

Study on Evaluation of the Influence That the Tsunami by the Great East Japan Earthquake Gave in Biodiversity of Matsukawaura Inlet (Soma City, Fukushima Prefecture) and Environmental Recovery

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Summary

Matsukawa-ura Inlet is located in the Pacific coast of Soma City, Fukushima Prefecture, Japan. Matsukawa-ura Inlet is brackish lagoon and characterized by rich biodiversity. A massive tsunami caused by the Great East Japan Earthquake of March 11, 2011 destroyed the sandbar which separated the lagoon from the sea, and a large quantity of seawater flowed inside. The bank parts which reed and water oat grew were greatly disturbed by the tsunami, and various coast environments and ecosystem received severely wounding. In this study, I studied the gammaridean amphipods (Crustacea) as an indicator organism to clarify the present condition of the biodiversity of Matsukawa-ura Inlet after the tsunami invasion by the Great East Japan Earthquake. Before the Great East Japan Earthquake, 19 species of amphipods were recorded from Matsukawa-ura Inlet. However, only five species were collected in this study (three of them were newly recorded species from Matsukawa-ura Inlet). When these three newly recorded species were excluded, 17 species disappeared recorded in the past. Destruction and change of habitats, outflow of individuals, a rise in salt concentration after the tsunami are thought about as the factor that many amphipods disappeared. It was suggested that natans species, species depending on unstable substrates, and species with low adaptability of salinity change were strongly affected by the tsunami and the inflow of the seawater with tsunami. On the other hand, it is thought that the tsunami had little affected on the species attaching stable substrates and with high adaptability of salinity change. In the future, it will be necessary to investigate various invertebrates in a similar viewpoint.