



An Annotated Checklist of the Marine Molluscs of the South Adriatic Sea (Montenegro) and a Comparison with Those of Neighbouring Areas

Slavica Petović^{1,*}, Sladana Gvozdrenović¹, Zdravko Ikica¹

¹ Institute of Marine Biology, Dobrota bb, 85330 Kotor, Montenegro

* Corresponding Author: Tel.: +38.263 204926; Fax: +38.232 334570;
E-mail: kascelanslavica@gmail.com

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Abstract

Published literature on the molluscs of Montenegro (South Adriatic Sea) is still very scarce. As a baseline for future studies that will enhance the knowledge of this fauna, we have compiled a checklist combining the existing published data with original data from a recent research. Examination of sampled material and a review of the relevant literature revealed the presence of 354 mollusc species. Twelve species have been recorded for the first time in Montenegrin waters, 7 species are of non-native origin while 14 taxa are recognized as endangered and threatened, according to the IUCN Red List and the Barcelona/Berne Conventions. A comparison of our results with those of the neighbouring seas indicates that mollusc fauna is insufficiently studied, but we should bear in mind that the number of recorded species in relation to the size of the researched area points to a rich malacofauna zone.

Keywords: Marine molluscs, checklist, alien species, Montenegro, Adriatic Sea.

Introduction

Molluscs are important components of marine communities worldwide, comprising up to 15–25% of the benthic macrofauna (Sabelli, Giannuzzi-Savelli, & Bedulli, 1990). These animals are mainly benthic, but some gastropods are holoplanktic, whereas cephalopods are mostly nectonic organisms (Sabelli & Taviani, 2014). They play important roles in the ecosystem structure and the maintenance of biodiversity (Zenetos, 1997). Furthermore, some molluscs have been widely used in monitoring studies of various contaminants worldwide, because of their economic and ecological importance (Štajn *et al.*, 2002).

The earliest study on mollusc fauna in the Adriatic Sea was performed in the Venetian Lagoon (Olivi, 1792). Later, throughout the nineteenth and twentieth centuries, new data from the Gulf of Trieste as well as northern and central parts of the eastern coast (Dalmatia) were documented by many authors (Danilo & Sandri, 1855; Brusina, 1866; Coen, 1914; Vatova, 1949; Cossignani, Cossignani, Di Nisio, & Passamonti, 1992; Hrs-Brenko, 1997). Data on molluscs from the south-eastern Adriatic coast are scarce and most of the literature deals with benthic communities (Karaman & Gamulin-Brida, 1970; Stjepčević & Parenzan, 1980; Gamulin-Brida, 1983).

From a geomorphologic viewpoint, the Montenegrin coast can be divided into two main parts: the Bay of Boka Kotorska and the open sea. Given that Boka Kotorska Bay is a more suitable area for aquaculture, more intensive studies on the malacofauna have been performed there (i.e., Stjepčević, 1967, 1970; Stjepčević & Parenzan, 1982), while cephalopods have been studied in more detail in the open sea (Mandić, 1973a, 1984). In recent years, great interest has been focused on alien species (Katsanevakis, 2011; Mačić, 2013).

In writing this paper we attempted to collect all available data regarding malacofauna from the South Adriatic continental shelf (Montenegro) with the aim of deepening our knowledge about species diversity. Furthermore, the data are compared with the fauna of the adjacent seas with a view to obtaining a better understanding of species presence.

Materials and Methods

To prepare the present checklist, we reviewed all the available scientific and grey literature records of molluscs published in the study area during the last 60 years, and for each listed species, the reference in which the species was reported, its habitats and an indication of its location on the Montenegrin coast were noted. The taxa were checked for the present

valid nomenclature and the classification was arranged according to the CLEMM database.

Given that previous studies on molluscs have mostly been focused on the Bay of Boka Kotorska, new research was done at the open-sea sites to complete our knowledge of the present species. A survey was carried out from April to June 2015. Material was collected at 11 stations at depths of up to 30 m using a van Veen grab and scuba diving (Table 1, Figure 1). At each station, at least three replicates were performed. The material was fixed in a 10% seawater-formalin solution and then rinsed through a sieve with a 0.5mm mesh size in the laboratory and sorted into its component taxonomic groups under a stereomicroscope, and the molluscs were identified to species level.

Results and Discussion

The compiled inventory of the molluscs and their distributions within two divisions of the Montenegrin continental shelf, namely the Bay of Boka Kotorska or the open sea, is presented in Table 2. According to the created checklist, a total of 354

species are known, divided into 122 families. Among the mollusc classes represented along the Montenegrin coast, the class Gastropoda dominates, with 198 species, followed by Bivalvia (131 species). The class Cephalopoda is represented by 17 species, the Scaphopoda by 5 species and the class Polyplacophora by 3 species.

References in Table 2R1. Stjepčević, 1967; R2. Karaman & Gamulin-Brida, 1970; R3. Stjepčević, 1970; R4. Stjepčević & Parenzan, 1980; R5. Stjepčević & Parenzan, 1982; R6. Mandić, 1984; R7. Mandić, 1973a; R8. Mandić & Stjepčević, 1983; R9. Hrs-Brenko, 1983; R10. Mandić, Stjepčević, & Dragović, 1982; R11. Stjepčević, 1974; R12. Mandić, 1973b; R13. Badalamenti, Garcia Charton, Cebrián, Mačić, & Kaščelan, 2008; R14. Fant *et al.*, 2012; R15. Badalamenti, Garcia Charton, Treviño-Otón, Mačić, & Cebrian, 2012; R16. RAC-SPA, 2013; R17. Štajn *et al.*, 2002; R18. Mačić, 2013; R19. EPA, 2011; R20. Zenetos *et al.*, 2015; R21. Doneddu, Trainito, & Mačić 2013.

The checklist for the Montenegrin molluscs summarizes the knowledge of the diversity and distribution of known species from 1967 to the

Table 1. Locations, coordinates, sampling gears, depth and biotope characteristics of the sampling points

Stations	Coordinates		Sampling gear	Depth (m)	Biotopes
	Lat.	Long.			
Ada Bojana	41°51'58.78"	19°20'02.42"	Grab	2.7	Fine sand
Port Milena	41°54'15.93"	19°14'17.10"	Grab	5.5	Fine sand
Valdanos	41°57'17.59"	19°09'27.69"	Grab	15	Muddy sand
Veliki pijesak	42°02'01.87"	19°08'24.72"	Grab	2.5	Sand
Kraljičina plaža	42°09'48.22"	18°59'15.79"	Grab	7	Sand
Kalafat	42°19'44.65"	18°41'16.42"	Grab	25	Coarse sand
Trsteno	42°16'47.84"	18°47'15.25"	Grab	5,5	Muddy sand
Budva	42°16'59.6"	18°50'55.3"	SCUBA	4.5	Stone, sand
Platamuni	42°15'58.63"	18°47'38.29"	Grab	30	Muddy sand
Oblatno	42°22'51.90"	18°39'19.06"	Grab	15	Muddy sand
Dobreč	42°24'41.61"	18°33'27.72"	Grab	19	Sand

