SURVEY ON BENTHIC MOLLUSCA POPULATION OF THE INNER PART OF BOKA KOTORSKA BAY

Jovan STJEPČEVIĆ, Pietro PARENZAN,
Sreten MANDIĆ & Ratomir DRAGOVIĆ
Zavod za biologiju mora i oceanografiju — Kotor

Abstract

This work has presented a systematic study of Mollusca of the inner part of Boka Kotorska Bay. The research has included systematic investigations of Amphineura, Scaphopoda, Gastropoda and Bivalvia of the Boka Kotorska Bay during 1970-1972.

The following Molluscan species were found: Amphineura — 5 species, Scaphopoda — 3 species, Gastropoda — 149 species and Bivalvia — 127 species.

The results of these investigations have been compared to those of other authors from Adriatic and Mediterranean regions.

Abstract

PREGLED BENTOSKIH POPULACIJA MOLLUSCA (AMPHINEURA, SCAPHOPODA, GASTROPODA, BIVALVIA) UNUTRAŠNJEG DIJELA BOKOKOTORSKOG ZALIVA

U ovom radu su dati rezultati proučavanja sistematike populacije mekušaca unutrašnjeg dijela Bokokotorskog zaliva. Ova istraživanja su obuhvatila ispitivanja sistematike Amphineura, Scaphopoda, Gastropoda i Bivalvia Kotorskog i Risanskog zaliva, a izvedena su u periodu 1970-1972. godine.

Na ovom istraživanom području konstatovali smo 5 vrsta Amphineura, 3 vrste Scaphopoda, 149 vrsta Gastropoda i 127 vrsta Bivalvia. Rezultati ovih istraživanja komparirani su s nalazima ostalih autora iz drugih područja Jadrana i Mediterana.

The specific position of the Boka Kotorska bay in relation to other sites in the Adriatic is determined by its geographical situation and by characteristic abiotic and biotic environmental factors.

Boka's several bays, straits and coves make for the most jagged coastline, 105,5 km. long, in the southeast Dinaric coastal area. Four smaller adjoining bays (Herceg-Novi, Tivat, Risan and Kotor) and two straits (one connecting the open sea and the Herceg-Novi Bay, and the other, Verige, connecting the Tivat Bay and Kotor and Risan bays) form the main body of the Boka Kotorska bay.

The total aquatory of the Bay is 87,334 km^2, wherein 24.267 km^2 is the aquatory of the Kotor and Risan bays.

The relief and petrographic composition of the Boka Kotorska bay are very complex. Two shelves in the relief of the sea bottom can be distinguished — the strand and the continental surface. There is no strand in the inner part of the Bay, and there the coast is steep from the water surface all the way down to the bottom. The width at the entry to the Bay is 2.950 m, while at Verige, the narrowest point in the Bay, it is only 340 m.

The average depth of the whole of the Bay is 27,6 m, while at Kotor and Risan bays it is 25,7 and 25,5 respectively. The maximum depth in the Kotor bay is 52,0, and at Risan's it is 36,0.

The relief of the Bay's bottom is very complex and is only partly symmetrical. In each of the bays the depth increases toward the center. The bottom itself is covered by thick strata of fine mud, terigen (lithoral and shelves) by its genesis, and mineragenic by its origin.

Water currents in the Bay are rather irregular, depending on the tides and free Seiches oscillations. Directions and strength of currents are also influenced by winds, atmospheric pressure and mixing of fresh and sea water. In summers, the currents are weaker (0.7 knots/hour), while in other seasons, they are considerably stronger (2,5-3,5 knots per hour). During rainy periods (Nov.-May), in the inner Bay, vertical currents are very pronounced, greatly accounting for the productivity of this part of the Bay.

II COLLECTING OF SAMPLES AND METHODOLOGY OF WORK

The use of dredge for collecting material was convenient since that device could be utilized throughout the research area. The use of dredge enabled us to collect both the specimens of endofauna and epifauna, and in well proportioned quantities.

Fig. 1. BOKA KOTORSKA BAY
Sl. 1. BOKOKOTORSKI ZALIV

Positions of investigations and mechanic constitution of bottom sediment with components $CaCO_3$ and CO_2 in procentage

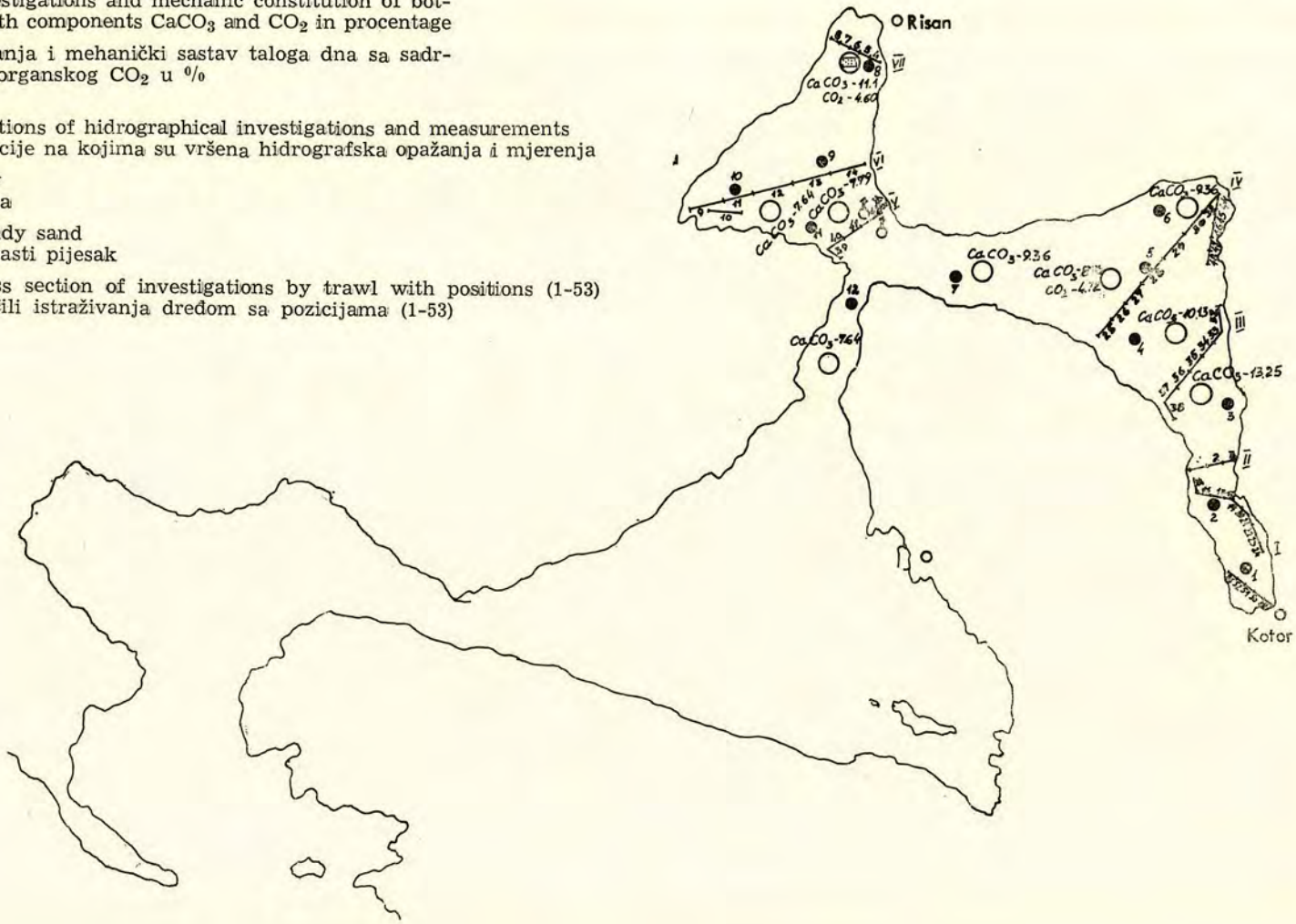
Pozicije istraživanja i mehanički sastav taloga dna sa sadržajem $CaCO_3$ i organskog CO_2 u %

Positions of hidrographical investigations and measurements
Pozicije na kojima su vršena hidrografska opažanja i mjerenja

Clay
Glina

Muddy sand
Glinasti pijesak

Cross section of investigations by trawl with positions (1-53)
Profili istraživanja dredom sa pozicijama (1-53)



The whole investigated area was divided into 8 profiles (exhibit 1), and each profile into certain number of sampling locations. On all of the 8 sites, we did 53 samplings by dredge. The frequency of sampling gave us a considerably reliable picture of the qualitative and quantitative composition, distribution and correlation among the species of the Mollusca fauna.

