

POPULATION STRUCTURE OF ANTARCTIC KRILL IN THE  
ATLANTIC SECTOR OF THE ANTARCTIC OCEAN IN  
THE AUSTRAL SUMMER OF 1987/88 (ABSTRACT)

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The Atlantic sector of the Antarctic Ocean has been surveyed most intensively for the distribution and population structure of Antarctic krill, *Euphausia superba*. However, the population structure is still not fully clear away from the Antarctic Peninsula region. The aim of this study was to investigate the population structure of krill on a coarse scale (about 50 km) in the Atlantic sector where the Weddell Sea water and the Antarctic Circumpolar Current meet and induce complicated oceanographic conditions.

Juvenile and adult krill were collected by Kaiyo Maru Midwater Trawl (KYMT) during the Fifth Antarctic Survey Cruise of R. V. KAIYO MARU from December 17, 1987 to January 17, 1988. Oblique tows of KYMT were made from ca. 100 m depth to the surface at 64 stations along 45°, 50°, 55° and 60°W lines. We determined the maturity stage of individual krill and measured the body length.

High biomass, exceeding 1 kg wet weight/1000 m<sup>3</sup>, was recorded in the southern part of the Scotia Sea and in the Weddell-Scotia Confluence (WSC), which was supported by the acoustic survey. Chlorophyll concentrations were also highest in the WSC.

Juvenile krill were found in a cold-eddy like structure in the subantarctic area along 45°W. Such an expatriated population will not be able to survive unless it returns to the Antarctic Ocean. The percentage of juveniles was especially high, 91%, at a station along 45°W where winter water of the Scotia Sea was replaced by warmer water. Mature males and females dominated at the stations in the Scotia Sea except along 45°W, where juveniles dominated at several stations. In the WSC, there were no female-dominated stations. Either males dominated or all the stages occurred with more or less similar abundance except along 45°W, where 2 out of 4 stations were dominated by juveniles. There were only 5 stations in the Weddell Sea, and 3 of them were dominated by juveniles.

There was a general tendency for juveniles and adults to be larger toward the north on each line. Larger individuals in the Scotia Sea may reflect better growth because of higher water temperature and early phytoplankton bloom there. High biomass and similar abundance of all the stages in the WSC suggest that the WSC is a good nursery ground for krill, not only in the Antarctic Circumpolar Current but also in the Weddell Sea.

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