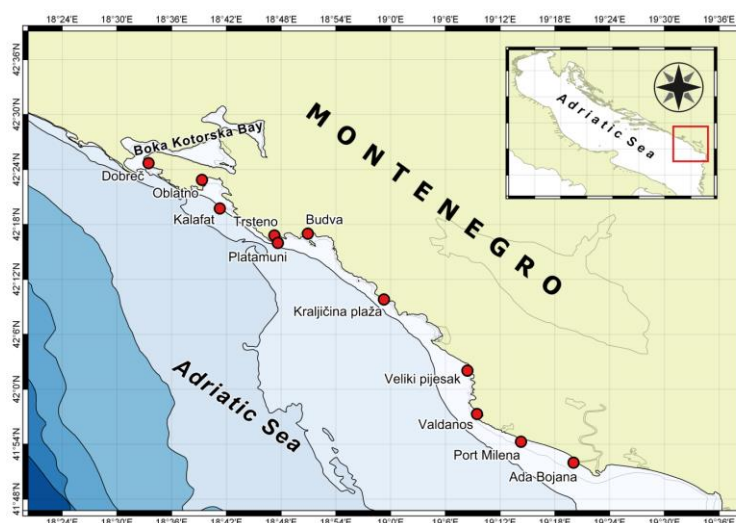


Figure 1. Map of sampling points.

Table 2. The checklist of marine molluscs of Montenegro (the southeastern Adriatic Sea) with a reference in which the species was reported from the Montenegrin coast, locations (BKB = Boka Kotorska Bay; OS = Open sea); Habitat (Hs = hard substratum; Ss = soft substratum; P = pelagic; D = demersal; Pz = parasite); * = alien species; # = endangered or threatened species; PS = personal study and their presence in neighbouring seas (Cro-Croatian waters; Al-Albanian waters and SI-South Italy)

Group/Species	References	BKB	OS	Habitat	Cro.	Al.	SI
POLYPLACOPHORA							
Chitonidae							
<i>Chiton corallinus</i> (Risso,1826)	R4;R5;R16	x		Hs;Ss	x		x
<i>Chiton olivaceus</i> Spengler, 1797	R1;R4;R5	x		Hs;Ss	x	x	x
Acanthochitonidae							
<i>Acanthochiton fascicularis</i> (Linnaeus, 1767)	R4;R5	x		Hs;Ss	x	x	x
GASTROPODA							
Patellidae							
<i>Patella caerulea</i> (Linnaeus, 1758)	R4;R5	x		Hs	x	x	x
<i>Patella rustica</i> (Linnaeus, 1758)	R4;R5	x		Hs	x	x	x
<i>Patella vulgata</i> (Linnaeus, 1758)	R1;R4;R5	x		Hs	x		
Fissurellidae							
<i>Diodora gibberula</i> (Lamarck,1822)	R1;R4;R5	x		Hs;Ss	x	x	x
<i>Diodora graeca</i> (Linnaeus,1758)	R1;R4;R5;PS	x	x	Hs;Ss	x	x	x
<i>Diodora italica</i> (Defrance,1820)	R1;R4;R5	x		Hs;Ss		x	x
<i>Emarginula huzardii</i> Payraudeau,1826	R4;R5	x		Hs;Ss	x	x	
<i>Emarginula fissura</i> (Linnaeus,1758)	R1;R4;R5	x		Hs;Ss	x	x	x
<i>Emarginula octaviana</i> Coen, 1939	R4;R5	x		Hs;Ss		x	x
<i>Puncturella noachina</i> (Linnaeus,1771)	R4;R5	x		Hs;Ss			x
Haliotidae							
<i>Haliotis tuberculata tuberculata</i> Linnaeus, 1758	R1;R4;R5;	x	x	Hs;Ss	x		x
Trochidae							
<i>Clanculus corallinus</i> (Gmelin,1791)	R1;R4;R5	x		Hs;Ss	x	x	x
<i>Clanculus cruciatus</i> (Linnaeus, 1758)	R4;R5	x		Hs;Ss	x	x	x
<i>Clelandella miliaris</i> (Brocchi, 1814)	R16;R16	x		Ss		x	x
<i>Gibbula umbilicaris</i> (Linnaeus,1758)	R1	x		Hs;Ss	x	x	x
<i>Gibbula adriatica</i> (Philippi, 1844)	R1	x		Hs		x	x
<i>Gibbula albida</i> (Gmelin,1791)	R4;R5;	x		Hs;Ss	x	x	x
<i>Gibbula divaricata</i> (Linnaeus,1758)	R1;R4;R5	x		Hs;Ss	x	x	x
<i>Gibbula drepanensis</i> (Brugnone,1873)	R5	x		Hs;Ss			x
<i>Gibbula fanulum</i> (Gmelin,1791)	R4;R5	x		Hs;Ss	x		x
<i>Gibbula guttadauri</i> (Philippi,1836)	R4;R5	x		Ss			x
<i>Gibbula magus</i> (Linnaeus,1758)	R1;R2;R4;R5	x		Hs;Ss	x		x
<i>Gibbula philberti</i> (Récluz,1843)	R4;R5	x		Hs;Ss			x
<i>Gibbula rarilineata</i> (Michaud,1829)	R4;R5	x		Hs;Ss	x	x	x
<i>Gibbula varia</i> (Linnaeus,1758)	R4;R5	x		Hs;Ss	x	x	x
<i>Phorcus richardi</i> (Payraudeau, 1826)	R4;R5	x		Hs;Ss		x	
<i>Jujubinus exasperatus</i> (Pennant,1777)	R4;R5	x		Hs;Ss		x	x
<i>Jujubinus striatus</i> (Linnaeus,1758)	R1;R4;R5	x		Hs;Ss	x	x	x
<i>Phorcus articulatus</i> (Lamarck, 1822)	R4;R5	x		Hs	x	x	x
<i>Phorcus mutabilis</i> (Philippi, 1846)	R4;R5	x		Hs	x	x	x
<i>Phorcus turbinatus</i> (Born, 1778)	R1	x		Hs	x	x	x
Calliostomatidae							
<i>Calliostoma conulus</i> (Linnaeus, 1758)	R1;R4;R5	x		Hs;Ss	x	x	x
<i>Calliostoma laugierii</i> (Payraudeau, 1826)	R1	x		Hs;Ss	x	x	x
<i>Calliostoma zizyphinum</i> (Linnaeus,1758)	R1;R4;R5	x		Hs;Ss	x	x	x
Turbinidae							
<i>Bolma rugosa</i> (Linnaeus,1767)	R1;R4;R5	x		Hs;Ss	x	x	x
Phasianellidae							
<i>Tricolia pullus</i> (Linnaeus, 1758)	PS		x	Hs;Ss	x	x	x
Colloniidae							
<i>Homalopoma sanguineum</i> (Linnaeus, 1758)	R1;R2;PS	x		Hs;Ss	x	x	x
Neritidae							