The material collected was rinsed in triage sieve, roughly separated and conserved on board the »Nemirna«, our research boat. The final determination was performed in the malacology lab at the Biolog. and Oceanog. Inst. in Kotor. The determination was done by species, classified by families and classes.

The field work was undertaken in the period 1970-72.

III RESULTS AND DISCUSSION

The objective of this research was to gain an insight into the Mollusca populations of the supra-medio-infralithoral and upper circalithoral of the inner Boka Kotorska Bay.

Earlier data on malacofauna of the Bay are very scarce. Recent papers, such as »Makro-Mollusca of Boka Kotorska Bay«, however, bear more significance. Stjepčević (1967) described 124 Mollusca species from the Boka Kotorska Bay, of which only 66 species were from the inner bay. Karaman and Gamulin-Brida (1970) list 61 Mollusca species, of which 42 from 2 inner bays. The number of the inner Bay species described in this research paper significantly exceeds any number of previously known species from the whole of the Boka Kotorska Bay.

Among the samples collected, empty shells outnumbered living organisms, a phenomenon with several causes. A number of Mollusca species live submerged in sand or mud in the daytime, to emerge in the night-time, while several other species live permanently buried in sediment and use syphons to exchange water for the breathing process. In these species, the shells of dead organisms float to the surface and are collected in great numbers.

The number of dead organisms greatly exceeds the number of living ones, pointing out the variety of species in the research area.

In some circumstanes this phenomenon can be misinterpreted and can lead to certain confusion in distinguishing the Mollusca habitats and their regional distribution. Such is the case when shells of dead organisms, carried by currents, waves, tides, and due to morphological structure of the sea bottom, float in great numbers away from their original habitat to points where they get collected.

Apart from the composition of material collected on different sites and from the ratio of living and dead organisms, we have found

quantitative and qualitative changes in Mollusca species in this reasearch area.

In our listing of species, we used abundany grades based on an average number of samples per 10 m², as per Peres and Gamulin-Brida (1973).

1)	from 0 to 0,49 od do	Average speciments Primjeraka prosječno	rr	(Very rare species) (Vrlo rijetka vrsta)
2)	from 0,5 to 0,99 od do	Average speciments Primjeraka prosječno	r	(Rare species) (Rijetka vrsta)
3)	from 1,0 to 9,99 od do	Average speciments Primjeraka prosječno	+	(Usualy present) (Obično prisutna)
4)	from 10 to 99,99 od do	Average speciments Primjeraka prosječno	c	(Common species) (Česta vrsta)
5)	from 100 to 499,99 od do	Average speciments Primjeraka prosječno	cc	(Very common species) (Vrlo česta vrsta)
6)	from 500 and more od i više	Average speciments Primjeraka prosječno	ccc	(In great quantity) (U veoma velikim količinama)

By applying this interesting method, we have given a review of Mollusca species by classes and families, in abundancy grades, as well as their vertical distribution in the lithoral zone of the inner Boka Kotorska Bay.

Tab. 1. Review of the abundancy of Mollusca from the inner part of Boka Kotorska Bay
Prikaz stepena abundancije Mollusca unutrašnjeg dijela Bokokotorskog zaliva

	S	M	I	C
Classe: AMPHINEURA Klasa				
Subclasse: POLYPLACOPHORA Podklasa				
Fam. CHITONIDAE				
1) *Acanthochiton communis* (Risso)			rr	r
2) *Acanthochiton fascicularis* (L.)			rr	r
3) *Chiton corallinus* (Risso)			r	r
4) *Chiton olivaceus* Spengler			r	+
5) *Chiton sp.*			rr	+

	S	M	I	C
Classe: SCAPHOPODA **Klasa**				
Fam. DENTALIIDAE				
1) *Dentalium inaequicostatum* Dautz.			cc	cc
2) *Dentalium vulgare* Da Costa			+	c
3) *Dentalium rubescens* Desh.			+	+
Classe: GASTROPODA **Klasa**				
Fam. HALIOTIDAE				
1) *Haliotis lamellosa* (Lamck.)			r	rr
Fam. FISSURELLIDAE				
2) *Emarginula elongata* (Da Costa)		rr	rr	
3) *Emarginula huzardi* (Payr.)		rr	rr	
4) *Emarginula fissura* L.		rr	rr	
5) *Diodora graeca* (L.) (=*Fissurella*)		r	r	
6) *Diodora italica* (Defr.) (=*Fissurella*)		r	rr	
7) *Diodora gibberula* (Lamck.) (=*Fissurella*)		r	r	
8) *Puncturella noachina* (L.)			r	
Fam. PATELLIDAE				
9) *Patella coerulea* (L.)		c	+	
10) *Patella lusitanica* Gmel.		+	+	
11) *Patella vulgata* L.		c	+	
Fam. TROCHIDAE				
12) *Calliostoma dubium* (Phil.)		rr	r	
13) *Calliostoma zizyphinum* L.		rr	+	
14) *Calliostoma conulus* L.		r	+	
15) *Gibbula rarilineata* (Mich.)		rr	r	
16) *Gibbula divaricata* (L.)		rr	+	
17) *Gibbula guttadauri* (Phil.)		rr	r	
18) *Gibbula drepanensis* (Brugnone)		rr	r	
19) *Gibbula varia* (L.)		rr	r	
20) *Gibbula fanulum* Brus.		rr	r	
21) *Gibbula richardi* (Payr.)		rr	r	
22) *Gibbula albida* (Gm.)		rr	r	
23) *Gibbula philberti* (Rcl.)		rr	r	
24) *Gibbula magus* L.		r	+	
25) *Monodonta articulata* Lamck.		c	+	
26) *Monodonta turbinata* (Born.)		ccc	c	
27) *Monodonta mutabilis* (Phil.)		c	c	
28) *Clanculus corallinus* (Gm.)		+	+	
29) *Clanculus cruciatus* (L.)		+	+	

	S	M	I	C
30) *Jujubinus exasperatus* (Penn.)		+	+	
31) *Jujubinus striatus* (L.)		+	+	
Fam. CYCLOSTREMATIDAE				
32) *Circulus tricarinatus* (Smith)			rr	
Fam. TURBINIDAE				
33) *Astraea (Bolma) rugosa* L.		rr	+	r
34) *Turboella marginata* (Mich.)			+	r
Fam. LITTORINIDAE				
35) *Littorina neritoides* L.	ccc	cc		
Fam. NERITIDAE				
36) *Smaragdia viridis* L.		rr	rr	
Fam. HYDROBIIDAE				
37) *Peringia ulvae* (Penn.)			+	+
Fam. RISSOIDAE				
38) *Putilla fusca* (Phil.)			rr	rr
39) *Putilla alleryana* (Phil.)			rr	rr
40) *Cingula vitrea* (Mtg.)			rr	r
41) *Cingula nitida* (Brusina)				rr
42) *Alvania cimex* (L.)			r	
43) *Alvania cimicoides* (Forb.)			+	+
44) *Alvania cancellata* (Da Costa)			r	
45) *Alvania hispidula* (Monts)			+	+
46) *Rissoa membranacea* (Adams)			+	+
47) *Rissoa splendida* Eich.			c	c
48) *Rissoa monodonta* (Bivona)			+	+
49) *Rissoa guerini* Recl.			+	+
50) *Rissoa nitida* Brus.			r	r
51) *Rissoa oblonga* Desm.			ccc	cc
52) *Rissoa parva* L.			+	+
53) *Rissoina bruguieri* (Payr.)			rr	rr
Fam. RISSOELLIDAE				
54) *Rissoella glabra* (Brown)			+	+
Fam. TURRITELLIDAE				
55) *Turritella communis* Lamck.			ccc	ccc
56) *Turritella triplicata* Brocchi			cc	cc
57) *Turritella triplicata f. duplicata* (Sandri)			r	r
Fam. MATHILDIDAE				
58) *Mathilda quadricarinata* (Brocchi)			r	r

