

Species Diversity of Temperate Japanese Seagrasses and the Developmental Processes of Seagrass Ecosystems on the Sanriku Coast, Northern Japan

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Summary

Five temperate seagrass species occur along the coasts of northern part of Honshu Island. *Zostera marina* is a cosmopolitan species in the Pacific and Atlantic Oceans of northern hemisphere. Besides *Z. marina*, the four species of *Zostera caulescens*, *Zostera caespitosa*, *Zostera japonica* and *Phyllospadix iwatensis*, a rocky shore phanerogams, are distributed in Otsuchi Bay, Funakoshi Bay and Yamada Bay located along Rias Coast of Sanriku Area in Iwate Prefecture. *Z. caulescens* and *Z. caespitosa* are endemic to the northwestern Pacific. It is concluded that species diversity and endemism of seagrasses along the coasts of Iwate Prefecture are greatly affected by the ocean currents, such as the Kuroshio Current, the Oyashio Current and the Tsugaru Warm Current as well as the topographic features of Rias coasts.

The survey on the seagrasses in Otsuchi Bay, Funakoshi Bay and Yamada Bay were conducted to analyze the distribution patterns of each species and to obtain the ecological information such as morphological differences, biomass, natural histories and phylogeny. Analysis of environmental factors and logging of the data were conducted to analyze the various seagrass beds in the different habitats. To describe the distribution area of seagrasses an echo sounding system was established and applied. The census by the echo sounder was conducted at Yamada Bay where *Z. caespitosa* dominated, and Otsuchi River mouth where *Z. marina* dominated. A long type flowering shoot of *Z. marina* was found on the 4m deep bottom of the Otsuchi River mouth. This morphological flexibility is considered to be an adaptation to the ongoing environmental changes and a process of diversifying ecological features. Further studies concerning environmental factors including photon flux would be continued to understand such ecological developmental processes of seagrass ecosystems.