Table 2. Continued

Group/Species	References	BKB	OS	Habitat	Cro.	Al.	SI
<i>Smaragdia viridis</i> (Linnaeus,1758)	R4;R5;PS	x	x	Hs;Ss	x	x	x
Cerithiidae							
<i>Bittium latreillii</i> (Payraudeau, 1826)	R13;R15;R19;PS	x	x	Hs;Ss	x	x	x
<i>Bittium reticulatum</i> (da Costa, 1778)	R4;R5;R16;PS	x	x	Hs;Ss	x	x	x
<i>Bittium submamillatum</i> (de Rayneval & Ponzi, 1854)	R16	x		Ss			
<i>#Cerithium vulgatum</i> Bruguière, 1792	R1;R2;R4;R5	x		Hs;Ss	x	x	x
Turritellidae							
<i>Turritella communis</i> (Risso,1826)	R2;R4;R5;PS	x	x	Hs;Ss	x	x	x
<i>Turritella turbona</i> (Monterosato, 1877)	R4;R5;R16	x		Hs;Ss	x	x	x
Triphoridae							
<i>Monophorus perversus</i> (Linnaeus, 1758)	R4;R5	x		Hs;Ss		x	
<i>Marshallora adversa</i> (Montagu, 1803)	R4;R5;PS	x		Hs;Ss	x		x
<i>Metaxia metaxa</i> (Delle Chiaje 1828)	R4	x		Ss	x		x
<i>Strobiligera brychia</i> (Bouchet & Guillemot, 1978)	R4;R5	x		Ss			
Cerithiopsidae							
<i>Cerithiopsis jeffreysi</i> (Watson, 1885)	R4;R5	x		Ss			x
Epitoniidae							
<i>Epitonium clathrus</i> (Linnaeus,1758)	R4;R5;PS	x	x	Hs;Ss	x		
<i>Epitonium muricatum</i> (Risso, 1826)	R4;R5	x		Hs;Ss			
<i>Epitonium turtonis</i> (Turton, 1819)	R4;R5	x		Hs;Ss			x
Eulimidae							
<i>Eulima glabra</i> (da Costa,1778)	R1;R2;R4;R5;R16	x		Pz	x	x	x
<i>Melanella alba</i> (da Costa, 1778)	PS		x	Ss			
<i>Melanella compactilis</i> (Locard, 1892)	R4	x		Ss			
Littorinidae							
<i>Melarhapha neritoides</i> (Linnaeus, 1758)	R1;R5	x		Hs	x	x	x
Rissoidae							
<i>Alvania cancellata</i> (da Costa, 1778)	R4;R5	x		Hs;Ss			x
<i>Alvania lineata</i> (Risso, 1826)	R16	x		Hs;Ss	x	x	x
<i>Alvania cimex</i> (Linnaeus,1758)	R4;R5	x		Hs;Ss	x	x	x
<i>Alvania cimicoides</i> (Forbes, 1844)	R4;R5	x		Hs;Ss	x	x	
<i>Alvania hispidula</i> (Monterosato, 1884)	R4;R5	x		Ss	x	x	x
<i>Peringiella elegans</i> (Locard, 1892)	R4;R5	x		Hs;Ss			
<i>Pusillina marginata</i> (Michaud, 1830)	R4;R5	x		Hs;Ss		x	x
<i>Rissoa guerinii</i> (Récluz,1843)	R4;R5	x		Hs;Ss	x		x
<i>Rissoa membranacea</i> (Adams J., 1800)	R4;R5	x		Hs;Ss			
<i>Rissoa monodonta</i> (Philippi,1836)	R4;R5	x		Ss	x	x	x
<i>Rissoa parva</i> (da Costa, 1778)	R4;R5	x		Hs;Ss	x		
<i>Rissoa splendida</i> (Eichwald,1830)	R5;R16	x		Hs;Ss	x		
<i>Setia ambigua</i> (Brugnone, 1873)	R4;R5	x		Hs;Ss			
Caecidae							
<i>Caecum trachea</i> (Montagu, 1803)	R4;R5	x		Hs;Ss	x		x
<i>Parastrophia asturiana</i> de Folin, 1870	R4;R5	x		Ss			
Hydrobiidae							
<i>Peringia ulvae</i> (Pennant, 1777)	R4;R5	x		Ss		x	
Iravadiidae							
<i>Hyalia vitrea</i> (Montagu, 1803)	R4;R5	x		Ss			x
Tornidae							
<i>Circulus striatus</i> (Philippi, 1836)	R4;R5	x		Ss	x		x
Vermetidae							
<i>Thylacodes arenarius</i> (Linnaeus, 1758)	R1;R13;R15;R16;R19	x	x	Hs	x		
<i>Petalconchus glomeratus</i> (Linnaeus, 1758)	R4;R5	x		Hs	x	x	x
Aporrhaidae							
<i>Aporrhais pespelecani</i> (Linnaeus, 1758)	R1;R2;R4;R5;R16	x		Ss	x	x	x
Calyptraeidae							
<i>Calyptraea chinensis</i> (Linnaeus, 1758)	R1;R2;R4;R5;R16	x		Ss	x	x	x
<i>Crepidula moulinsii</i> (Michaud, 1829)	R1;R2;R4;R5	x		Hs;Ss	x		