	S	M	I	C
Fam. VERMICULARIIDAE				
59) *Lemintina arenaria* (L.)		r	c	c
60) *Vermetus (Petaloconghus) subcancellatus* Biv.		r	+	+
Fam. CAECIDAE				
61) *Parastrophia folini* B. D. D.			+	
62) *Caecum trachea* (Mtg.)			cc	c
Fam. CERITHIIDAE				
63) *Bittium reticulatum* (Da Costa)			ccc	ccc
64) *Bittium reticulatum latreillei* (Payr.)			cc	cc
65) *Bittium ulvae* Mts.			+	+
66) *Bittium arenarium* Monts.			cc	+
67) *Cerithium vulgatum* Brug.		rr	+	+
68) *Cerithium vulgatum gracilis-elongatus* Sett.			r	r
69) *Cerithium vulgatum spinosum* Blainv.			r	r
70) *Cerithium rupestre* Risso			r	r
Fam. CERITHIOPSIDAE				
71) *Cerithiopsis rugulosa* (Sow.)			rr	rr
72) *Cyrbasia pulchella* (Jeffr.)			r	r
Fam. TRIPHORIDAE				
73) *Triphora perversa* (L.)			r	r
74) *Triphora aspera* (Jeffr.)			rr	rr
75) *Triphora obesula* (Loc.)			rr	rr
Fam. EPITONIIDAE				
76) *Epitonium spiniferum* (Seg.)			+	+
77) *Epitonium contrainei* (Weink.)			+	+
78) *Epitonium tenuicosta* (Mich.)			+	+
79) *Epitonium clathrus* (L.)		rr	+	+
80) *Epitonium turtonae paucicostatum* (L.)			rr	rr
Fam. PYRAMIDELLIDAE				
81) *Odostomia conoidea* (Brocchi)				r
Fam. EULIMIDAE				
82) *Leiostraca subulata* (Don.)			cc	cc
83) *Eulimella scillae* (Scacchi)			+	+
84) *Turbonila lactea* L.			+	+
85) *Turbonila delicata* Mts.			+	+
86) *Turbonila gradata* Monts.			r	r
87) *Turbonila pusilla* (Phil.)			r	r
Fam. CALYPTRAEIDAE				
88) *Calyptraea chinensis* (L.)		r	c	c
89) *Crepidula moulinsi* Mich.		rr	+	+

	S	M	I	C
Fam. APORRHAIDAE				
90) *Aporrhais pes-pelecani* (L.)			c	c
Fam. CYPRAEIDAE				
91) *Luria lurida* (L.)			rr	rr
Fam. NATICIDAE				
92) *Naticarius hebraeus* (Mart.)			+	+
93) *Naticarius millepunctatus* (Lamck.)			+	+
94) *Naticarius dillwyni* (Payr.)			c	c
95) *Lunatia poliana* (D. Ch.)			+	+
96) *Payraudeautia intricata* (Don.)			+	r
Fam. CASSIDIDAE				
97) *Galeodea echinophora* (L.)			+	+
Fam. MURICIDAE				
98) *Murex brandaris* L.			c	c
99) *Trunculyriopsis trunculus* (L.)		+	cc	c
100) *Muricopsis cristatus* (Brocchi)			+	
101) *Typhis sowerby* Brod.			r	r
102) *Takia scalaroides* (Blainv.)			rr	rr
103) *Ocinebrina edwardsi helleriana* (Brus.)			r	r
104) *Ceratostoma erinaceum* (L.)		rr	r	
Fam. CORALLIOPHILLIDAE				
105) *Coralliophila alucoides* (Blainv.)			r	r
106) *Coralliophila alucoides tectosinense* (Desh.)			r	r
Fam. PYRENIDAE				
107) *Mitrella scripta* (L.)			r	r
108) *Columbella rustica* (L.)		rr	+	
Fam. BUCCINIDAE				
109) *Buccinulum corneum* (L.)			r	r
110) *Cantharus d'Orbignyi* (Payr.)			r	rr
111) *Pisania maculosa* Lamck.			rr	r
Fam. NASSARIIDAE				
112) *Amyclina corniculum* (Olivi)			+	+
113) *Cyclope neritea* (L.)			+	+
114) *Hinia reticulata mamillata* Risso			c	c
115) *Hinia costulata* (Ren.)			cc	cc
116) *Hinia costulata subdiaphana* Ken.			r	rr
117) *Hinia incrassata* (Strom.)			cc	r
118) *Hinia varicosa* (Turt.)			c	+
Fam. FASCIOLARIIDAE				
119) *Fusinus rostratus* (Olivi)			r	r

	S	M	I	C
120) *Fusinus rudis* (Phil.)			+	+
121) *Fusinus pulchellus* (Phil.)			r	r
122) *Fusinus gigliolii* (Monts.)			r	r
123) *Fusinus syracusanus* L.			rr	r
Fam. MITRIDAE				
124) *Pusia tricolor* (Gmel.)			+	r
125) *Mitra ebenus* Lamck.			+	r
126) *Mitra ebenus plicatula* (Brocchi)			r	r
127) *Mitra geniculata* Monts.			rr	rr
Fam. MARGINELLIDAE				
128) *Gibberulina clandestina* (Brocchi)				rr
Fam. TURRIDAE				
129) *Cythara galli* (Biv.)			r	rr
130) *Cythara indistincta* (Monts.)			+	r
131) *Cythara kochi* (Pall.)			+	+
132) *Cythara attenuata* (Mtg.)			+	+
133) *Cythara attenuata striolata* (Risso)			rr	r
134) *Cythara costata coarctata* (Forb.)			+	r
135) *Cythara rugulosa scabrida* (Mtg.)			+	+
136) *Cythara stossiciana* (Brusina)			r	r
137) *Cythara albida* Desh.			r	+
138) *Bela brachystoma* (Ph.)			+	+
139) *Raphitoma philberti* (Mich.)			rr	r
140) *Raphitoma purpurea* (Mtg.)			+	+
141) *Raphitoma rudis* (Scacchi)			r	r
142) *Bela trapunensis* (Pall.)			r	r
143) *Bela costulata* (Blainv.)			r	r
144) *Raphitoma reticulata* (Renieri)			+	+
145) *Bellaspira septangulus* (Mtg.)			r	r
Fam. CONIDAE				
146) *Conus mediterraneus* Brug.			r	r
Subclasse: OPISTOBRANCHIA				
Podklasa				
Fam. ACTAEONIDAE				
147) *Actaeon tornatilis* (L.)		r	+	rr
Fam. RINGICULIDAE				
148) *Ringicula conformis* Monts.			cc	c
149) *Ringicula leptocheila* Brugnone			r	r
150) *Ringicula auriculata* (Men.)			r	r

