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THE CRAB SPECIES FOUND ON THE COASTS OF BOZCAADA ISLAND IN THE AEGEAN SEA

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ABSTRACT

This study was aimed at examining the crab species that exist on the coasts of Bozcaada Island. The samples were collected at 50 stations between 2000 and 2001. 44 crab species belonging to 16 families were identified, three of which (*Latreillia elegans* P.Roux, 1830; *Inachus phalangium* (J.C.Fabricius, 1775), *Polybius (Macropipus) tuberculatus* (P.Roux, 1830)) were new to the Turkish seas. Ecological properties of the species were recorded.

KEY WORDS : Aegean Sea, Bozcaada Island, Brachiura

INTRODUCTION

The Island Bozcaada locates between longitudes 25⁰57'48"E - 26⁰05'00"E and latitudes 39⁰47'18"N - 39⁰50'54"N in the northeast Aegean with an area of 42 km².

In the Aegean Sea, there are three different masses of water, namely surface water, an intermediate layer and deep water. The northern surface

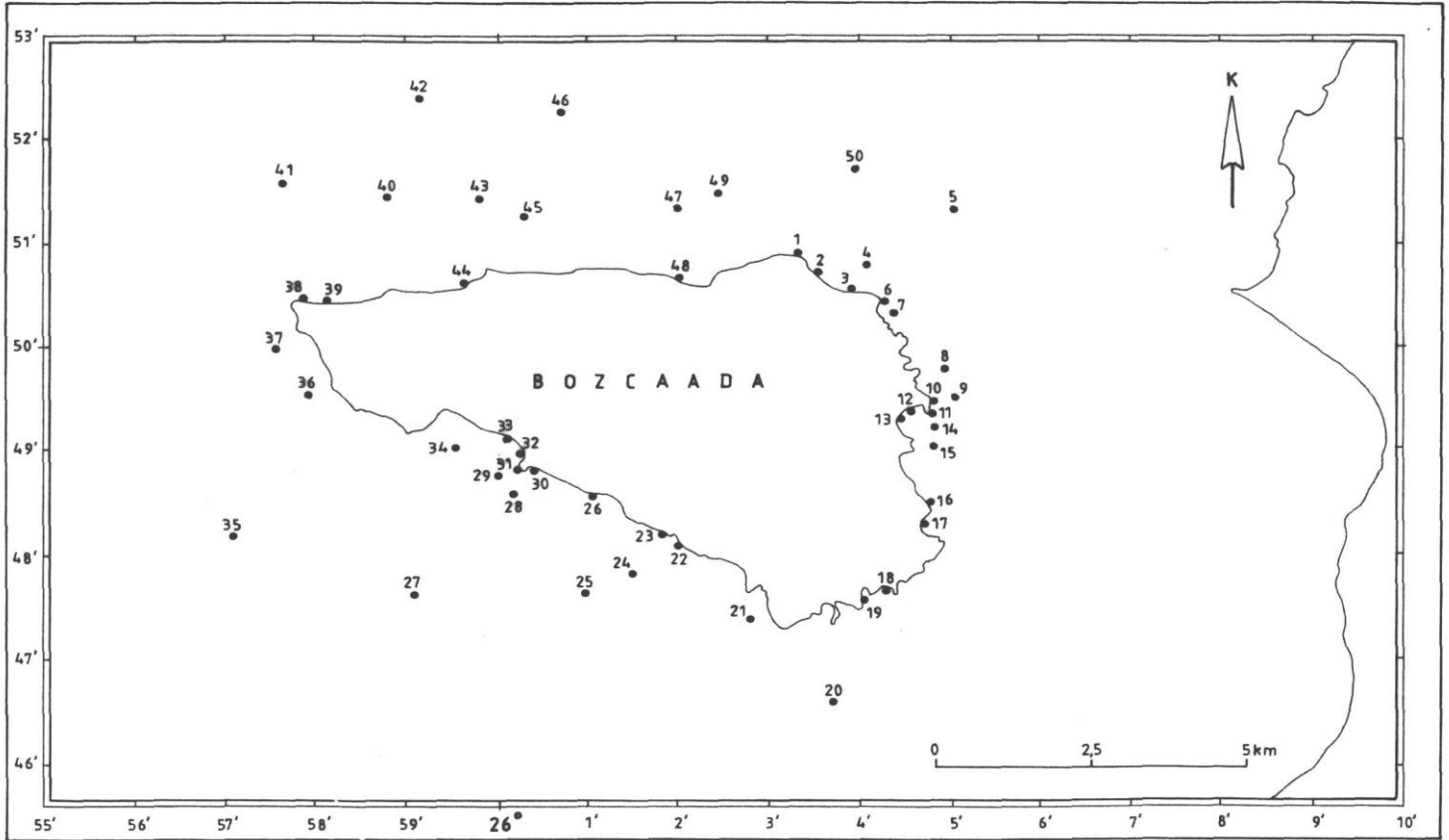


Fig .1 - Research stations in the Bozcaada Island

waters in the Aegean Sea, where Bozcaada is located, are under the effect of the Black Sea waters which display the characteristics of brackish water (YİĞİT, 1995).

The first records of crabs observed in Turkish coastal waters of the Aegean Sea belonged to FORSKÅL (1775). Later on, COLOMBO (1885), TORTONESE (1947), NALBANTOĞLU (1958), MATER and KOCATAĞ (1967), GELDIY and KOCATAĞ (1968), KOCATAĞ (1971, 1981), KATAGAN *et al.* (1988) and BALKIS (2001) reported crab species from this region.