Table 2. Continued

Group/Species	References	BKB	OS	Habitat	Cro.	Al.	SI
Capulidae							
Capulus ungaricus (Linnaeus, 1758)	R1	x		Hs;Ss		x	x
Triviidae							
Trivia multilirata (Sowerby,G: B. II, 1870)	R1;R2	x		Ss		x	
Cypraeidae							
#Luria lurida (Linnaeus, 1758)	R1;R19	x	x	Hs	x	x	x
#Zonaria pyrum (Gmelin, 1791)	R1	x		Hs	x	x	x
#Erosaria spurca (Linnaeus, 1758)	R1	x		Hs;Ss	x		x
Ovulidae							
Pseudosimnia adriatica (Sowerby,G: B. II, 1870)	R1;R2	x		Hs	x		
Naticidae							
Euspira macilenta (Philippi, 1844)	R16;R16	x		Hs;Ss		x	x
Euspira nitida (Donovan, 1804)	R1;R2;R4;R5	x		Ss			
Natica hebraea (Martyn,1786)	R1;R2;R4;R5;PS	x	x	Hs;Ss	x	x	
Euspira catena (da Costa, 1778)	PS		x	Hs;Ss	x	x	x
Euspira intricata (Donovan, 1804)	R4	x		Hs;Ss	x		
Notocochlis dillwynii (Payraudeau, 1826)	R4;R5	x		Hs;Ss	x	x	x
Neverita josephina (Risso, 1826)	R1;PS	x	x	Ss	x	x	x
Natica stercusmuscarum (Gmelin, 1791)	R1;R2;R4;R5	x		Ss		x	x
Tonnidae							
#Tonna galea (Linnaeus, 1758)	R1;R2;PS	x	x	Ss	x	x	x
Ranellidae							
Cabestana cutacea (Linnaeus, 1767)	R21		x	Ss			
Cassidae							
Galeodea echinophora (Linnaeus,1758)	R1;R2;R5	x		Ss	x	x	x
Muricidae							
Bolinus brandaris (Linnaeus, 1758)	R1;R2;R4;R5;R16	x		Hs;Ss	x	x	x
Coralliophila squamosa (Bivona Ant. in Bivona And., 1838)	R4;R5	x		Hs;Ss			x
Hexaplex trunculus (Linnaeus, 1758)	R1;R2;R4;R5;R13;R15;R16;R19	x		Hs;Ss	x	x	x
Muricopsis cristata (Brocchi,1814)	R4;R5	x		Hs	x	x	x
Ocenebra erinaceus (Linnaeus, 1758)	R1	x		Hs;Ss	x	x	
Stramonita haemastoma (Linnaeus, 1767)	R15;PS		x	Hs	x		x
Marginellidae							
Granulina marginata (Bivona Ant., 1832)	R1;R4;R5	x		Hs;Ss		x	x
Costellariidae							
Vexillum tricolor (Gmelin,1791)	R1;R4;R5	x		Hs;Ss	x	x	x
Vexillum luculentum (Reeve, 1845)	R4	x		Hs;Ss			
Vexillum acuminatum (Gmelin, 1791)	R4	x		Hs;Ss	x		
Buccinidae							
Euthria cornea (Linnaeus, 1758)	R1;R4;R5	x		Hs;Ss	x		
Pollia dorbignyi (Payraudeau, 1826)	R4;R5	x		Hs;Ss		x	x
Pisania striata (Gmelin, 1791)	R1;R4;R5	x		Hs;Ss		x	x
Nassariidae							
Cyclope neritea (Linnaeus,1758)	R1;R4;R5	x		Hs;Ss		x	x
Nassarius corniculum (Olivi, 1792)	R4;R5	x		Ss	x		x
Nassarius cuvierii (Payraudeau, 1826)	R4;R5	x		Hs;Ss	x		x
Nassarius mutabilis (Linnaeus,1758)	R1	x		Ss	x	x	x
Nassarius pygmaeus (Lamarck, 1822)	R1;R2;R4;R5;R16	x		Hs;Ss		x	x
Nassarius reticulatus (Linnaeus, 1758)	R1	x		Hs;Ss	x	x	x
Nassarius incrassatus (Strøm, 1768)	R4;R5;PS	x	x	Hs;Ss	x	x	x
Columbellidae							
Columbella rustica (Linnaeus, 1758)	R1;R4;R5	x		Hs;Ss	x	x	x
Mitrella scripta (Linnaeus,1758)	R4;R5	x		Hs;Ss			x
Fascioliariidae							
Fusinus pulchellus (Philippi,1840)	R1;R4;R5	x		Ss			x
Fusinus rostratus (Olivi,1792)	R1;R2;R4;R5	x		Hs;Ss	x		

Table 2. Continued

Group/Species	References	BKB	OS	Habitat	Cro.	Al.	SI
<i>Fusinus parvulus</i> (Monterosato, 1884)	R4;R5	x		Ss			
<i>Fusinus syracusanus</i> (Linnaeus, 1758)	R1;R2;R4;R5	x		Hs;Ss	x		x
<i>Tarantinaea lignaria</i> (Linnaeus, 1758)	R13;R15;R19		x	Hs			x
Conidae							
<i>Conus ventricosus</i> (Gmelin, 1791)	R1;R4;R5	x		Hs;Ss	x		
Horaiclavidae							
<i>Haedropleura septangularis</i> (Montagu, 1803)	R4;R5	x		Ss			x
Mangeliidae							
<i>Bela brachystoma</i> (Philippi, 1844)	R4;R5	x		Ss	x		x
<i>Bela taprurensis</i> (Pallary, 1904)	R4;R5	x		Ss			x
<i>Mangelia attenuata</i> (Montagu, 1803)	R4;R5;R16	x		Ss	x	x	x
<i>Mangelia costulata</i> Risso, 1826	R4;R5	x		Ss			x
<i>Mangelia striolata</i> Risso, 1826	R4;R5	x		Ss			x
<i>Mangelia scabrida</i> Monterosato, 1890	R4;R5	x		Ss	x		x
<i>Mangelia stosciana</i> Brusina, 1869	R4;R5	x		Ss			x
<i>Mangelia unifasciata</i> (Deshayes, 1835)	R4;R5;R16	x		Hs;Ss	x		x
Raphitomidae							
<i>Raphitoma aequalis</i> (Jeffreys, 1867)	R16	x		Ss			
<i>Raphitoma philberti</i> (Michaud, 1829)	R4;R5	x		Ss			
<i>Raphitoma purpurea</i> (Montagu, 1803)	R4;R5	x		Hs;Ss	x		
<i>Raphitoma echinata</i> (Brocchi, 1814)	R4;R5	x		Hs;Ss		x	x
<i>Raphitoma cordieri</i> (Payraudeau, 1826)	R4;R5	x		Ss			x
Mathildidae							
<i>Mathilda quadricarinata</i> (Brocchi, 1814)	R4;R5	x		Hs;Ss			
Pyramidellidae							
<i>Eulimella acicula</i> (Philippi, 1836)	R4	x		Pz	x		
<i>Eulimella scillae</i> (Scacchi, 1835)	R4;R5	x		Pz	x	x	x
<i>Megastomia conoidea</i> (Brocchi, 1814)	R4;R5	x		Pz		x	x
<i>Turbonilla delicata</i> (Monterosato, 1874)	R4;R5	x		Pz	x		
<i>Turbonilla gradata</i> (Bucquoy, Dautzenberg & Dollfus, 1883)	R4;R5	x		Pz	x		x
<i>Turbonilla lactea</i> (Linnaeus, 1758)	R4;R5	x		Pz		x	x
<i>Turbonilla pusilla</i> (Philippi, 1844)	R4;R5	x		Pz			x
Acteonidae							
<i>Acteon tornatilis</i> (Linnaeus, 1758)	R4;R5;R16;R20	x		Hs;Ss	x	x	
Ringiculidae							
<i>Ringicula auriculata</i> (Ménard de la Groye, 1811)	R4;R5;R16;R20	x		Ss			x
<i>Ringicula conformis</i> (Monterosato, 1877)	R4;R5;R20	x		Hs;Ss	x		x
<i>Ringicula gianninii</i> Nordsieck, 1974	R4;R5;R20	x		Ss		x	
Bullidae							
<i>Bulla striata</i> (Bruguère, 1792)	PS		x	Ss	x	x	x
Haminoeidae							
<i>Haminoea hydatis</i> (Linnaeus, 1758)	R4;R5;R20	x		Hs;Ss	x	x	x
<i>Haminoea navicula</i> (da Costa, 1778)	R4;R5;R20	x		Ss	x	x	x
<i>Weinkauffia turgidula</i> (Forbes, 1844)	R4;R20	x		Ss	x		x
Philinidae							
<i>Philine quadripartita</i> Ascanius, 1772	R1;R2;R4;R5;R20	x		Hs;Ss	x		
<i>Philine scabra</i> (O. F. Müller, 1784)	R4;R5;R20	x		Ss	x		
Cyllichnidae							
<i>Cyllichna cylindracea</i> (Pennant, 1777)	R4;R5;R20	x		Ss	x	x	x
Retusidae							
<i>Volvulella acuminata</i> (Bruguère, 1792)	R20		x	Ss	x		x
Plakobrachidae							
<i>Elysia timida</i> (Risso, 1818)	R20		x	Hs	x		x
<i>Thuridilla hopei</i> (Vérany, 1853)	R16;R20	x	x	Hs;Ss	x		
Umbraculidae							
<i>Umbraculum umbraculum</i> (Lightfoot, 1786)	R20		x	Hs	x	x	x
Tyloidinidae							
<i>Tyloidina perversa</i> (Gmelin, 1791)	R20		x	Hs	x		x
Akeridae							