	S	M	I	C
Fam. ATYIDAE				
151) *Haminea navicula* Da Costa			r	r
152) *Haminea hydatis* L.			+	+
Fam. ACERIDAE				
153) *Acera bullata* Mull.			r	r
Fam. RETUSIDAE				
154) *Retusa sp.*			rr	rr
Fam. SCAPHANDRIDAE				
155) *Cylichna cylindracea* (Penn.)		rr	c	c
Fam. PHILINIDAE				
156) *Philine aperta* L.			c	c
157) *Philine scabra* Lov.			c	c

Classe: BIVALVIA
Klasa

Fam. NUCULIDAE Gray				
1) *Nucula nucleus* (L.)			c	c
2) *Nucula sulcata* (Bronn)			cc	c
3) *Nucula sp.*			r	r
Fam. LEDIDAE				
4) *Leda fragilis* Shem.			+	+
5) *Lda pella* L.			+	+
Fam. ARCIDAE Bronn				
6) *Arca noae* L.			r	r
7) *Tetrarca tetragona* (Poli)			r	r
8) *Barbatia barbatia* (L.)			r	rr
9) *Acar gradata* (Brod. et Sow.)			r	rr
10) *Striarca lactea* (L.)			c	c
11) *Diluvarca diluvii* (Lamck.)			+	+
Fam. GLYCYMERIDAE Newton				
12) *Glycymeris pilosa* L.			+	+
Fam. MYTILIDAE Raf.				
13) *Mytilus galloprovincialis* Lamck.		ccc	cc	
14) *Mytilus galloprovincialis incurvatus* Monts.		cc	c	
15) *Dacrydium vitreum* (Holböll)		rr	r	
16) *Modiolus barbatus* (L.)		r	+	
17) *Modiolus adriaticus* (Lamck.)		+	c	
18) *Mytilaster lineatus* (Gm.)		+	+	
19) *Mytilaster lineatus lamarcki* (B. D. D.)		+	+	

	S	M	I	C
20) *Mytilaster minimus* (Poli)		+	c	
21) *Musculus marmoratus* (Forb.)		+	+	
22) *Musculus discors* (L.)		r	+	
23) *Lithophaga lithophaga* (L.)			c	
Fam. PTERIIDAE Broderip				
24) *Pteria hirundo* (L.)			c	+
25) *Pinna nobilis* L.			c	+
26) *Pinna pectinata* L.			+	c
Fam. PECTINIDAE Raf.				
27) *Chlamys varia* L.			c	+
28) *Chlamys multistriata* (Poli)			+	+
29) *Chlamys bruei coeni* Nordsk.			+	r
30) *Chlamys sulcata* (Müll.)			c	c
31) *Aequipecten opercularis* (L.)			r	+
32) *Manupecten pesfelis* (L.)			r	rr
33) *Proteopecten glaber* (L.)			+	+
34) *Proteopecten griseus subsulcatus* (Loc.)			c	c
35) *Proteopecten proteus* (Sol.)			+	+
36) *Pecten jacobaeus* (L.)			+	+
37) *Pecten maximus* (L.)			rr	rr
Fam. SPONDYLIDAE Gray				
38) *Spondylus gaederopus* L.			r	+
Fam. LIMIDAE Raf.				
39. *Mantellum hians* (Gmel.)			+	+
40) *Mantellum hians mediterraneum* Monteros.			r	r
Fam. ANOMIIDAE Raf.				
41) *Anomia ephippium* (L.)		+	c	r
42) *Monia glauca* Monts.		rr	r	rr
43) *Monia patelliformis* (L.) *elegans* Phil.		rr	r	rr
44) *Monia cladocorae* Parenzan			+	rr
45) *Heteranomia squamula* (L.)		rr	r	rr
Fam. OSTREIDAE Raf.				
46) *Ostrea edulis* L.		r	c	
47) *Ostreola stentina* (Payr.)		r	+	
48) *Pignodonta cochlear* (Poli)			+	+
Fam. GLOSSIDAE Gray.				
49) *Glossus humanus* (L.) = *Isocardia cor* (L.)			+	+
Fam. TRAPEZIIDAE Lamy				
50) *Coralliophaga lithophagella* (Lamck.)			+	

	S	M	I	C
Fam. UNGULINIDAE Dall				
51) *Diplodonta rotundata* (Mtg.)			c	c
52) *Diplodonta brocchii* Desh. = *orbiculata* Monts.			c	c
Fam. THYASIRIDAE Dall				
53) *Thyasira flexuosa* (Montagu)			c	c
54) *Thyasira orahovaziana* Parenzan			rr	rr
Fam. LUCINIDAE Fleming				
55) *Myrtea spinifera* (Mtg.)			cc	cc
56) *Lucinella divaricata* (L.)			+	+
57) *Lucinella divaricata elata* (B. D. D.)			rr	rr
58) *Loripes lacteus* (L.)			cc	cc
59) *Loripinus fragilis* (Phil.)			+	+
60) *Ctena decusata* (O. G. Costa)			r	r
Fam. LEPTONIDAE Gray				
61) *Lepton squamosus* (Mtg.)			c	c
Fam. GALEOMATIDAE Nords.				
62) *Phascoliophila phascolionis* (Dautz. et H. Fischer)			rr	r
Fam. MONTACUTIDAE Clark.				
63) *Montacuta bidentata* (Mtg.)			c	c
Fam. CHAMIDAE Bronn				
64) *Chama gryphoides* L.		r	+	
65) *Chama circinata* Monts.		rr	+	
66) *Chama lamellosa* Lamck.		r	+	
Fam. CARDIIDAE Schweigger				
67) *Laevicardium oblongum* (Gmel.)			+	+
68) *Laevicardium norvegicum mediterraneum* B. D. D.			r	+
69) *Parvicardium exigum subangulatum* (Scacchi)			cc	cc
70) *Parvicardium exigum parvum* (Phil.)			c	c
71) *Cerastoderma glaucum* (Brug.)			c	c
72) *Cerastoderma glaucum batesoni* (B. D. D.)			+	+
73) *Cerastoderma glaucum paludosum* (B. D. D.)			+	+
74) *Cerastoderma glaucum lamarcki* (Reeve)			r	r
75) *Papillicardium papillosum* (Poli)			c	c
76) *Parvicardium nodosum* (Turton)			+	+
77) *Sphaerocardium paucicostatum* (Sow.)			c	cc
78) *Rudicardium tuberculatum* L.			r	+
79) *Acanthocardia echinata* (L.)			+	+
80) *Parvicardium minimum* (L.)			r	r
81) *Cardium edule* L.			c	c

	S	M	I	C
Fam. VENERIDAE Raf.				
82) *Gouldia minima* (Mont.)			cc	cc
83) *Pitar rudis* (Poli)			cc	cc
84) *Dosinia exoleta* (L.)			+	+
85) *Dosinia lupinus* (L.)			+	r
86) *Circomphalus casinus aradasi* (B. D. D.)			c	+
87) *Venus verrucosa* L.			+	+
88) *Chione ovata* (Penn.)			c	c
89) *Clausinella paphia* L.			r	+
90) *Clausinella brongniarti scalaris* (Bronn)			+	+
91) *Chamelea gallina* (L.)			+	+
92) *Chamelea gallina minor* B. D. D.			+	+
Fam. PAPHIIDAE Nords.				
93) *Venerupis aurea* Gmel.			cc	cc
94) *Venerupis decussata* (L.)			+	+
95) *Venerupis decussata texta* B. D. D.			+	+
96) *Venerupis decussata quadrangula* Jeffr.			r	r
97) *Irus irus* (L.)			+	+
Fam. PETRICOLIDAE D'Orb.				
98) *Mysia undata* (Penn.)			r	r
99) *Petricola lithophaga* (Retz.)			r	r
Fam. DONACIDAE Fleming				
100) *Donax semistriatus* Poli			+	r
Fam. SANGUINOLARIIDAE Abbott				
101) *Gari ferroensis* (Gmelin)			+	+
102) *Psammocolla depressa* (Penn.)			+	+
103) *Psammobella tellinella* (Lamck.)			+	+
104) *Azorinus chamasolen* (Da Costa)			c	c
105) *Solecurtus candidus* (Ren.)			+	r
Fam. TELLINIDAE Blainv.				
106) *Arcopagia balaustina* (L.)			+	+
107) *Gastrana fragilis* (L.)			cc	cc
108) *Quadrans serratus* (Brocchi)			r	r
109) *Moerella donacina* (L.)			+	+
110) *Moerella donacina turtoni* B. D. D.			r	r
111) *Tellina pulchella* (Lamck.)			c	c
Fam. SCROBICULARIIDAE H. et A. Adams				
112) *Abra alba* (W. Wood)			cc	cc
113) *Abra ovata* (Phil.)			+	+
114) *Abra prismatica* (Laskey)			c	c
115) *Abra nitida* (Müller)			c	c

