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Seasonal changes in the zooplankton community and number of generations per year of small copepods in Ishikari Bay, Sea of Japan

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Seasonal changes in the zooplankton community and life cycle of small copepods in Ishikari Bay, northern Sea of Japan were studied based on monthly samples collected by fine mesh net (100μm) during March 2001 to May 2002. Zooplankton abundance had a peak in May, and was composed mainly of copepodid stages of copepods. Cluster analysis based on copepod abundance separated the community into two main groups: group A was observed during January to June and group B during July to December. Group A and B were composed of cold and warm water species, respectively. For the numerically dominant three copepods (*Paracalanus parvus*, *Pseudocalanus newmani* and *Oithona similis*), seasonal changes in prosome length (*PL*) were common (larger in winter). However, seasonal changes in lipid storage (both composition of oil sac contents and oil sac volume) showed a species-specific pattern: i.e. oil sac volume of *P. parvus* was greater in summer, while *P. newmani* and *O. similis* were greater in spring. Lipids are utilized for reproduction which seasonally varied among species. From analysis of seasonal changes in *PL*, *P. parvus* is considered to have up to 5 generations per year, *P. newmani* up to 5 generations per year, and *O. similis* 2 generations per year.