

SHORTER CONTRIBUTION

**Dense Population of a Pteropod,
Creseis acicula, in the Neritic
Waters of the Middle
Japan Sea**

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Abstract: A great amount of *Creseis acicula* was exclusively caught by the oblique hauls with IKMT in the continental shelf waters off Akita and Yamagata Prefectures in September 1978. The *Creseis* populated with densities ranging from a few organisms to 1500 or more per 1 m³ or from less than 0.01 to 6.5 g in wet weight per 1 m³. Shell height composition showed they have 3 subpopulations.

Creseis acicula RANG (Fig. 1) is one of the world wide epipelagic species among pteropod gastropods in the tropical and subtropical wa-

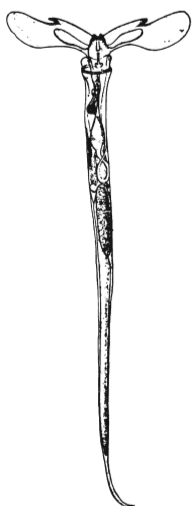


Fig. 1. *Creseis acicula* RANG (from MURRAY and HJORT 1912). Shell height 11.1-15.1 mm in the present specimens.

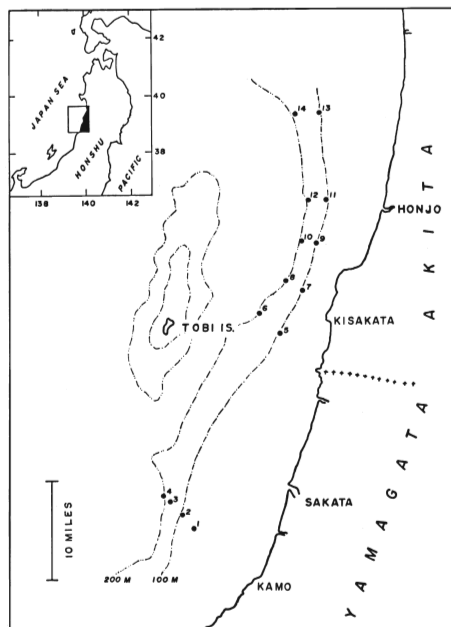


Fig. 2. Location of IKMT sampling stations, September 6-8, 1978.

ters (MURRAY and HJORT 1912, CHEN and BÉ 1964). Relative seasonal fluctuation and vertical distribution of it are investigated in the restricted areas (RUSSELL and COLEMAN 1935, MOORE 1949, CHEN and BÉ 1964, etc.)

The 6-ft IKMT (mesh aperture of cod end 1.24 mm) oblique hauls were made between the surface and ca. 80 or 160 m on board the R/V Mizuho Maru at 14 stations in the neritic waters off Akita and Yamagata Prefectures in daytime of September 6-8, 1978 (Fig. 2). Of 14 samples contained eight the *Creseis* almost monotonously without other organisms. Wet weight of the total animals reserved in 10% sea water formalin was measured. However, an approximate volume of sample was measured by a 20 l-bucket on board the ship for the biggest catch at Stn. 5, and the weight of it may be underestimated. Height of the shell on ca. 100 individuals random selected from each sample and wet and dry weight of a batch of them

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were also measured on the animals with the exposure of a pair of healthy parapodia and without mechanical damages for the whole body.

They are densely populated in the shallower stations showing contagious distribution along with the isobaths. The maximum was observed at Stn. 5 to the west of Kisakata of Akita Prefecture. The population density ranged from a few organisms to ca. 1500 or more per 1 m^3 and from 0.01 to 6.5 g in wet weight (average 1.0 g) or from 0.003 to 1.6 g in dry weight (mean dry/wet ratio, 0.247) per 1 m^3 (Fig. 3). These values are tremendously higher than previous works. CHEN and BÉ (1964) observed seasonal and geographical distribution

of pteropods in the western North Atlantic, and showed *Creseis acicula* is distributed ranging 0–1103 specimens per 1000 m^3 at 3 stations in the subtropical region. YASUDA (1967) illustrated the occurrence of this species in the Tsuruga Bay of the Japan Sea in August and September with the density less than 1 individual per 1 m^3 . Seasonal occurrence of this species is also well documented sometimes with allied species *C. virgula* RANG by RUSSELL and COLEMAN (1935) in the Great Barrier Reef waters and by MOORE (1949) in Bermuda area. But both of them are not always quantitative, and the catch in the total animals seems to be rather small. Mean biomass of the *Creseis* obtained in the present survey is considerably higher than that of

