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ABSTRACT

Antarctic krill (*Euphausia superba*) is distributed south of 60°S around the South Pole. The stock of krill is estimated at 360 to 1400 million tons. In 1980 the total amount harvested in the world was 500 thousand tons, mainly by the USSR, followed by Japan. Chemical composition of krill is as follows: moisture 77.9-83.1%, crude protein 11.9-15.4%, chitin and glucides 2%, and crude ash 3%. Nutritive value of krill protein is lower than whole-egg protein but higher than milk protein. Krill contains large amounts of vitamins A and E. About 70% of krill lipid is unsaturated fatty acids such as oleic, eicosapentaenoic acid, and docosahexaenoic acid. Commercial products from krill in Japan are frozen raw krill, frozen boiled krill, peeled krill meat, and others. All of these products are processed on boats in the Antarctic Ocean. Krill products in Japan totaled 271,050 tons in 1986-1987.

KRILL BIOLOGY AND FISHERIES

Taxonomy of Krill

"Krill" is the general name for the small, shrimp-like organisms belonging to the order Euphausiacae, which are found in both shallow and deep waters around the earth, particularly in areas of high latitude. There are 2 families, 11 genera, and 84 recognized species belonging to krill (1, 2). Among them the Antarctic krill (*Euphausia superba*) is the most abundant and the most important. Its utilization as a potential resource for human food has called much attention to it, although there are a few other species living in the Antartic Ocean besides *E. superba*.

The taxonomy of *E. superba* is as follows:

Phylum	Arthropoda
Subphylum	Mandibulata
Class	Crustacea
Subclass	Malacostracea
Series	Eumalacostraca
Superorder	Eucardia
Order	Euphausiacea
Family	Euphausiidae
Genus	*Euphausia*
Species	*Euphausia superba*

The *E. superba* grows as large as about 5 cm. Most of the euphausiid are much smaller.

The appearance of krill is similar to that of shrimp belonging to the order of Decapoda of the same superorder Eucarida (Fig. 1). Smaller size and exposed gill are points to generally distinguish Euphausiacea from Decapodae. Another difference is that the former spends its whole life floating as plankton, whereas the latter, in most species, floats only in the larva stage.

The Antarctic krill is distributed south of 60°S around the South Pole, with high density in the cold waters of low salinity (Fig. 2).

During daylight hours, schools of the Antarctic krill are found mainly in depths of 50 to 100 m, while in the evenings they float up to the surface and are frequently seen as brownish "patches" (3).

The large variety of food for krill includes plant and animal detritus material; and at the same time, krill itself is the main food for whales, seals, fishes, and birds. Thus, it plays an important role in the food chain system in the Antarctic ecosystem.