Table 2. Continued

Group/Species	References	BKB	OS	Habitat	Cro.	Al.	SI
<i>Akera bullata</i> O. F. Müller, 1776	R4;R5;R20	x	x	Ss	x		x
Aplysiidae							
<i>Aplysia depilans</i> (Gmelin, 1791)	R20	x		Hs;Ss	x	x	x
* <i>Aplysia dactylomela</i> (Rang, 1828)	R20	x		Hs	x		
<i>Aplysia fasciata</i> poiret, 1789	R20		x	Hs	x		x
* <i>Bursatella leachi</i> de Blainville, 1817	R16;R18;R20	x		Ss	x		
Dorididae							
<i>Doris bertheloti</i> (d'Orbigny, 1839)	R20	x		Ss	x		
Discodorididae							
<i>Atagema rugosa</i> Pruvot-Fol, 1951	R20	x		Hs	x		
<i>Baptodoris cinnabarina</i> Bergh, 1884	R20	x		Hs	x		
<i>Geitodoris portmanni</i> (Schmekel 1972)	R16	x		Hs			
<i>Discodoris erubescens</i> Bergh 1884	R20		x	Hs			
<i>Platydorhis argo</i> (Linnaeus, 1767)	R16	x		Hs	x		
<i>Peltodoris atromaculata</i> (Bergh, 1880)	R13;R15;R19;R20		x	Hs;Ss	x	x	
Chromodorididae							
<i>Felimare orsinii</i> (Vérany, 1864)					x		
<i>Felimare picta</i> (Schultz in Philippi, 1836)	R15;R16;R20	x	x	Hs	x	x	
<i>Felimare tricolor</i> (cantraine, 1835)	R20	x		Hs	x	x	
<i>Felimida krohni</i> (Vérany, 1846)	R13;R15;R19;R20		x	Hs	x		
<i>Felimida luteorosea</i> (Rapp, 1827)	R20		x	Hs	x		
Phyllidiidae							
<i>Phyllidia flava</i> (Aradas, 1847)	R15		x	Hs	x		
Dendrodorididae							
<i>Doriopsilla areolata</i> Bergh, 1880	R20	x		Hs		x	
Calycidorididae							
<i>Diaphorodoris papillata</i> Portmann & Sandmeier, 1960	R20	x		Hs	x		
Tritoniidae							
<i>Tritonia nilsodhneri</i> (Marcus Ev., 1983)	R16	x		Hs			
Tethyidae							
* <i>Melibe viridis</i> Kelaart 1858	R20	x		Hs	x		
<i>Tethys fimbria</i> Linnaeus, 1767	R20		x	Hs	x		
Proctonotidae							
<i>Janolus cristatus</i> (delle Chiaje 1841)	R20	x		Hs	x		
Facelinidae							
<i>Cratena peregrina</i> (Gmelin, 1791)	R16;R20;PS		x	Hs	x		
<i>Dicata odhneri</i> (Schmekel, 1967)	R16;R20	x		Hs			
<i>Dondice banyulensis</i> Portmann & Sandmeier, 1960	R20	x		Hs	x		
<i>Facelina fusca</i> Schmekel, 1966	R20	x		hs	x		
Flabellinidae							
<i>Flabellina affinis</i> (Gmelin, 1791)	R13;R15;R16;R19;R20;PS	x	x	Hs;Ss	x		
<i>Flabellina babai</i> Schmekel, 1972	R15;R20		x	Hs	x		
<i>Flabellina ischitana</i> (Hirano & Thompson, 1990)	R16	x		Hs	x		
<i>Flabellina iodinea</i> (J. G. Cooper, 1863)	PS		x	Hs			
<i>Flabellina pedata</i> (Montagu 1816)	R20	x		Hs	x		
Rissoellidae							
<i>Rissoella diaphana</i> (Alder, 1848)	R4;R5	x		Hs			
Rissoinidae							
<i>Rissoina bruguieri</i> (Payraudeau, 1826)	R4;R5	x		Hs			x
BIVALVIA							
Nuculidae							
<i>Nucula nitidosa</i> (Winckworth, 1930)	R17	x		Ss		x	x
<i>Nucula nucleus</i> (Linnaeus, 1758)	R1;R2;R4;R5;R16	x		Ss		x	x
<i>Nucula sulcata</i> (Bronn, 1831)	R4;R5;R16	x		Ss		x	x
Nuculanidae							
<i>Nuculana pella</i> (Linnaeus, 1767)	R1;R2;R4;R5;R16	x		Ss	x	x	x
<i>Saccella commutata</i> (Philippi, 1844)	R1;R2;R4;R5	x		Ss		x	x
Arcidae							

