

# THECOSOME PTEROPOD ON THE BOKA KOTORSKA BAY (SOUTHERN ADRIATIC)

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## Abstract

Thecosome pteropods were collected monthly since 2003 at seven stations with different hydrographic characteristics at Boka Kotorska Bay in Southern Adriatic. At the same time the basic ecological parameters were measured. This paper presents the first data on thecosome pteropods in Boka Kotorska Bay. We recorded 7 species: *Cymbulia peroni* Lamarck, *Creseis acicula* Rang, *Creseis virgula* (Rang), *Limacina inflata* d'Orbigny, *Limacina bulimoides* d'Orbigny, *Pneumodermopsis conephora* Pruvot-Fol i *Atlanta helicinoides* Souleyet.

**Keywords :** *Adriatic Sea, Zooplankton.*

## Introduction

Thecosome pteropods were not previously studied at Boka Kotorska Bay, so the data presented in this paper are the first for this group in this biotope. [5] in epipelagial, at two stations 3NM and 10NM in front of entrance to Boka Kotorska Bay, recorded 6 species with the percent participation of 0.63% in total zooplankton. [3] cites 10 species and their percent participation in eastern coastal waters of Adriatic. The dominant species was *Creseis acicula* with participation of 94.3% in total thecosome pteropod fauna for the studied period. [1] in the vicinity of Dubrovnik recorded 12 species, while in mid January *Limacina inflata*, *Creseis virgula* and *Creseis acicula* had more than 85% of participation in total pteropod fauna. [2] recorded 10 species of thecosome pteropods in waters of deep Southern Adriatic during the yearly cycle of 1993/94, with a great abundance in April 1993 and June 1994 in euphotic zone (0m-100m), matching the large concentration of Chl *a*. The pteropods seem to be characterized by great variability; they may appear in large numbers in plankton or completely disappear [4].

## Material and Methods

Our observations were based on the analysis of zooplankton samples collected monthly during 2003 on three shallow stations near the seafood farming areas (P-M, P-O and P-IBM) and 4 stations in the middle of each bay within Boka Kotorska Bay (P-1, P-2, P-3, P-4 or Kotor, Risan, Tivat and Herceg Novi bays, respectively). Zooplankton was collected with Nansen net (100 and 150 microns). In the same time, other factors were measured: T °C, Sal psu, pH, O<sub>2</sub>, transparency by Secchi plate, color of the sea with Forel scale I-XXI. Zooplankton samples were used to determine presence and abundance of thecosome pteropod in all research stations.

## Results and Discussion

The studies have shown that Boka Kotorska Bay is a specific biotope in the southeastern part of Adriatic. That specificity is caused not only by the geographic position but also by special biotic and abiotic environmental factors. Living conditions at Boka Kotorska Bay are very different than those at the open sea. The basic ecological factors (temperature, salinity and density) are under a strong influence of hydrometeorological conditions, which are specific and susceptible to numerous local changes. This has an important role impacting life histories and distribution of organisms. Boka Kotorska Bay shows characteristics of a shallow closed sea at the eastern coastline of Adriatic. At one hand it is influenced by influx of fresh water from surrounding mainland (coastal rivulets and springs at the sea bottom), and on the other hand it is under impact of open sea which is indicated by hydrographic and planktological data. According to the collected data and citations by other authors, Boka Kotorska Bay is not a homogenous area in thermal sense. The maximal temperatures were recorded in July and minimal in January. Data on salinity clearly indicate the strong influence of influx of fresh water, especially in the surface layer and in shallow habitats along the shore.

Thecosome pteropods were not previously studied at Boka Kotorska Bay, so the data presented in this paper are the first for this group in this biotope. We have recorded 7 species: *Cymbulia peroni*, *Creseis acicula*, *Creseis virgula*, *Limacina inflata*, *Limacina bulimoides*, *Pneumodermopsis conephora* and *Atlanta helicinoides*.

*Limacina inflata* d'Orbigny was the most abundant, with maximums in April and July. It was recorded throughout the year at all the stations, and its percent participation in the group was 70.6%.

*Limacina bulimoides* d'Orbigny is represented at all the stations throughout the year, and its percent participation in the group was 27.1%. Abun-

dance maximum was recorded only in July.

*Limacina inflata* and *Limacina bulimoides* are the most abundant species of thecosome pteropods during the study at Boka Kotorska Bay, and their percent participation in the group is 97.7%.

*Cymbulia peroni* Lamarck was recorded in vicinity of the Institute (P-IBM) at Bay of Kotor in May, as several specimens. *Creseis acicula* Rang, known as a species appearing in warmer period of the year, was not very abundant in the study year, and its participation in total pteropod fauna was 1%. *Creseis acicula* is the commonest pteropod and at the same time one of the commonest species of Adriatic Sea [3].

Following species were recorded sporadically, in insignificant numbers or as single individuals: *Creseis virgula* (Rang), *Pneumodermopsis conephora* Pruvot-Fol and *Atlanta helicinoides* Souleyet.

Percent participation of thecosome pteropods when compared to other groups of zooplankton was: at Bay of Kotor 0.08%, at Bay of Risan 0.39%, at Bay of Tivat 0.94% and at Bay of Herceg Novi 1.15%.

The regularity observed in horizontal distribution of thecosome pteropods was in increase in number of species and biomass longitudinally from the inner waters of the Bay (Bay of Risan and Bay of Kotor) toward the outer stations under the direct influence from the open sea (Bay of Tivat and Bay of Herceg Novi).

## References

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