	S	M	I	C
116) *Scrobicularia plana* (Da Costa)			c	c
117) *Scrobicularia cottardi* (Payr.)			r	+
Fam. MESODESMATIDAE Gray				
118) *Donacilla cornea* (Poli)			r	r
119) *Ervilia sp.*			rr	r
Fam. MACTRIDAE Brown				
120) *Mactra corallina* L.			+	+
121) *Spisula triangula conemenosi* B. D. D.			c	c
Fam. SOLENIDAE Latreille				
122) *Cultrensis adriaticus* Coen			+	+
123) *Ensis minor* (Chenu)			+	r
124) *Pharus legumen* (L.)			+	r
125) *Solen marginatus* (Penn.) = *vagina* L.			+	r
Fam. HIATELLIDAE Winckwort				
126) *Hiatella arctica* (L.)			+	+
127) *Hiatella arctica elongata* (L.)			+	+
128) *Hiatella arctica minuta* (L.)			r	r
129) *Hiatella rugosa* (Penn.)			+	+
130) *Saxicavella plicata* (Mtg.) = *jeffreysi* Winck.			+	r
Fam. CORBULIDAE Bronn				
131) *Corbula gibba* (Olivi)			ccc	ccc
132) *Corbula gibba curta* Loc.			+	+
Fam. GASTROCHAENIDAE Gray				
133) *Rocellaria dubia* (Penn.)			r	r
134) *Rocellaria dubia lata* Pallary			r	rr
Fam. TEREDINIDAE Fleming				
135) *Teredo navalis* L.		c	ccc	cc
Fam. PANDORIDAE				
136) *Pandora pinna* (Mtg.)			c	c
137) *Pandora obtusa* (Leach)			r	r
Fam. THRACIIDAE E. A. Schmith				
138) *Thracia papyracea* (Poli)			+	+
139) *Thracia papyracea gracilis* Jeffreys			+	+
140) *Thracia pubescens* (Pulteney)			+	r
141) *Thracia corbuloides* Blainv.			+	+
Fam. POROMYIDAE Dall				
142) *Poromya granulata* (Nyst et West.)			r	r

	S	M	I	C
Fam. CUSPIDARIIDAE Dall				
143) *Cuspidaria cuspidata* (Olivi)			+	+
144) *Cuspidaria rostrata* (Spengler)			+	+

Legenda: S — supralitoral; M — mediolitoral;
I — infralitoral; C — cirkalitoral.

Some species were collected on only one or few sites, while others were collected on a number of sites (15-40 and more). In some species, only one sample each was collected. Anyhow, relative indicators cannot be considered as having absolute values or significance due to various afore mentioned reasons.

Mollusca species collected on more than 15 sites across the research a area are: *Abra alba, Aporrhais pespelecani, Anomia ephippium, Azorinus chamasolen, Bittium reticulatum, Corbula gibba, Diplodonta rotundata, Dentalium inaequicostatum, Gouldia minima, Hinia costulata, Naticarius dillwyni, Nucula sp., Parvicardium exigum subangulatum, Papillicardium papillosum, Pitar rude, Pandora pinna, Philine aperta, Sphaerocardium paucicostatum, Turritella triplicata, Tellina pulchella, Venerupis aurea laeta.*

Of these 22 species, 6 species represent a general malacology fauna, widely spread and these were located in smaller or greater number on 28-35 sites: *Abra alba, Corbula gibba, Dentalium inaequicostatum, Nucula sp. sp. (nucleus* and *sulcata), Pitar rude, Sphaerocardium paucicostatum.*

Quantitatively, the following species are predominant:

Bittium reticulatum	2.372 speciments
Corbula gibba	1.705 speciments
Rissoa oblonga	1.112 speciments
Dentalium inaequicostatum	1.032 speciments

Distribution wise, these species are listed in the following order:

Corbbula gibba	caught on 35 positions
Dentalium inaequicostatum	caught on 33 positions
Bittium reticulatum	caught on 22 positions
Rissoa oblonga	caught on 2 positions

It is interesting that of 45 species, only one sample each was collected. However, they cannot be considered rare. Most probably, most of them are remnants of some rich fauna that existed way back in the past, and are now becoming extinct in the inner bay. Similarily, some of these species found in only one sample, belong to species very common for the open Adriatic.

Especially interesting are the following species: *Circulus tricarinatus, Cyrbasia pulchella, Manupecten pesfelis, Smaragdia viridis, Aporrhais pes-pelecani, Diplodonta brocchii, Thyasira orahovaziana.*

Circulus tricarinatus (Smith) was found on site 9 near Morinj in the Risan Bay, only 6 m from the shore and at 2,5 m depth on a sandy-muddy bottom. Oonly one sample was found, and as per Nordsieck (1968), the species has so far been found only in the Atlantic (Whydoh, West Africa). Therefore, this would be the first sample of this species found in the Mediterranean (ex. 2).

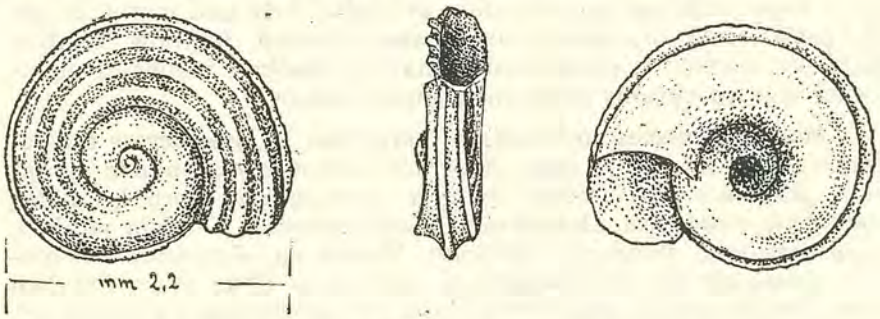


Fig. 2. — Sl. 2. Circulus tricarinatus (Smith)

Nordsieck (1968), however, distinguishes 2 species in generus *Circulus: striatus* (Phil.) = *duminyi* (Req.) = *philippi* (Cantr.) and *tricarinatus* (Smith). *Circulus striatus* has some similarites with var. *carinatulus* (Loc.) with one periferral wishbone, and per Nordsieck, the species spread in the Atlantic (Marroco and England) and Mediterranean regions.

Priolo (1968) in his revision »Nuova revisione delle conchiglie marine di Sicilia«, mentions only *Circulus striatus* with synonyms: *Valvata striata* (Phil.) *Delphinula duminyi, Delphinula costata, Adeorbis striatus, Skeneia striata, Trochus (Circulus) duminyi* Req., *Cyclostrema striata* Phil., *Skenea striata* Phil. *Delphinula striatus* Phil., rareness in *laminaria* zone and Palermo abisal and mentioning neither the *Circulus tricarinatus* Phil. species *tricarinata.*

Bucquo - Dautzenberg - Dollfus (1882) points out that *Circulus striatus* species is a variation of an ex-form of *tricarinata* Wood (Crag Mollusca, pl. XV, fig. 6) = *Delphinula triangulata* Rayn. et Ponzi = *Bicostata* Dan. et Sandri, and that it was collected alive in the Mediterranean near Monterosato. However, it can be concluded that it is a very rare species, so far not found in the Adriatic.