Table 2. Continued

Group/Species	References	BKB	OS	Habitat	Cro.	Al.	SI
Acar gradata (Broderip & Sowerby, G. B. I 1829)	R4;R5	x		Ss			
Anadara polii (Mayer, 1868)	R1;R2;R5	x		Ss			x
*Anadara transversa (Say, 1822)	R16	x		Ss			
Arca noae (Linnaeus, 1758)	R1;R4;R5;R13;R15;R16;PS	x	x	Hs	x	x	x
Arca tetragona (Poli, 1795)	R1;R2;R4;R5	x		Ss		x	x
Barbatia barbata (Linnaeus,1758)	R1;R4;R5;R16;PS		x	Ss	x	x	x
Noetiidae							
Striarca lactea (Linnaeus, 1758)	R1;R4;R5;PS	x	x	Hs;Ss	x		x
Glycymerididae							
Glycymeris glycymeris (Linnaeus,1758)	R1;R2;R4;R5	x		Ss	x	x	x
Glycymeris bimaculata (Poli 1795)	PS		x	Ss	x	x	x
Glycymeris nummaria (Linnaeus, 1758)	R1;	x		Ss			
Mytilidae							
Dacrydium vitreum (Møller, 1842)	R4;R5	x		Hs;Ss			
Modiolus barbatus (Linnaeus,1758)	R1;R4;R5;PS	x	x	Hs;Ss	x	x	x
#Lithophaga lithophaga (Linnaeus,1758)	R1;R4;R5;R13;R14;R15;R16;R19;PS	x	x	Hs		x	x
Musculus discors (Linnaeus, 1767)	R4;R5	x		Ss			
Mytilaster lineatus (Gmelin,1791)	R4;R5	x		Ss			x
Mytilaster minimus (Poli,1795)	R1;R4;R5;PS	x	x	Hs	x	x	x
Mytilus galloprovincialis (Lamarck, 1819)	R1;R2;R4;R5;R9;R11;R17;PS	x	x	Hs;Ss	x	x	x
Mytilus edulis (Linnaeus, 1758)	R16;PS	x	x	Hs;Ss			x
*Arcuatula senhousia (Benson in Cantor, 1842)	PS		x	Ss			
Gibbomodiolia adriatica (Lamarck, 1819)	R4;R5;R16	x		Ss			
Pinnidae							
#Pinna nobilis (Linnaeus,1758)	R1;R2;R4;R5;R13;R14;R15;R16;R19;PS	x	x	Ss	x	x	x
Atrina fragilis (Pennant 1777)	R1;R2;R4;R5	x		Ss			x
Pteriidae							
Pteria hirundo (Linnaeus, 1758)	R1;R2;R4;R5;R15	x	x	Hs;Ss		x	x
Pectinidae							
Aequipecten opercularis (Linnaeus, 1758)	R1;R2;R4;R5	x		Ss		x	x
Manupecten pesfelis (Linnaeus, 1758)	R4;R5	x		Hs;Ss			
Flexopecten glaber (Linnaeus, 1758)	R1;R4;R5;R16	x		Ss			
Pecten jacobaeus (Linnaeus, 1758)	R1;R2;R4;R5;R16;PS	x	x	Ss	x	x	x
Pecten maximus (Linnaeus, 1758)	R4;R5	x		Ss			
Pseudamussium sulcatum (Müller O.F., 1776)	R4;R5	x		Ss			
Talochlamys multistriata (Poli, 1795)	R4;R5	x		Ss		x	x
Mimachlamys varia (Linnaeus, 1758)	R1;R2;R4;R5;R16	x		Ss	x	x	x
Spondylidae							
Spondylus gaederopus (Linnaeus,1758)	R1;R4;R5	x		Hs	x	x	x
Anomiidae							
Anomia ephippium (Linnaeus, 1758)	R1;R2;R4;R5	x		Ss		x	x
Heteranomia squamula (Linnaeus, 1758)	R4;R5	x		Ss			
Monia patelliformis (Linnaeus, 1761)	R4;R5	x		Ss		x	
Limidae							
Lima lima (Linnaeus,1758)	R1;	x		Hs		x	x
Limaria hians (Gmelin,1791)	R1;R4;R5	x		Ss			x
Ostreidae							
Ostrea edulis Linnaeus, 1758	R1;R2;R4;R5;R11;PS	x	x	Hs	x	x	x
Ostrea stentina (Payraudeau, 1826)	R4;R5	x		Hs		x	
Lucinidae							

Table 2. Continued

Group/Species	References	BKB	OS	Habitat	Cro.	Al.	SI
Anodontia fragilis (Philippi, 1836)	R4;R5	x		Ss	x	x	x
Ctena decussata (Costa O.G.,1829)	R4;R5	x		Ss	x	x	x
Myrtea spinifera (Montagu, 1803)	R4;R5;R16	x		Ss		x	x
Loripes lucinalis (Lamarck, 1818)	R1;R2;R4;R5;PS	x	x	Ss			
Lucinella divaricata (Linnaeus, 1758)	R1;R4;R5	x		Ss	x	x	x
Lucinoma borealis (Linnaeus, 1767)	R16	x		Ss			x
Thyasiridae							
Thyasira flexuosa (Montagu, 1803)	R5	x		Ss			x
Ungulinidae							
Diplodonta brocchii (Deshayes 1850)	R4;R5	x		Ss		x	
Diplodonta rotundata (Montagu, 1803)	R4;R5;R16	x		Ss	x	x	x
Chamidae							
Chama circinata (di Monterosato, 1878)	R4;R5	x		Hs;Ss			
Chama gryphoides (Linnaeus, 1758)	R1;R4;R5;R16;PS	x	x	Hs;Ss	x	x	x
Lasaeidae							
Lepton squamosum (Montagu, 1803)	R4;R5	x		Ss			
Montacutidae							
Kurtiella bidentata (Montagu, 1803)	R4;R5;R16	x		Ss		x	x
Sportellidae							
Sportella recondita (Fischer P. in de Folin, 1872)	R16;R16	x		Ss			
Cardiidae							
Acanthocardia echinata (Linnaeus, 1758)	R1;R2;R4;R5;PS	x	x	Ss		x	x
Acanthocardia deshayesii (Payraudeau, 1826)	PS		x	Ss			
Acanthocardia paucicostata (Sowerby G. B. II, 1834)	R1;R2;R4;R5;R16	x		Ss	x	x	x
Acanthocardia tuberculata (Linnaeus,1758)	R1;R4;R5;PS	x	x	Ss	x	x	x
Cerastoderma glaucum (Bruguière, 1789)	R4;R5	x		Ss	x	x	x
Laevicardium oblongum (Gmelin,1791)	R1;R4;R5	x		Ss	x	x	x
Papillicardium papillosum (Poli, 1791)	R4;R5;R16	x		Ss			x
Parvicardium exiguum (Gmelin,1791)	R1;R2;R4;R5	x		Ss	x	x	x
Parvicardium minimum (Philippi,1836)	R4;R5;R16	x		Ss		x	
Parvicardium scabrum (Philippi, 1844)	R4;R5	x		Ss		x	
Mactridae							
Mactra glauca (Born, 1778)	PS	x		Ss		x	
Mactra stultorum (Linnaeus,1758)	R1;R4;R5	x		Ss	x		x
Spisula subtruncata (da Costa, 1778)	R4;R5	x		Ss	x	x	x
Mesodesmatidae							
Donacilla cornea (Poli,1791)	R1;R2;R4;R5;PS	x	x	Ss			x
Tellinidae							
Arcopagia balaustina (Linnaeus, 1758)	R4;R5	x		Ss			x
Arcopagia crassa (Pennant, 1777)	R16	x		Ss		x	
Gastrana fragilis (Linnaeus,1767)	R4;R5	x		Ss	x	x	x
Tellina distorta Poli,1791	R1;R16	x		Ss		x	x
Tellina donacina Linnaeus, 1758	R4;R5;PS	x	x	Ss	x	x	x
Tellina pulchella (Lamarck,1818)	R1;R4;R5	x	x	Ss		x	x
Tellina serrata (Brocchi, 1814)	R4;R5	x		Ss	x		x
Tellina tenuis (da Costa, 1778)	R16	x		Ss	x		x
Donacidae							
Donax semistriatus Poli, 1791	R4;R5	x		Ss		x	x
Donax trunculus Linnaeus, 1758	R21;PS		x	Ss	x	x	x
Psammobiidae							
Gari fervensis (Gmelin, 1791)	R4;R5	x		Ss	x	x	x
Gari depressa (Pennant, 1777)	R1;R2;R4;R5	x		Ss	x	x	x
Gari tellinella (Lamarck, 1818)	R4;R5	x		Ss		x	x
Semelidae							
Abra alba (Wood. W., 1802)	R4;R5	x		Ss		x	x
Abra nitida (Müller O.F., 1776)	R4;R5	x		Ss			x
Abra prismatica (Montagu, 1808)	R4;R5	x		Ss		x	
Abra segmentum (Récluz, 1843)	R4;R5	x		Ss		x	x

