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Seasonal changes in zooplankton swimmer community collected by sediment trap moored in the western North Pacific Ocean

Naoya **Yokoi**[1]*, Kohei Matsuno[2], Makio C Honda[3], Atsushi Yamaguchi[1]

[1]: Hokkaido University, [2]: National Institute of Polar Research, [3]: JAMSTEC

We studied seasonal changes in zooplankton community based on the swimmer samples (>1 mm) collected by a sediment trap moored at 200 m depth at St. K2 (47°N, 160°E) in the western subarctic Pacific with one- to two-week intervals during July 2013 to May 2014. Zooplankton abundance and biomass showed clear seasonal pattern, and were higher during July-August. Cluster analysis (Bray-Curtis methods) separated samples into three groups. Occurrence of each group had clear seasonal pattern: i.e. group A characterized with high abundance with dominance of copepods *Eucalanus bungii* and *Neocalanus plumchrus* occurred during July to September, followed by group B with few abundance dominated by chaetognaths during October to December, then group C dominated by *Neocalanus cristatus* and *Paraeuchaeta elongata* during January to March. For dominant copepods, seasonal changes in copepodid stage structure were observed. Thus, most males of *E. bungii* were C4 and C5 until February, while the composition of adults (C6M) suddenly increased and reached 80% at end of March. These drastic changes in copepod population structure are considered as a reflection of their arousal from diapause at that depth. Carnivorous *P. elongata* showed high abundance during March to July, and both egg-sac-carrying and spermatophore attached adult females (C6F) were occurred during that period. These facts suggest that active reproduction of *P. elongata* was at that season. Results of this study suggest that seasonal monitoring on zooplankton swimmer collected by sediment trap is a powerful tool to evaluate life cycle of the oceanic zooplankton species.

Keywords: sediment trap, zooplankton, swimmer

Contact author: Naoya Yokoi, Hokkaido University, E-mail: n-yokoi@fish.hokudai.ac.jp