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Spatio-temporal distribution and long-term variability of the zooplankton community in the typical bays in Shandong coast of China

Ping Liu, Hongjun Song, Xiao Wang, Xinming Pu, and Xuelei Zhang

First Institute of Oceanography, SOA, Qingdao, PR China.

Abstract: Sanggou Bay, Rongcheng Bay and Laizhou Bay were selected as the typical study area in Shandong coast. Based on the field survey data in six bimonthly cruises in 2009-2010 in the Sanggou Bay and four seasonal cruises in 2009 in the Rongcheng Bay, the spatio-temporal distribution and seasonal variability of the zooplankton species composition, dominant species, biomass and diversity were studied in both the bays, and the factors affecting their distributions (including aquaculture activities) were discussed. Combined with the data from historical surveys and recent ecological monitoring since 1980s in the Sanggou Bay and Laizhou Bay, the long-term variation of the zooplankton species composition, abundance, biomass and diversity were studied, and their impact factors were discussed. The zooplankton species numbers varied widely during different surveys in a long term in the Sanggou Bay and Laizhou Bay. However, the dominant species composition was relatively stable (e.g. *Aidanosagitta crassa* and *Calanus sinicus*). The reasons for the long-term variability of zooplankton species number included not only the natural variability of the community, but also the sampling error and identification error from anthropogenic factor. Further analysis concluded that the raft aquaculture in the coastal waters had significant impacts on the distribution of the zooplankton community in the Rongcheng Bay contiguous waters.

Keywords: zooplankton, spatio-temporal distribution, inter-annual variability

Contact author: **Ping Liu**, First Institute of Oceanography, SOA, E-mail:

liuping@fio.org.cn