Table 2. Continued

Group/Species	References	BKB	OS	Habitat	Cro.	Al.	SI
Scrobicularia cottardii (Payraudeau, 1826)	R4;R5	x		Ss		x	x
Scrobicularia plana (da Costa, 1778)	R1;R4;R5	x		Ss	x	x	x
Solecurtidae							
Azorinus chamasolen (da Costa, 1778)	R4;R5;R16	x		Ss	x	x	x
Solecurtus candidus (Brocchi, 1814)	R4;R5	x		Ss			
Trapeziidae							
Coralliophaga lithophagella (Lamarck, 1819)	R4;R5	x		Ss			x
Glossidae							
Glossus humanus (Linnaeus, 1758)	R1;R2;R4;R5	x		Ss		x	x
Veneridae							
Callista chione (Linnaeus, 1758)	PS		x	Ss	x	x	x
Chamelea gallina (Linnaeus, 1758)	R4;R5;PS	x	x	Ss	x	x	x
Clausinella fasciata (da Costa, 1778)	R1;R4;R5;R16	x		Ss	x	x	x
Dosinia lupinus (Linnaeus, 1758)	R1;R2;R4;R5	x		Ss	x	x	x
Dosinia exoleta (Linnaeus, 1758)	R1;R4;R5;PS	x	x	Ss	x	x	x
Gouldia minima (Montagu, 1803)	R4;R5	x		Ss	x	x	x
Irus irus (Linnaeus, 1758)	R1;R4;R5	x		Hs;Ss	x	x	x
Mysia undata (Pennant, 1777)	R4;R5	x		Ss	x		x
Petricola lithophaga (Retzius, 1788)	R4;R5	x		Hs;Ss			x
Pitar rudis (Poli, 1795)	R1;R2;R4;R5;R16;PS	x	x	Ss	x	x	x
Polititapes aureus (Gmelin, 1791)	R1;R2;R4;R5;	x		Ss			
*Ruditapes philippinarum (Adams & Reeve, 1850)	PS		x	Ss		x	x
Ruditapes decussatus (Linnaeus, 1758)	R1;R4;R5	x		Ss	x	x	x
Timoclea ovata (Pennant, 1777)	R16	x		Ss	x	x	x
Venus verrucosa Linnaeus, 1758	R1;R4;R5;PS	x	x	Ss	x	x	x
Venus casina Linnaeus, 1758	R4;R5;PS	x	x	Ss	x	x	x
Corbulidae							
Corbula gibba (Olivi, 1792)	R1;R2;R4;R5;R16	x		Ss	x	x	x
Teredinidae							
*Teredo navalis (Linnaeus, 1758)	R1;R4;R5;PS	x	x	Hs			x
Gastrochaenidae							
Gastrochaena dubia (Pennant, 1777)	R4;R5;R13;R15;R16;R19;PS	x	x	Hs	x		x
Solenidae							
Solen marginatus (Pulteney, 1799)	R1;R4;R5	x		Hs	x	x	x
Pharidae							
Ensis siliqua (Linnaeus, 1758)	R21		x	Ss	x		
Ensis ensis (Linnaeus, 1758)	PS		x	Ss	x	x	x
Ensis minor (Chenu, 1843)	R4;R5	x		Ss		x	x
Pharus legumen (Linnaeus, 1767)	R1;R2;R4;R5	x		Ss		x	
Phaxas pellucidus (Pennant, 1777)	R4;R5	x		Ss			
Hiatellidae							
Hiatella arctica (Linnaeus, 1767)	R1;R2;R4;R5	x		Hs	x	x	x
Hiatella rugosa (Linnaeus, 1767)	R1;R4;R5	x		Hs		x	x
Saxicavella jeffreysi (Winckworth, 1930)	R4;R5	x		Hs			
Thraciidae							
Thracia corbuloidea de Blainville, 1827	R4	x		Ss			x
Thracia gracilis Jeffreys, 1865	R4;R5	x		Ss			
Thracia phaseolina (Lamarck, 1818)	R4;R5	x		Ss			
Thracia pubescens (Pulteney, 1799)	R4;R5	x		Ss	x	x	x
Pandoridae							
Pandora pinna (Montagu, 1803)	R4;R5	x		Ss		x	
Poromyidae							
Poromya granulata (Nyst & Westendorp, 1839)	R4;R5	x		Ss		x	x
Cuspidariidae							
Cuspidaria cuspidata (Olivi, 1792)	R1;R2;R4;R5;R16	x		Ss		x	x
Cuspidaria rostrata (Spengler, 1793)	R4;R5	x		Ss		x	

Table 2. Continued

Group/Species	References	BKB	OS	Habitat	Cro.	Al.	SI
SCAPHOPODA							
Dentaliidae							
<i>Antalis dentalis</i> (Linnaeus, 1758)	R1;R2;R4	x		Ss	x	x	x
<i>Antalis vulgaris</i> (da Costa, 1778)	R4;R5;PS	x	x	Ss	x		x
<i>Antalis inaequicostata</i> (Dautzenberg, 1891)	R1;R4;R5;R16	x		Hs;Ss	x	x	x
Fustiariidae							
<i>Fustiaria rubescens</i> (Deshayes 1825)	R5	x		Ss	x		x
Gadilidae							
<i>Dischides politus</i> (S. Wood, 1842)	R16	x		Ss			x
CEPHALOPODA							
Sepiidae							
# <i>Sepia elegans</i> Blainville, 1827	R1;R2;R3;R6;R7;R8;R12	x	x	D	x	x	x
# <i>Sepia officinalis</i> (Linnaeus, 1758)	R1;R2;R3;R6;R7;R8;R10;R12	x	x	D	x	x	x
# <i>Sepia orbignyana</i> (Férussac, 1826)	R6;R7;R8;R12		x	D	x	x	x
Sepiolidae							
# <i>Rossia macrosoma</i> (Delle Chiaje, 1830)	R6;R7;R8;R12		x	D	x	x	
# <i>Sepietta oweniana</i> (d'Orbigny, 1841)	R1;R3;R6;R7;R8;R12	x		D	x	x	
# <i>Sepiola rondeletii</i> Leach, 1817	R1;R2;R3;R6;R7;R8;R12	x	x	D	x	x	x
Loliginidae							
<i>Alloteuthis media</i> (Linnaeus, 1758)	R6;R7;R8;R12		x	D		x	
<i>Loligo vulgaris</i> (Lamarck, 1798)	R1;R2;R3;R6;R7;R8;R10;R12	x	x	D	x	x	x
Ommastrephidae							
<i>Illex coindetii</i> (Vérany, 1839)	R6;R7;R8;R12		x	D	x	x	
<i>Todarodes sagittatus</i> (Lamarck, 1798)	R6;R8		x	P	x	x	
Octopodidae							
# <i>Eledone cirrhosa</i> (Lamarck, 1798)	R6;R7;R8;R12		x	D	x	x	
<i>Eledone moschata</i> (Lamarck, 1798)	R1;R2;R3;R6;R7;R8;R10;R12	x	x	D	x	x	
<i>Octopus salutii</i> (Vérany, 1836)	R6;R7;R8;R12		x	D	x	x	
<i>Octopus vulgaris</i> (Cuvier, 1797)	R1;R3;R6;R7;R8;R12;R15;R21	x	x	D	x	x	
<i>Pteroctopus tetracirrhus</i> (Delle Chiaje, 1830)	R6;R8;R12		x	D	x	x	
<i>Scaevargus unicolor</i> (Delle Chiaje [in de Férussac & d'Orbigny], 1841)	R6;R7;R8;R12		x	D	x	x	
Argonautidae							
<i>Argonauta argo</i> (Linnaeus, 1758)	R6;R8		x	P	x	x	x

present day. The available data (Figure 2) show that these animals are much better studied in Boka Kotorska Bay than in the open sea (Stjepčević, 1967; Karaman & Gamulin-Brida, 1970; Stjepčević, 1974; Stjepčević & Parenzan, 1982). If we take the cephalopods into consideration, which are pelagic or demersal living molluscs, it is clear that species diversity along the open sea of the Montenegrin coast has been studied much more than that of other mollusc groups (Mandić, 1973a, 1984).

