

Diatom 29: 42-47

Diatoms in a rice paddy inundated by seawater resulting from the tsunami and land subsidence after the 2011 off the Pacific coast of Tohoku Earthquake

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Abstract

Diatom assemblages in a rice paddy inundated by the 2011 Tohoku Earthquake tsunami were studied. We collected diatom samples from a rice paddy in Sabusawa Island in Miyagi Prefecture on 14 August 2011. The rice paddy was intruded by seawater during the high tide of the spring tide as a result of destruction of the coastal levee and the land subsidence after the earthquake. The salinity of the paddy was slightly higher than that of the coastal seawater, and naturally, rice was not cultivated at that time. In total 117 diatom taxa (including 22 unidentified ones) belonging to 50 genera were observed. The diatom assemblages consisted of fresh, brackish, and marine water species, and moreover, extinct Miocene marine diatoms. The dominant species was *Tabularia parva* on *Zannichellia palustris* and in a floating algal floc, and *Navicula phylleptosoma* on the surface soil. *Halamphora luciae* was subdominant in all samples. Judging from the past literature, these diatoms all tolerate changes in salinity.

Key index words: diatoms, Miocene, rice paddy, salinity, the 2011 off the Pacific coast of Tohoku Earthquake, tsunami