The purpose of this study is to determine the crab species living along the coasts of Bozcaada Island and to investigate some of their ecological properties.

MATERIAL AND METHODS

This research was carried out in Bozcaada Island. The samples were collected at 50 stations (Fig.1, Table 1) between 2000 and 2001, from depth of 0.5 to 45 m, using dredges, driftnets, scoop nets and bottom trawl. These specimens were preserved in 4% sea water formalin.

For physical-chemical analyses, a 3 l water sampler with a thermometer was used. The Mohr-Knudsen method (IVANOFF, 1972) was made use of in measuring salinity values, and the Winkler method (WINKLER, 1888) in measuring those of dissolved oxygen.

References used to identify the species were as follows: BOUVIER (1940), ZARIQUIEY ALVAREZ (1968), DEMIR (1952), INGLE (1980, 1983), HOLTHUIS (1987).

Table 1

Data of sampled stations¹

Station number	Date	Depth m	Tool	Temp. °C	Salinity psu	Dissolved oxygen mg l ⁻¹
1	27.08.2000	0.5	SN	24.0	33.2	6.9
2	25.11.2000	0.5	SN	17.3	36.6	10.3
3	17.02.2001	0.5	SN	13.9	36.9	7.8
4	24.05.2000	7	DR	15.3	36.2	11.8
5	24.05.2000	20	DR	14.7	37.4	11.1

(to be continued)

Station number	Date	Depth m	Tool	Temp. °C	Salinity psu	Dissolved oxygen mg l ⁻¹
6	19.02.2001	0.5	SN	13.9	37.5	7.5
7	18.02.2001	5	DN	13.7	37.7	7.2