The collected sample from the Bay of Risan is 2,2 mm long with three characteristic marginal wishbones and three twisted ribs on the back side.

Cyrbasia pulchella (J e f f r i) was found in the Bay of Risan at position 5 a depth of 20 m on muddy sand bottom, which is rich in fauna but dominated with Echinodermata. This characteristic Gastropod was not found earlier in the Adriatic so that these data are the first ones presented (Figure 3). However, this species was earlier found in the Mediterrannean, Luzitan sea and Madeira. The sample is 5 mm long and represents a big specimen since the maximum length indicated earlier is 4 mm. Also, the specimen was found at a 20 m depth while the Mediterrannean ones were collected at 400-

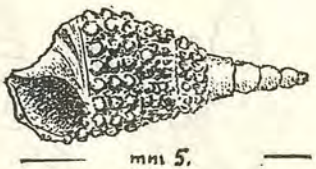


Fig. 3. — Sl. 3. Cyrbasia pulchella (Jeffr.)

-600 m. An important characteristic of the specimen are the spirals: the basal ones are broader and sharpened while the apical are narrow thus forming a smooth cylindar.

Our sample is also characteristic in regard of the number of spiral coils having 3 sharp ones extending into 5 smooth upper coils. The sample which N o r d s i e c k (1968) collected had 6 basal and 5 smooth upper coils.

Aporrhais pes-pelecani (L.). Although this species is very abundant, we collected only a small number of specimens (85) which provided interesting information (Fig. 4).

The upper, apical part of the specimens varies from well developed, solid *(alterutra* M o n t s) to very thin forms *(longispinulus* M o n t s). Among the speciments we found those belonging to the *venetianus* C o e n group in the *robustus oblongus* S e t t. form, with maximum length of 45 mm.

There are also samples which could be classified as *Aporrhais pes-pelecani major digitis longis perfecta* M o n t s. (rare form mentioned for Viareggio, S e t t.), *Aporrhais pes-pelecani digitus tribus* P h i l., *Aporrhais pes-pelecani longidigitatus* M o n t s. One sample represents the *monodigitata* P h i l. form.

One form differs from numerous findings by S e t t e p a s s i (1967) in that it has well developed lips of fine, sensitive structure,

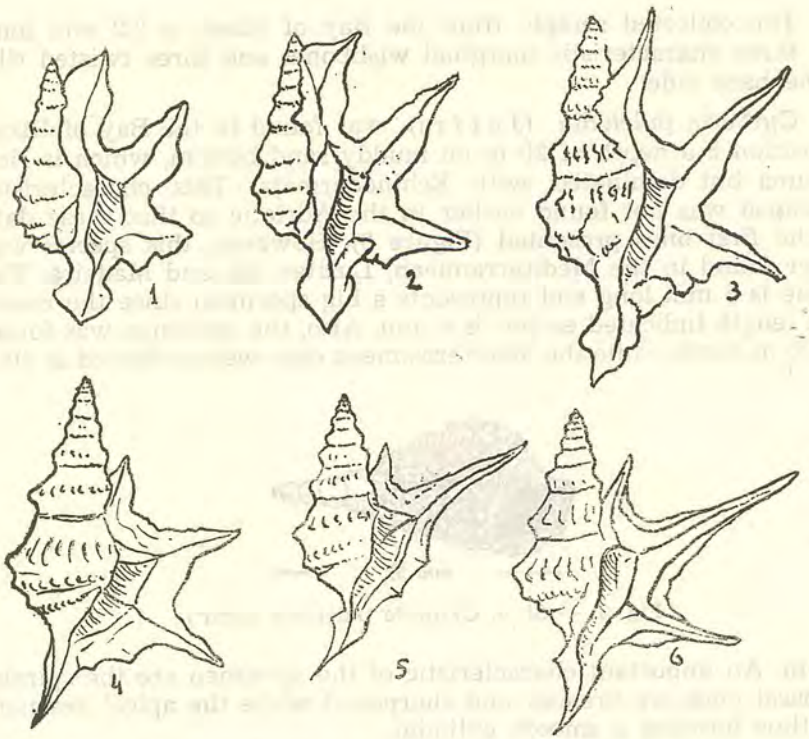


Fig. 4. — Sl. 4. Aporrhais pes-pelecani (L.)

1 - 2. Aporrhais pespelecani alterutra MONTS

3. Aporrhais pespelecani oblongus SETT.

4. Aporrhais pespelecani gracilis - expansilabrus PAREN. et STJEPČ.

5. Aporrhais pespelecani monodigitata PHIL.

6. Aporrhais pespelecani longispinulus MONTS

especially in young specimens; also, the two main inner coils are extended inside, beyond the lips. In order to make Settepassi' es observations more complete we will call this form *Aporrhais pes--pelecani gracilis-expansilabrus*. (Thus in the monography *Aporrhais* names of authors Parenzan and Stjepčević should be added to others of Monterosato, Coen, Bucquoy, Dautzenberg, Dollfus, Philippi, Bateson, Clement, Locard, Da Costa, De Gregorio, Risso, Settepassi).

The above investigations in the inner part of the Boka Kotorska Bay earlier recognized polymorphismus of *Aporrhais pes-pelecani;* Althought these findings are more than a century old, the interest is still very high.

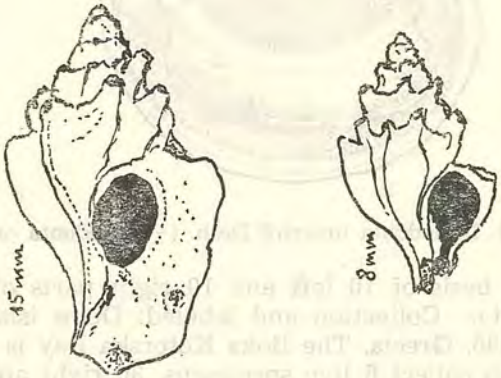


Fig. 5. — Sl. 5. Typhis sowerby Brod.

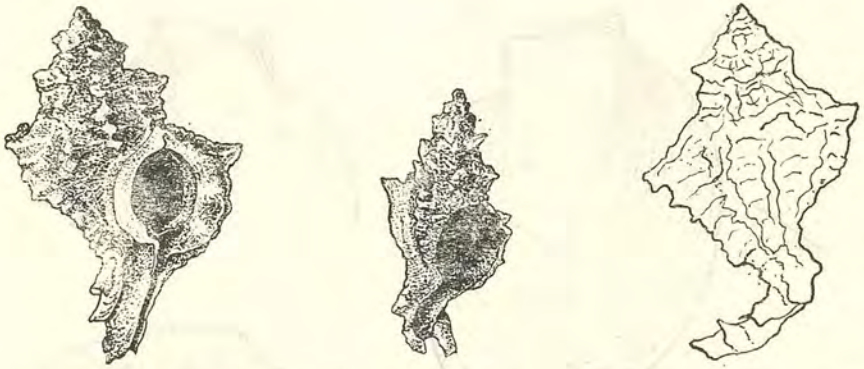


Fig. 6. — Sl. 6. Truncularis trunculus L.

Truncullariopsis trunculus L.

Truncullariopsis trunculus L. f. elongata

Certain forms of the Muricidae family are also interesting, particulary two specimens of *Typhis sowerby* Brod. of which one has an open syphon chanel (Fig. 5).