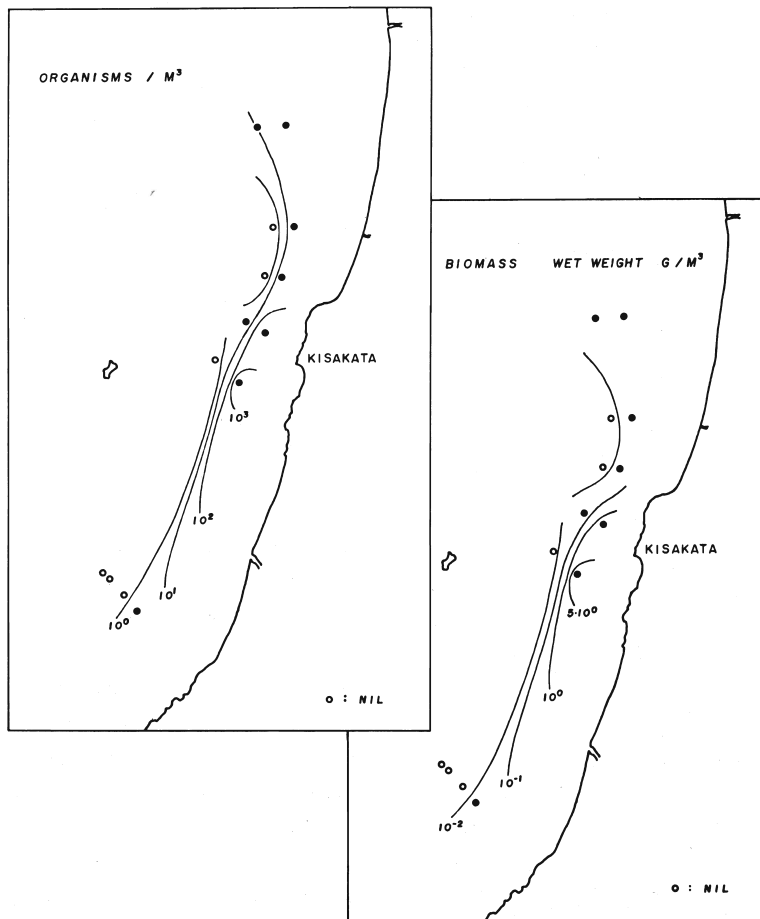


Fig. 3. Quantitative distribution of *Creseis acicula* in the Akita-Yamagata waters in September 1978.

total zooplankton observed in the area of similar oceanographic character in the Japan Sea. The biomass of mesozooplankton collected with Norpac net (0.34 mm mesh) standard hauls fluctuated between 30 and 210 mg with an annual mean of 70 mg in wet weight per 1 m³ (MORIOKA unpubl.), and of macrozooplankton collected with 0.94 mm mesh net is about 10 mg in wet weight per 1 m³ in summer (MORIOKA 1979).

The population in whole area is able to be divided statistically ($p < 0.01$) into 3 subpopulations from the size composition in terms of shell height and shows mosaic areal distribution within the stations distant less than 2 miles (Fig. 4), though whole population density of the *Creseis* is distributed contagiously.

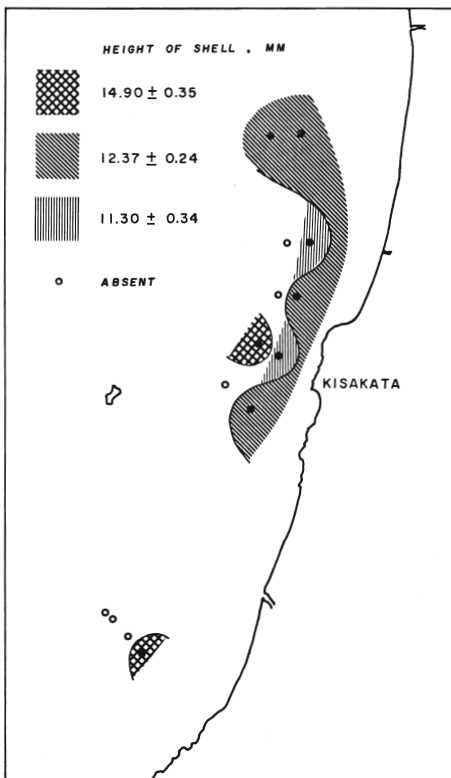


Fig. 4. Areal distribution of 3 subpopulations of *Creseis acicula* in terms of shell height (mean in 99% fiducial limit) in the Akita-Yamagata waters in September 1978.

Acknowledgements: The author thanks crew members of R/V Mizuho Maru and Mr. Y. TAKAHASHI of the Laboratory for their kind help in samplings at sea.

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秋田・山形両県沿岸域における翼足類
ウキヅノガイの濃密分布

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要旨

1978年9月6～8日に秋田、山形両県沿岸の水深100mと200mの合わせて14地点で表面から海底近くまでのアイザックス・キッド中層トロール網を曳いたところ、秋田県象潟沖を中心にしてウキヅノガイ (*Creseis acicula* RANG, 翼足目腹足類) が極めて濃密に分布していたことが判つた。その分布密度は海水1 m³あたり2、3から少なくとも1,500個体、湿重量にして0.01から6.5gの範囲にあつた。低い方の値でさえ従来の記録に比べて非常に高く、生物量の平均も日本海における既往の全動物プランクトン量をはるかに凌駕している。