process across other assemblages. This assemblage is therefore a 'mixed assemblage' comprising a combination of allochthonous and autochthonous diatoms. (4)Tidal flat assemblage;On death diatom valves in this assemblage are immediately redistributed by tidal currents, and the dead diatom assemblage here has the characteristics of an 'autochthonous' or 'residual' assemblage. Autecological perspectives based on the distribution patterns can advance this interpretation. Dead valves of epiphytic diatom *Cocconeis scutellum*, possesses a raphid valve (R-valve) and a rapheless valve (P-valve), are common on two transects and only P-valves are widely and selectively distributed, although its habitat is limited to the seaweed zone. Such selective processes are relating mainly to tidal currents and their life form characteristics that R-valves remain attached by strong mucilage on death whereas only P-valves become separated from substratum. The tycho plankton *Paralia* is also a wide distributed type species. In the case of *Paralia*, their long chains floats more readily than the other specimens are transported by a flow action of a tide, and then trapped in entire tidal environments. These observations suggest it is likely that concentrations of only P-valves of *Cocconeis scutellum* and/or long chains of *Paralia* should be treated as allochthonous components in the assemblage. These results can be helpful to assess the autochthonous/allochthonous components in diatom fossil assemblages of the sediment samples.