The species *Diplodonta brocchii* Desh. (=*Diplodonta orbiculata* Mts.) is also of interest and it was for the first time found inside of the Boka Kotorska Bay. Panetta (1972) provided a very detailed study of this species. Until now, *Diplodonta brocchii* was

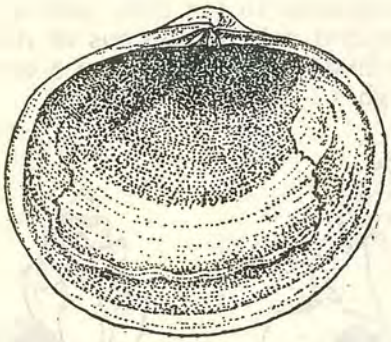


Fig. 7. — Sl. 7. Diplodonta brocchii Desh. (=Diplodonta orbiculata Mts.)

studied on the basis of 10 left and 10 right parts of shells in the Monterosato Collection and labeled: Delos island, Eleusis Greiston 1896, Grecia. The Boka Kotorska Bay is unique in that we were able to collect 6 live specimens, 30 right and 24 left parts of shells of *Diplodonta brocchii*. Accordigly, it can be concluded that this species is localised to the Egeian sea and the Boka Kotorska Bay.

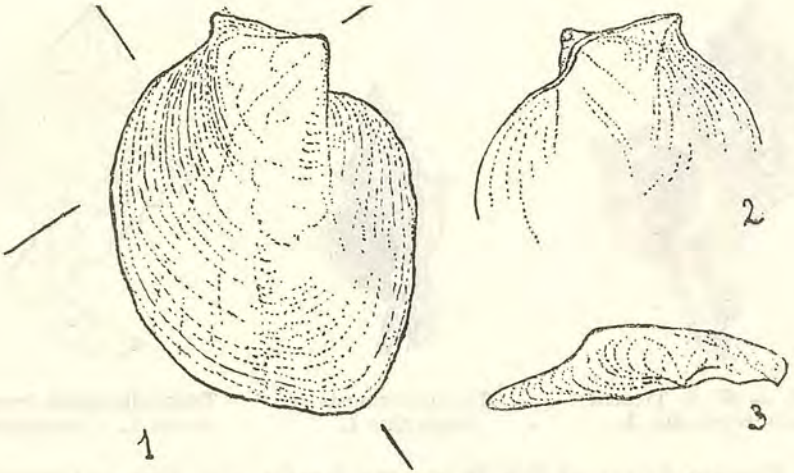


Fig. 8. — Sl. 8. Thyasira orahovaziana Parenzan 1971.

These investigations contribute to the systematics of Bivalvia whereby a new species from the Thyasiridae Dall family was discovered, namely *Thyasira orahovaziana* Parenzan (Parenzan, 1971) (Fig. 8). The species was found in the Bay of Kotor at a 2-3 m depth, close to Orahovac.

— In the area of inner part of Boka Kotorska Bay we have found 5 species of Amphineura, 3 species of Scaphopoda, 149 species of Gastropoda and 127 species of Bivalvia.

— On the bases of found and determinated species of investigated Mollusca, we can state that this area is evidently characterized by great number of species. This noticable quality is not followed by quantitative structure what as a result has relatively low number of speciments among majority of stated species.

— Within class Gastropoda we determinated also 8 subspecies as follows: within family Turritellidae one subspecie (*Turritella triplicata f. duplicata* /Sandri/), within Cerithiidae three subspecies (*Bittium reticulatum latreillei* /Payr/, *Cerithium vulgatum gracilis-elongatus* Sett., *Cerithium vulgatum spinosum* Blainv.), within Coralliophillidae one subspecies (*Coralliophila alucoides tectosinense* /Desh/), within Nassariidae one subspecies (*Hinia costulata subdiaphana* Ken.), within Mitridae one subspecies (*Mitra ebenus plicatula* /Brocchi/) and Turridae has one subspecies also (*Cythara attenuata striolata* /Risso/).

Within classe Bivalvia we found and determinated also 17 subspecies as follows: Within family Mytilidae we found two subspecies (*Mytilus galloprovincialis incurvatus* Monts., *Mytilaster lineatus lamarcki* B. D. D) , within Limidae one subspecies (*Mantellum hians mediterraneum* Monterosato), within Lucinidae one subspecies (*Lucinella divaricata elata* /B. D. D./), within Cardiidae four subspecies (*Parvicardium exigum parvum* /Phil./, *Cerastoderma glaucum batesoni* /B. D. D./,*Cerastoderma glaucum lamarcki* /Reeve/), within Veneridae one subspecies (*Chamelea gallina minor* B. D. D.), within Paphiidae two subspecies (*Venerupis decussata texta* B. D. D., *Venerupis decussata quadrangula* Jeffr.), within Tellinidae one subspecies (*Moerella donacina turtoni* B. D. D.), within Hiatellidae two subspecies (*Hiatella arctica elongata* /L./, *Hiatella arctica minuta* /L./), within Corbulidae one subspecies (*Corbula gibba curta* Loc.), within Castrochaenidae one subspecies (*Rocellaria dubia lata* Pallary) and family Thraciidae has one subspecies (*Thracia papyracea gracilis* Jeffreys).

Bucquoy, E. - Dautzenberg, Ph. - Dollfus, G. (1882, 1887-1898): Les Mollusques marins du Roussillon. J. B. Bailliére e Fils. Paris.

Brusina, S. (1866): Contribuzione della fauna dei Molluschi dalmati. I. R. Soc. Zool. Botan. Vienna.

Coen, G. S. (1914): Contributo allo studio della fauna malacologica adriatica. R. Com. Talassogr. Italiano. Mem. V. Venezia.

Coen, G. S., Vatova, A. (1932): Malacofauna arupiensis. Thalassia.

Coen, G. S. (1934): Due nuovi lamellibranchi adriatici. Venezia.

Dautzenberg, Ph. (1895): Mollusques recueillis surlles côtes de Tunisie. Mém. Soc. Zool. France, T. VIII.

Dautzenberg, Ph. (1910): Contribution à la Faune Malacologique de l' Afrique occidentale. Acta Soc. Linn. Bordeaux.

Gamulin - Brida, H. (1962): Biocenoze dubljeg litorala u kanalima srednjeg Jadrana. Acta Adriatica. Vol. IX, No 7, Split.

Gamulin - Brida, H. (1965): Biocenoza muljevitog dna otvorenog srednjeg Jadrana. Acta Adriatica. Vol. 10, No 10, Split.

Karaman, G. et Gamulin - Brida, H. (1970): Cotrnbution aux recherches des biocenoses benthiques du golfe de Boka Kotorska, Studia Marina, No 4, Kotor.

Kermarrec - Labisse, A. (1967): Note sur des *Aporrhais pespelecani* provenant de l'Adriatic et recueillis vivante à Ostende. Bull. Mus. Nat. Hist. Paris.

Marwick, J. (1957): Generic revision of the *Turritellidae*. Proc. Malacol. Soc. London.

Monterosato, T. (1872): Notizie intorno alle conchiglie mediterranee. Palermo.

Monterosato, T. (1875): Nuova rivista delle Conchiglie mediterranee. Atti Ac. Sci. Lett. et Arti. Palermo.

Monterosato, T. (1875): Poche note sulla conchigliologia mediterranea. Palermo.

Monterosato, T. (1879): Monografia dei Chitonidi del Mediterraneo. Giorn. Sc. Nat. Palermo.

Nobre, A. (1886): Faune malacologique des basins du Tage et du Sado (Portugal). Journ. de Conch. Vol. XXXIV. Paris.

Nobre, A. (1938-1940): Fauna malacologica de Portugal. I. Moluscos marinhos e das aguas salobras. P. XXXII, 807. Porto.

Nordsieck, F. (1968): Die europäischen Meeres-Gehäuseschnecken (Prosobranchia). Vom Eismeer bis Kapverden und Mittelmeer. Stuttgart.

Nordsieck, F. (1969): Die europäischen Meeresmuscheln (Bivalvia). Vom Eismeer dis Kapverden, Mittelmeer und Schwarzes Meer. Stuttgart.

