

The results of a long-term (1979-1981) study on macrozoobenthos structure in the littoral biocoenoses of the Kornati Archipelago are presented. Qualitative similarity of different study localities was expressed with the similarity index (QS) using modified SORESENSEN statistical method (GAMULIN-BRIDA, 1960). The method is based on the common animal species, where

$$QS = \frac{2c}{a+b} \times 100$$

a the number of species at A locality, b at B locality,

c the number of species common to compared localities A and B.

The study was performed at eight (P1-P8) ecologically different localities (Fig. 1) and concerned macrozoobenthic forms only at different bionomic levels (supralittoral, mediolittoral, infralittoral and a part of circalittoral down to 100 m depth). The zoological material was collected by direct observations and material collection from a square surface of 1/16 square metres down to 50 m by SCUBA divers and by the indirect method using grab, dredge and trawls at depths from 50 to 100 m.

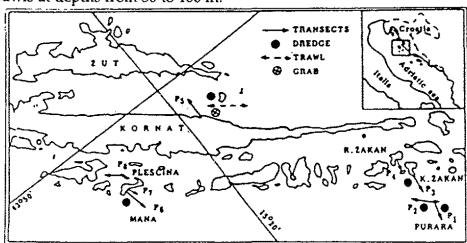


Fig. 1.- Study area

Bottom type and habitat slope, as well as the level of exposure to the waves and marine currents and local illumination are basic factors affecting the distribution of benthic organisms.

Southerly exposed coasts of the outer series of Kornati Islands (Islands Purara P1 and Mana P6) are characterized by vertical cliffs descending down to 50 m under the sea, with a plain with soft bottom formed below it. Soft bottoms occur as small sandy surfaces at 1 m depth already on other slope and rocky coasts of mentioned islands as well as on the coasts of more protected islands. Southern coasts of outer islands are also exposed to stronger illumination and stronger wave effects. All these factors caused benthic fauna to differ in structure and composition between studied localities, which is expressed by the similarity index in this paper (QS) (Fig. 2).

	P ₁	P ₆	P ₃	P ₅	P ₂	P ₈	P ₄	P ₇	
P ₁		■	/	/	/	/	/	●	■ 75 - 100 %
P ₆	81		/	/	/	/	/	●	● 25 - 49 %
P ₃	65	69		/	/	/	/	/	○ 0 - 24 %
P ₅	62	59	74		/	/	/	/	
P ₂	60	59	72	70		■	/	/	
P ₈	60	59	68	66	82		/	/	
P ₄	48	46	64	63	70	62		/	
P ₇	46	39	54	58	54	50	56		

Fig. 2. A comparison of similarity indexes (QS) between the studied localities on the basis of common animal species

The obtained values show greatest similarity in animal structure (QS = 82) between benthic populations from the western coast of Purara Island (P2) and western coast of Plescina Island (P8), as well as between the benthic populations on the southern shores of Purara (P1) and Mana (P6) islands owing to their great similarity in biotopes and spatial orientation.

The lowest similarity was recorded between the benthic populations on the southern vertical coast of outer islands Purara (P1) and Mana (P6) and those on the slope and shallow shores of Mana (P7) and Ravni Zakan (P4) islands, which differ ecologically, as well (QS P6 - P7 = 39, QS P1 - P7 = 46, QS P6-P4 = 46, QS P1 - P4 = 49).

Relatively low similarity in animal structure of benthic populations (QS = 56) was recorded from the Islands Ravni Zakan (P4) and Mana (P7). No greater similarity was due to the fact that both biotopes occur on slight slopes and in shallow water, spatially differently situated. The former is situated in the sheltered and the latter in the unsheltered part of Kornati Islands.

Similarity of animal structure between the rest of study localities expressed as the similarity index (QS) of 50 to 70 points to the fact that they are intermediate between vertical, exposed and deep localities and slightly sloping, protected and shallow localities.

REFERENCES

GAMULIN-BRIDA H., 1960.- Primjena SORESENSEN-ove metode pri istraživanju bentoskih populacija. *Biološki glasnik*, 13 21-42.