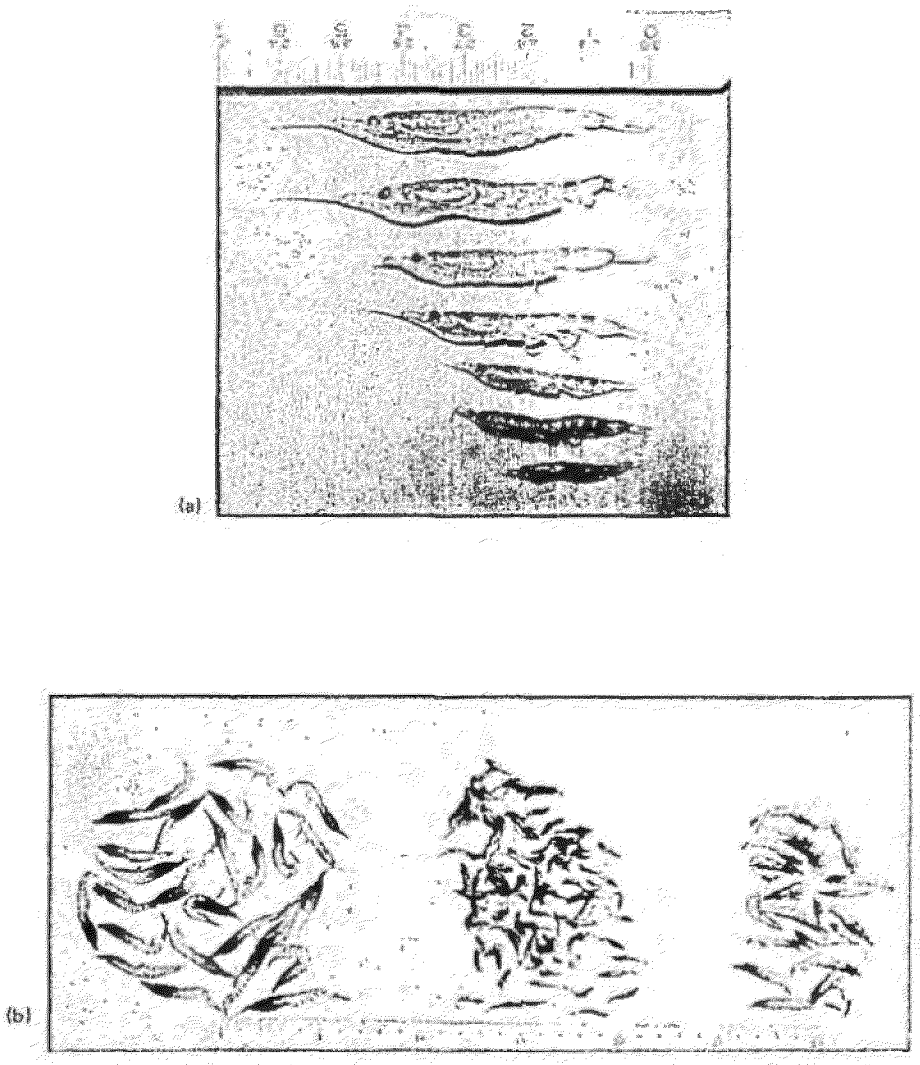

Figure 1. Antarctic krill and other species of krill: (a) Antarctic krill; (b) left, Antarctic krill (*Euphausia superba*); center, krill (*Euphausia pacifica*); and right, prawn (*Sergestes lucens*).

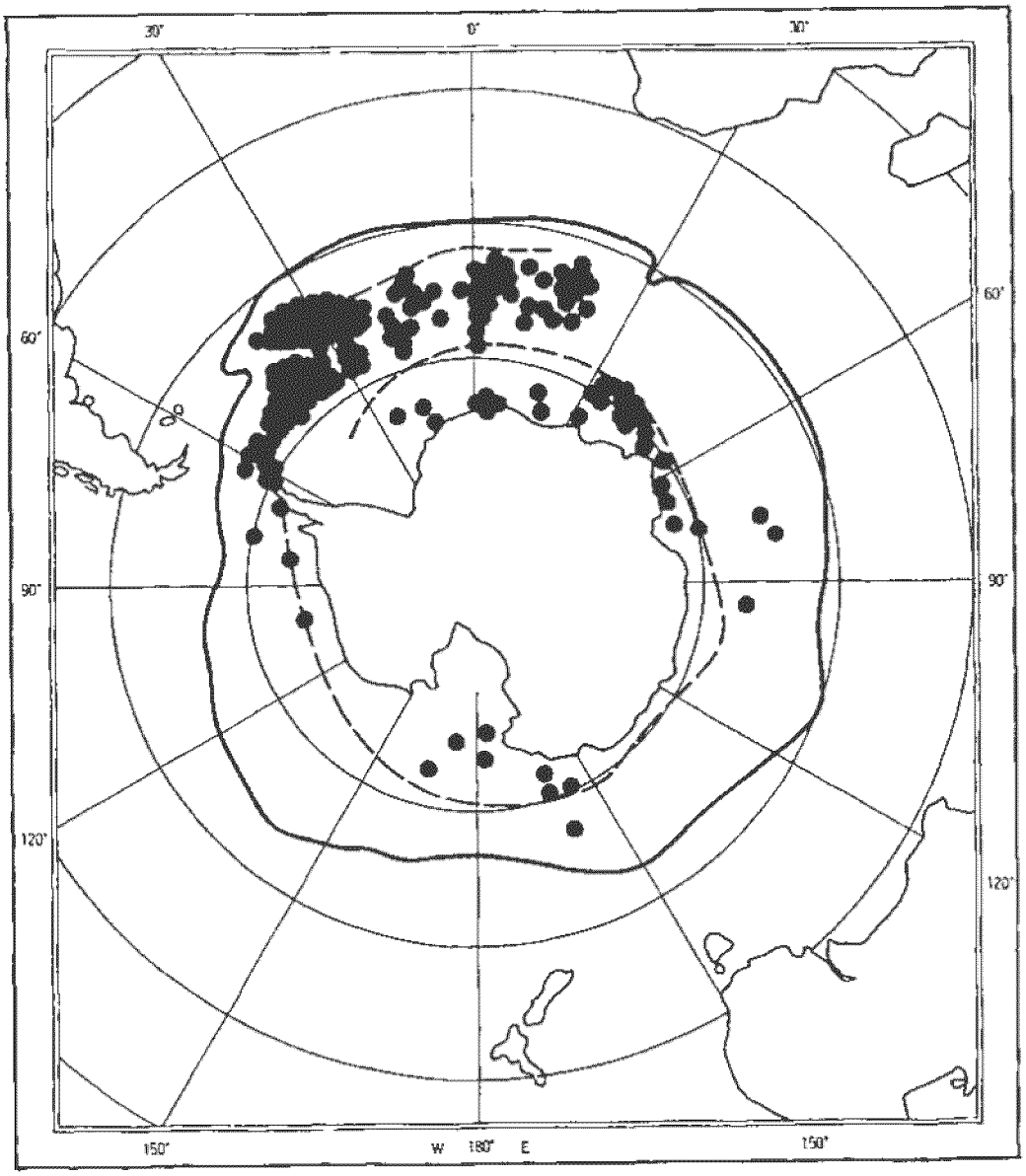

Figure 2. Distribution of krill in Antarctic Ocean.

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