From the species listed in Table 2. *Tricolia pullus* (Linnaeus, 1758), *Melanella alba* (da Costa, 1778), *Euspira catena* (da Costa, 1778), *Bulla striata* Bruguière, 1792, *Flabellina iodinea* (J. G. Cooper, 1863), *Glycymeris bimaculata* (Poli, 1795), *Arcuatula*

senhousia (Benson, 1842), *Acanthocardia deshayesii* (Payraudeau, 1826), *Maetra glauca* (Born, 1778), *Callista chione* (Linnaeus, 1758), *Ruditapes philippinarum* (Adams and Reeve, 1850) and *Ensis ensis* (Linnaeus, 1758) are new records for the Montenegrin mollusc fauna. Species already known from the rest of the Mediterranean seas have, for the first time, been collected from the area because this part of the Adriatic Sea was, until the present study, very poorly investigated.

Among the recorded mollusc species, 7 (*Teredo navalis* (Linnaeus, 1758), *Arcuatula senhousia* (Benson, 1842), *Anadara transversa* (Say, 1822), *Ruditapes philippinarum* (Adams & Reeve, 1850), *Melibe viridis* Kelaart, 1858, *Bursatella leachi*

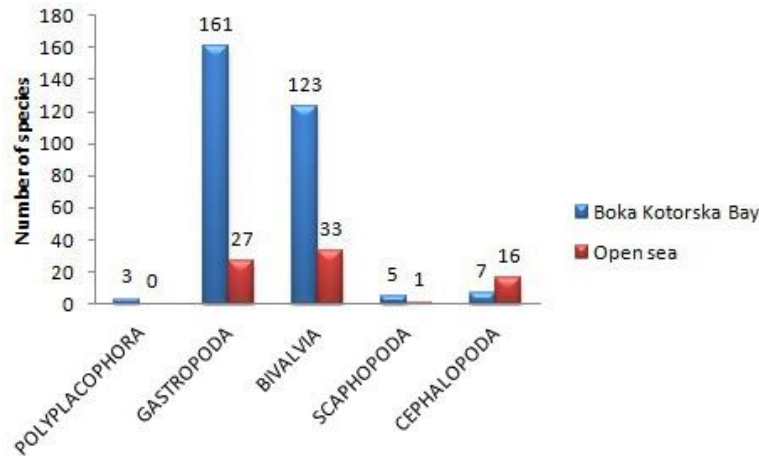


Figure 2. Total number of the mollusc species according to distribution classes in the Boka Kotorska Bay and Open Sea.

de Blainville, 1817 and *Aplysia dactylomela* (Rang, 1828) are alien species that originated outside the Mediterranean Sea. The problem of non-native species is probably not as great anywhere in the world as in the Mediterranean Sea where 215 mollusc species have been recorded (Zenetos *et al.*, 2012). The highest number of ascertained alien molluscs in the Mediterranean came from the Red Sea via the Suez Canal (Gofas & Zenetos, 2003). Studying non-native molluscs in Croatian waters, Pećarević, Mikuš, Bratoš Cetinić, Dulčić and Čalić (2013) recorded 10 species. Along all of the Italian shores, 35 alien mollusc species were documented by Crocetta *et al.* (2013), while from the southern Italian coast (Tyrrhenian and Ionian Sea) five introduced species were reported (Crocetta, Renda, & Colamonaco, 2009). The number of introduced mollusc species is much higher in the eastern Mediterranean, and a review of the literature revealed a total of 168 valid alien species from the seas surrounding Turkey (Öztürk, Doğan, Bitlis-Bakir, & Salman, 2014).

Analysis of collected data recognized 14 species (*Cerithium vulgatum* Bruguière, 1792, *Luria lurida* (Linnaeus, 1758), *Zonaria pyrum* (Gmelin, 1791), *Erosaria spurca* (Linnaeus, 1758), *Tonna galea* (Linnaeus, 1758), *Lithophaga lithophaga* (Linnaeus, 1758), *Pinna nobilis* (Linnaeus, 1758), *Sepia elegans* Blainville, 1827, *Sepia officinalis* (Linnaeus, 1758), *Sepia orbignyana* (Férussac, 1826), *Rossia macrosoma* (Delle Chiaje, 1830), *Sepietta oweniana* (d'Orbigny, 1841), *Sepioloa rondeleti* Leach, 1817 and *Eledone cirrhosa* (Lamarck, 1798) as being endangered and threatened according to the IUCN Red List and the Barcelona/Berne Conventions. The high economic importance of some mollusc species makes them an object for overfishing (Sala & Knowlton, 2006). Among other causes often considered as serious threats to marine species we can list global warming, ocean acidification, habitat loss and pollution (Sabelli & Taviani, 2014).

As the Montenegrin coast covers a small part of

the eastern Adriatic Sea and at the same time has great ecological importance between the Ionian and Adriatic Sea in terms of understanding species diversity, we have compared 354 noted species with adjacent areas (Table 2):

-Albanian coast (Dhora, 2012; Zenetos *et al.*, 2015);

-Croatian coast– East Adriatic (Zavodnik, 1999; Turk, 2000; Krstulović-Šifner *et al.*, 2005; Šiletić, 2006; Milišić, 2007; Lipej, Dobrajc, Mavrič, Šamu, & Alajbegović, 2008; Peharda, Ezgeta-Balić, Vrgoč, Isajlović, & Bogner, 2010; Zenetos *et al.*, 2015);

-South Italy–Ionian Sea (Schiaparelli, 2008; Trono & Marci, 2013).

This comparison enabled the following main points to be underlined:

The diversity of Montenegrin mollusc fauna is similar to the Albanian fauna as expected in terms of similar ecological conditions (Dhora, 2012). Furthermore, the number of gastropods and bivalves recorded from Montenegrin waters is considerably less than in adjacent seas (Croatia and South Italy) (Zavodnik, 1999; Trono & Marci, 2013). Our opinion is that the main reason is the lack of research projects focused on molluscs. Although cephalopod fauna was well studied in the last century (Mandić, 1973a, 1984), species diversity occurring in Croatian waters is richer (Krstulović Šifner *et al.*, 2005).

A comparison of our results with those for the adjacent seas indicates that the mollusc fauna is insufficiently studied, but we should bear in mind that the number of recorded species proportional to the size of the researched area indicates a species-rich region and suggests that more intensive studies in future could result in many new records, especially alien.

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