

# Seasonal and inter-annual changes in mesozooplankton community at Mombetsu Harbor, southern Okhotsk Sea during 1997 to 2012

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To evaluate seasonal and inter-annual changes in zooplankton community, we analyzed mesozooplankton samples collected by vertical tows of 335  $\mu\text{m}$  NORPAC net from 0-8 m depths at Mombetsu Harbor, southern Okhotsk Sea with ca. 1.2 day interval during April 1997 to December 2012. Through 16 years studied, integrated mean temperature and salinity ranged  $-1.4$ - $19.8^{\circ}\text{C}$  and  $31.5$ - $33.6$ , respectively. Chl. *a* exceeded  $1\text{ mg m}^{-3}$  throughout the year, and formed two peaks in March and May. 183 zooplankton species were identified and abundance had minimum ( $1,198\text{ ind. m}^{-3}$ ) in January and maximum ( $7,926\text{ ind. m}^{-3}$ ) in April. Cluster analysis (Bray-Curtis method) based on abundance classified mesozooplankton community into five groups (A-E). Groups A, B, C, D and E were mainly observed during January-March, April-May, June-July, August-October and November-December, respectively. Dominant species of group A, D, E were copepods *Pseudocalanus* spp. (A, E) and *Paracalanus parvus* s. l. (D). While euphausiid eggs and cladocerans were the dominant taxa/species for groups B and C, respectively. As inter-annual changes, following four years were marked. Thus, 2000 and 2005: zooplankton communities characterized by cold-water small copepods (group A) extended long period. 2002: cladoceran dominated warm-water community (group C) started faster and remained long period. 2006: the period of cold-water group B (characterized with euphausiid eggs) was long, while the following warm-water community (group C) was very short. These zooplankton data in Mombetsu may be valuable to compare with those collected in the other geographical region in the Northern Hemisphere.

Key words: Okhotsk Sea, zooplankton seasonal changes, inter-annual changes, long-term changes