

**Zooplankton Biogeography and Phenology in the Southern Yellow Sea (China)**

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**Abstract:** The composition and distribution of zooplankton in the Southern Yellow Sea (SYS) were studied from the cruises conducted in 2006-2013. *Calanus sinicus* and *Sagitta crassa* were the most dominant species, and *Themisto gracilipes* and *Euphausia pacifica* were widely distributed in the SYS. The spatial patterns of non-gelatinous zooplankton (removing the high water content groups) and total zooplankton biomass were similar in autumn, but different significantly in other three seasons, due to the different contributions of gelatinous (mainly medusas and tunicates) and non-gelatinous zooplankton groups to total zooplankton biomass. The seasonal mean of zooplankton biomass in spring and summer were much higher than that in autumn and winter. The diversity index  $H'$  of zooplankton community averaged 1.88 in this study, which was somewhat higher than historical results. The low diversity in summer was due to the strongest effect of cold water mass and the high dominance of *Calanus sinicus* in this season. The inter-annual comparison showed that the zooplankton biomass (especially the gelatinous zooplankton biomass) had an increasing trend in recent years, agreeing with the frequent macro-jellyfish blooms in the Yellow Sea. High zooplankton biomass occurred in the areas with relative low phytoplankton biomass ( $\text{Chl } a < 1 \text{ mg/m}^3$ ), while high phytoplankton biomass occurred in the areas with relative low zooplankton biomass.

**Keywords:** zooplankton, biogeography, phenology, Southern Yellow Sea

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