Nordsieck, F. (1971): Kontinentale und abyssische Meeresmollusken des Jonischen Meeres. Arch. Moll. 101. Frankfurt.

Nordsieck, F. (1972): Die europäischen Meeresschenecken - *Opistobranchia* mit *Pyramidellidae: Rissoacae,* etc. Stuttgard.

Nordsieck, F. (1973): Molluschi abisali dello Jonio. »La Conchiglia«, VI/3.

Olivi, G. (1792): Zoologia adriatica, ossia catalogo regionato degli animali del golfo e delle lagune di Venezia. Bassano.

Pallary, P. (1906): Liste des Mollusques de la Rade de Tripoli. Soc. Linn. Lyon.

Panetta, P. (1970): Molluschi del Golfo di Taranto raccolti durante le crociere dell'Albatros. Ann. Mus. Civ. St. Nat. Vol. LXXVIII. Genova.

Panetta, P. (1971): Molluschi interesanti e nuovi del Golfo di Taranto. Atti Soc. It. Sci. Nat. e Mus. Civ. St. Nat. Milano.

Panetta, P. (1972): *Diplodonta brocchii* (Desh) nel Mediterraneo. Thalassio Salentina. No 6. Taranto.

Parenzan, P. (1933): Ricerche sulle biocenosi del Golfo di Napoli. Atti Soc. Ital. Progr. Scienze. Vol. III.

Parenzan, P. (1940): Contributo alla conoscenza dei fondi marini a sabbia del Mediterraneo. Boll. Idrob. Caccia e Pesca. A.O.I.

Parenzan, P. (1941): Biologia bentonica dei fondi marini a fango. Boll. Idrob. Caccia e Pesca dell'A.O.I.

Parenzan, P. (1956): Biocenologia del fondo marino a Zosteracee del Mediterraneo. Atti Conv. Un. Zool. Ital. Napoli.

Parenzan, P. (1971): *Thyasira orahovaziana* n. sp. delle Bocche di Cattaro Adriatico). Thalassia Salentina. No 5. Taranto.

Parenzan, P. (1970): Carta d'Indentità delle Conchiglie del Mediterraneo — Gasteropodi. Vol. I, 5-283. Taranto.

Parenzan, P. (1974): Carta d'Indentità delle Conchiglie del Mediterraneo — Bivalvi, I parte, 5-278. Taranto.

Parenzan, P. (1976): Carta d'Indentità delle Conchiglie del Mediterraneo — Bivalvi. Seconda parte, 283-546. Taranto.

Parenzan, P. (1961): Malacologia Jonica. Thalassia Jonica. Vol. IV. Taranto.

Peres, J. M. i Gamulin - Brida, H. (1973): Biološka oceanografija — Bentos. Bentoska biocenomija Jadranskog mora. Zagreb.

Priolo, O. (1967): Nuova revisione delle conchiglie marine di Sicilia. Atti Accadem. Gioenia Sc. Nat., Catania.

Riedl, R. (1970): Fauna und Flora der Adria. Parey, Hamburg u. Berlin.

Settepassi, F. (1967): Atlante Malacologico dei Molluschi marini viventi nel Mediterraneo. Mus. Civ. Zool. Roma.

Settepassi, F. (1968): A proposito della *Cypraea caurica* e del *Conus mediterraneus*. »Conchiglie«, No 3-4.

Soc. Malacologica Italiana — Schede Malacologiche del Mediterraneo. Razni autori. Milano.

Stjepčević, J. i Žunić, V. (1964): Bokokotorski zaliv — fiziografske osobine. Godišnjak Geografskog društva SR Crne Gore. Cetinje.

Stjepčević, J. (1967): Macro-Mollusca Bokokotorskog zaliva. Studia Marina, br. 2, Kotor.

Stjepčević, J. (1974): Ekologija dagnje (*Mytilus galloprovincialis* Lamk.) i kamenice (*Ostrea edulis* L.) u gajilištima Bokokotorskog zaliva. Studia Marina, br. 7, 3-254. Kotor.

Stjepčević, J. i Mandić, S. (1978): Nalazišta *Mitra zonata* Marryat (Gastropoda, Mitridae) na području južnog Jadrana. Biosistematika, Vol. 4, No 2, 319-326. Beograd.

PREGLED BENTOSKIH POPULACIJA MOLLUSCA UNUTRAŠNJEG DIJELA BOKOKOTORSKOG ZALIVA

Jovan STJEPČEVIĆ, Pietro PARENZAN,
Sreten MANDIĆ i Ratomir DRAGOVIĆ

Kratak sadržaj

Na litoralnom području Crnogorskog primorja, a prema tome i na području Bokokotorskog zaliva, i pored njegovog specifičnog položaja i uslova života, ovakva i slična istraživanja bentoskih populacija Mollusca do sada uopšte nijesu vršena.

Stanja i promjene u naselju Mollusca mogu biti veoma interesantna s gledišta uticaja raznih vrsta polutanata, kojima su ovi organizmi izloženi na području unutrašnjeg dijela Bokokotorskog zaliva, samim tim što je velika većina Mollusca vezana za morsko dno, bilo putem sesilnosti, hemisesilnosti ili vagilnosti, tako da im je životni areal sveden na vrlo uzani prostor, osim nekih vrsta Cephalopoda.

Zbog ograničenog prostora i relativno malih dubina (prosječna dubina u unutrašnjem dijelu Zaliva iznosi 26,35 m) istraživana naselja Mollusca pripadaju litoralnom ili eufotskom sistemu Jadranskog mora i to supra, medio i infralitoralne stepenice.

Infralitoralna stepenica je područje optimalnih uslova za najveći broj Mollusca na istraživanom području. Ovu stepenicu karakteriše bujna vegetacija algi i morskih cvjetnica na kojima Mollusca čini glavni fital.

Na istraživanom području dosta dobro je razvijena biocenoza obalnih terigenih muljeva i ona zahvata najveći i to centralni dio unutrašnjeg dijela Zaliva, a samo je parcijalno modifikovana i to na onim djelovima, ovog dijela Zaliva, gdje je prisutan znatan priliv kopnenih voda. Ova biocenoza sadrži četiri etološke skupine, koje karakterišu istražene vrste Mollusca (endobionti, pivotanti, epibionti sedimenta i sesili).

Populacije Mollusca na istraživanom području Zaliva odlikuju se relativno velikim brojem vrsta, tj. kvalitativna komponenta je u ovom dijelu Zaliva izrazitija nego što se moglo očekivati, s obzirom na specifične uslove života. Specifičan položaj unutrašnjeg dijela Bokokotorskog zaliva uzrokovan dubokom usječenošću u kopno, zatim velikim prilivom kopnenih voda, uslovljava druačije uslove života nego u spoljašnjem dijelu Zaliva, a posebno u odnosu na otvoreni dio ispred Zaliva i duž istočne obale Crnogorskog primorja. Može se

pretpostaviti da abiotski faktori, prvenstveno temperatura i salinitet, utiču na kvalitativno-kvantitativnu disribuciju Mollusca istraživanog područja.

Na istraživanom području registrovali smo: 5 vrsta Amphineura, 3 vrste Scaphopoda, 149 vrsta Gastropoda i 127 vrsta Fivalvia, a koji su prikazani u radu.

Ovim istraživanjima stekla se dosta tačna slika o kvalitativnom sastavu Mollusca unutrašnjeg dijela Bokokotorskog zaliva. Kao što se vidi ovo područje se odlikuje velikim brojem vrsta. Naprotiv, tako izražen kvalitet ne prati i kvantitativni sastav, a što smo konstatovali relativno malim brojem jedinki u okviru većine analiziranih vrsta.

U okviru klase Gastropoda determinirano je i 8 podvrsta, dok je u okviru klase Bivalvia određeno i proučeno 17 podvrsta.