

# Diatoms at Coastal Lagoons in Japan: Their Historic Changes During Five Hundred Years

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Enormous changes in environment have happened at Japanese coastal lagoons during these five hundred years. Water pollution, coastal development by industrialization and sea level rise related to warming of the world have made serious damage for nature of them.

The author has investigated living and fossil diatoms of coastal lagoons in Japan. Diatom is not only one of the best indicators for measurement of recent environment, but it is also a good key for presuming paleo-environment of those areas. A historic change of diatom fossils, which contained with lake sediments, shows us several kinds of important information about water quality, water depth, and distribution of lake areas.

Lake Shinji, low salinity lagoon located at the coast of the Japan Sea, is now planning to become under fresh water condition by shutting up marine water, to get water for industry. In view of protection of its nature, strong opposition against this development has occurred among the habitants near Lake Shinji.

The author took a drilling core sample at the center part of Lake Shinji in 1989. The lowest part of this sample had deposited about 500 years ago, determined by radioisotope method. Diatom fossils in this sample made clear the detail history of lake environment during these five hundred years.

About 500 years ago, Lake Shinji had been a coastal lagoon. The salinity of that age was about 20-30 permil, because *Grammatophora oceanica*, which was a marine littoral diatom, was dominant at the lowest part of this sample.

About 400 - 100 years ago, Lake Shinji had become a fresh water lake, and marine water had rarely come into the lake area. *Aulacoseira granulata* and *Aulacoseira ambigua*, fresh water diatoms, were dominant in that time.

Since 100 years ago, salinity of Lake Shinji has increased again and *Cyclotella caspia* that was a brackish diatom has become dominant. The cause of this environmental change has not made clear yet. It might relate with sea level rise by warming of the world.