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Seasonal and interannual variations of mesozooplankton community structure off Tongyeong, southeastern coast of Korea from 2011 to 2014

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Mesozooplankton community structure and environmental factors were monitored monthly at a fixed station off the Tongyeong coast from 2011 to 2014 to better understand the variability of mesozooplankton community in relation to marine environmental changes. Total mesozooplankton abundance ranged 747~8,945 inds. m⁻³, sharply increased in July to August and decreased in October to November. *Paracalanus parvus* s.l., *Oikopleura* spp., *Evadne tergestina*, Cirripedia larva, *Corycaeus affinis*, *Calanus sinicus*, and *Oithona similis* occupied 63.7% of total mesozooplankton abundance. Oceanic warm water copepods such as *Euchaeta plana* and *Undinula vulgaris* appeared from July to September, implying the direct influence of the Tsushima Warm Current in summer. Oceanic copepods were below 3.3% of total copepod abundance throughout the study period. The number of cyclopid copepods has risen from 5% to 25% of total copepods, whereas calanoids are rather stable. Monthly fluctuations in mesozooplankton abundance were positively correlated with chlorophyll-*a* concentration ($p < 0.001$) and water temperature ($p < 0.05$), whereas no significant correlation was found with salinity. Redundancy analysis showed that *C. affinis*, *O. similis*, and *Oikopleura* spp. were positively related to chlorophyll-*a* concentration, while *P. parvus*, *E. tergestina*, and Cirripedia larva were positively correlated with water temperature. Our results suggest that high chlorophyll-*a* concentration since 2013 may have caused the changes of mesozooplankton community structure in the study area.

Keywords: Tongyeong, Southeastern coast of Korea, Mesozooplankton community, Abundance, Copepods, Chlorophyll-*a*, Water temperature

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