MARINE MOLLUSC FAUNA OF KASTAMONU AND SINOP COASTS (THE SOUTHERN BLACK SEA, TURKEY)

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Abstract

The study was carried out to determine Mollusca fauna of Kastamonu and Sinop coasts. A seasonal sampling procedure was performed in the area from a variety of biotops in 0-0.5 and 5m depths at 4 stations between July 2007 and May 2008. A total of 11 species and 16823 specimens belonging to Bivalvia; 15 species and 5482 specimens belonging to Gastropoda and 1 species and 1 specimens belonging to Polyplacophora classes were encountered during the study. Also, the seasonal distribution of the physicochemical parameters measured on site as in-situ. In addition to, analytical procedure and minimum and maximum ranges with (Mean±SD) are shown.

Keywords: Mollusca, Black Sea, Biodiversity

Introduction The biodiversity of the Black Sea ecosystem includes some 2,050 species of animals including Arthropoda, Molluscs (206), Echinodermata, Fish and Mammals (1). As far as Turkey is concerned, the investigations on mollusk biodiversity of the Black Sea are quite scanty and limited to information depth of finding and other details, except for Russian, Ukraine and Romania, some another countries coasts of the Black Sea. There have been some studies on Mollusca in Turkish coasts of the Black Sea. These studies have begun since years of 1960'. 11 by Caspers (1968); 49 by Bacescu et al. (1971), 37 by Fisher et al. (1987), 37 by Mutlu et al. (1993), 49 by Kocatas et al. (2000), 108 by Ozturk (1998), 50 by Ozturk and Cevik (2000), 16 by Culha et al. (2000), 99 by Demir (2003), 23 by Demirci and Katagan (2004), 28 by Culha (2004), 8 species by Luth (2004), 26 by Ozturk et al. (2004), 33 by Demirci (2005), 14 by Culha et al. (2007), 15 species by Culha et al. (2007) were reported. As a result of the studies in Turkish coasts of the Black Sea carried out up to now, 183 Mollusca species have been identified.

Material and Methods Mollusk specimens were obtained by sampling during July 2007 and May 2008 at 4 stations (2 stations from Sinop [Ayancik, Türkeli] and 2 stations from Kastamonu [Abana, Çatalzeytin] chosen at the Middle Black Sea, Abana: 41o58'51"N, 34o00'01"E; Çatalzeytin: 41o57'20"N, 34o11'58"E; Türkeli: 41o56'59"N, 34o20'37"E; Ayancik: 41o56'46"N, 34o34'41"E (Figure). A total of 32 (16 x 2 replicate) samplings were performed with 4 samplings for seasonaly. Sampling at the 4 stations was conducted seasonally at various biotopes at depths of 0.5m – 5m. A spatula or shovel was used to collect specimens from a 20X20 cm area using a quadrate sampling methodology. Sampling was carried out by free or scuba diving. Additionally, the physico-chemical parameters of the sampling stations were measured seasonally from the surface to ~1-2m depth using a WTW 340i multi Set water quality meter (Table). The collected material was fixed in 4% formalin solution to be examined in the laboratory. Species identification was performed according to shell characteristics and several reference sources, including Nordsieck (1968), Cachia et al. (1996, 2001), Graham (1971), Barash and Danin (1992), Butakov et al. (1997), Culha (2004), Dogan (2005). Sabelli et al. (1990, 1992) and Clemam (2008) were followed for the systematic index of the species.

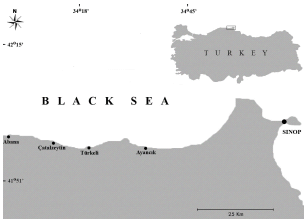

Fig. 1. The position of four selected stations at Kastamonu and Sinop coasts St. 1) Ayancik, (St. 2) Türkeli, (St. 3) Çatalzeytin and (St. 4) Abana

Results and Discussion The aim of the present study is to determine the marine mollusk species on Kastamonu (Abana, Çatalzeytin) and Sinop (Ayancik, Türkeli) coasts. A total of 27 species was detected: 1 of these species belonged to the class Polyplacophora, 15 belonged to the class Gastropoda and 11 belonging to the class Bivalvia. In previous studies, Pusillina radiata and Heleobia stagnarum (Demirci, 2005); Gibbula adriatica, Hydrobia acuta and Mangelia costata (2), and Abra segmentum were reported as new records for the Black Sea coasts of Turkey. On the other hand, Hemilepton nitidum (Turton, 1822) is one of the new species reported for Molluscan fauna from Turkey (3). Previous studies carried out in Sinop peninsula and neighbouring areas analyzed in different biotopes. Demirci and Katagan (2004), collected the samples from rocky substrates and reported 23 species in Ulva facies. Çulha et al. (2000) carried out several studies in sandy bottoms of the same area, but the same authors found 8 species that were not reported by Demirci (2005). Similarly, Çulha (2004) reported 28 Gastropoda. Among these, 13 species were not reported during the study performed by Demirci (2005). In study of Öztürk et al. (2004) from sandy and hard substratum, 26 Bivalvia species were detected. In a deep water study carried out in Inebolu district (Central Black Sea), Luth (2004) found 3 Gastropod and 5 Bivalvia species. Consequently, different results were obtained in previous studies carried out at various periods and localities of the central Black Sea region. This is due to different biotopes, different zones (Supralittoral, infralittoral, mediolittoral etc.), different sampling methods such as grab, dredge, quatrate and different depths. In addition, the utilization of updated publications (e.g. 3Öztürk and Çevik, 2000; 4Clemam, 2008; 5Sabelli et al., 1990, 1992) by researchers who study in this area will reduce potential errors that may arise.

Tab. 1. Minimum and maximum range and Mean ± SD from selected stations, of physicochemical parameters of sea water of Sinop and Kastamonu coasts and analytical procedure during the period July 2007 and May 2008

				St1		St2		St3		St4	
Variables	Abbreviations	Unitz	Analytical method	Mean ±SD	Min-Max	Mean ±SD	Min-Max	Mean ±SD	Min-Max	Mean ±SD	Min-Max
Temperature	Temp	°C	WTW Multi 340i / SET handheld meter	15.67 ± 7.27	7.13 24.73	15.35 ± 6.66	7.72 23.54	14.72 ± 6.22	7.65 22.51	15.69 ± 6.32	9.26 24.19
Salinity	Salint	‰ (ppt)	WTW Multi 340i / SET handheld meter	17.35 ± 0.80	16.21 18.10	17.55 ± 0.82	16.80 18.45	18.40 ± 0.65	17.52 19.02	17.56 ± 1.32	16.09 19.22
pH	pH	µS cm-1	WTW Multi 340i / SET handheld meter	7.58 ± 1.04	6.14 8.57	8.13 ± 0.73	7.15 8.51	7.85 ± 0.73	6.79 8.46	8.03 ± 0.70	7.09 8.73
Amount of Oxygen	DO	mg l-1	WTW Multi 340i / SET handheld meter	6.39 ± 0.64	5.59 7.02	6.12 ± 0.53	5.43 6.71	6.38 ± 0.39	6.00 6.89	6.43 ± 0.62	6.01 7.35
Conductivity	EC	µS cm-1	WTW Multi 340i / SET handheld meter	24.55 ± 0.75	23.72 25.30	24.54 ± 1.07	23.17 25.62	24.00 ± 1.26	22.86 25.41	24.33 ± 0.85	23.12 25.00

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