¹ DN: Drift Net; DR: Dredge; SN: Scoop Net; BTR: Bottom Trawl

8	26.05.2000	9	DR	16.3	37.3	9.4
9	26.05.2000	9	DR	16.3	35.4	9.4
10	27.05.2000	0.5	SN	19.5	32.0	5.8
11	30.08.2000	0.5	SN	25.1	33.7	7.9
12	19.02.2001	0.5	SN	13.8	37.4	7.5
13	22.11.2000	0.5	SN	16.7	30.0	10.6
14	18.02.2001	5	DR	12.8	37.7	7.4
15	18.02.2001	8	DR	13.4	37.3	7.8
16	22.11.2000	0.5	SN	17.8	32.5	11.4
17	27.05.2000	0.5	SN	20.2	33.8	5.9
18	30.08.2000	0.5	SN	23.0	33.7	5.4
19	27.05.2000	0.5	SN	20.0	33.5	6.0
20	23.05.2000	30	DN	14.7	38.2	7.7
21	26.05.2000	17	DR	15.3	35.3	10.7
22	27.05.2000	0.5	SN	18.0	34.0	8.6
23	30.08.2000	0.5	SN	22.5	34.0	7.6
24	24.11.2000	25	DN	16.8	37.5	8.2
25	26.08.2000	30	TR	17.2	38.0	7.4
26	19.02.2001	0.5	SN	13.7	37.6	7.8
27	26.08.2000	35	TR	14.9	38.3	7.7
28	26.05.2000	7	DR	17.8	35.5	6.6
29	18.02.2001	5	DR	13.6	37.6	7.3
30	22.11.2000	0.5	SN	18.7	34.9	11.2
31	18.02.2001	0.5	SN	13.7	37.6	7.8
32	25.05.2000	0.5	SN	20.0	33.5	8.8
33	19.02.2001	0.5	SN	13.7	37.5	7.7
34	24.11.2000	8	DR	16.8	36.7	8.8
35	26.08.2001	45	TR	14.2	38.6	8.2
36	25.05.2000	5	DN	17.9	37.2	7.7
37	26.05.2000	5	DN	17.7	37.4	7.6
38	31.08.2000	0.5	SN	22.4	32.1	7.5
39	25.11.2000	0.5	SN	16.3	36.5	9.5
40	24.11.2000	10	DR	16.9	36.6	8.6
41	26.08.2000	10	TR	17.5	37.9	9.3
42	26.08.2001	15	TR	17.5	38.1	8.9
43	24.11.2000	5	DR	17.2	37.0	8.6
44	25.11.2000	0.5	SN	15.7	36.3	10.6
45	24.05.2000	8	DR	16.5	37.9	11.0
46	24.05.2000	8	DR	16.0	37.9	10.0

(to be continued)

Station number	Date	Depth m	Tool	Temp. °C	Salinity psu	Dissolved oxygen mg l ⁻¹
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47	24.11.2000	5	DR	17.1	36.9	8.7
48	25.05.2000	0.5	SN	21.0	32.2	11.0
49	24.11.2000	10	DR	17.3	37.1	9.1
50	24.05.2000	26	DR	14.8	36.8	11.6

RESULTS

A total of 44 crab species belonging to 16 families were identified during the course of this study. Of these, three species (*Latreillia elegans* P.Roux, 1830, *Inachus phalangium* (J.C.Fabricius, 1775), *Polybius (Macropipus) tuberculatus* (P.Roux, 1830)) were new to Turkish seas. Data on maximum carapace length and width, minimum and maximum values of depth, temperature, salinity and dissolved oxygen, as well as bottom structure, number of examined specimen and the sampling stations on which the species was found, are provided (Table 2). Nomenclature of the species follows UDEKEM D'ACUZ (1999).

DISCUSSION

This study has made it possible to determine 44 crab species, of these three being new records for Turkish seas. Prior to the present study, 68 crab species were reported from Turkish coasts of Aegean Sea. Thus, the number of crab species in Turkish territorial waters elevates to 71, together with these three new recorded species.

KAUKAURAS *et al.* (1992) recorded 99 crab species in Greek territorial waters, which include 70 of 71 species in this study. Therefore, the number of crab species living in the Aegean Sea with the addition of this species (*Polybius pusillus* (Leach, 1815)) is 100.

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List of species and ecological

Family	Species	ML/MW ² cm	Material examined
DROMIIDAE	<i>Dromia personata</i> (Linnaeus,1758)	6.0/7.4 (M)	7 M
LATREILLIDAE	<i>Latreillia elegans</i> P.Roux,1830	1.3/0.8 (M)	2 M
MAJIDAE	<i>Eurynome aspera</i> (Pennant, 1777)	1.8/1.3 (M)	1M, 2F
	<i>Maja squinado</i> (Herbst,1788)	22.2/18.6(M)	18M, 7M
	<i>M. crispata</i> Risso, 1827	4.9/4.2 (M)	28M, 9F
	<i>Pissa armata</i> (Latreille,1803)	4.6/2.9 (M)	8M, 6F
	<i>P. tetraodon</i> (Pennant, 1777)	4.4/3.1 (M)	3 M
	<i>P. nodipes</i> (Leach, 1815)	4.4/2.6 (M)	3 M
	<i>Acanthonyx lunulatus</i> (Risso,1816)	1.4/1.0 (F)	1M, 4F
	<i>Inachus communissimus</i> Risso, 1839	0.7/0.8 (M)	2 M
	<i>I. dorsettensis</i> (Pennant, 1777)	2.0/1.7 (M)	5 M
	<i>I. phalangium</i> (J.C.Fabricius,1755)	1.7/1.4 (F)	1 F
	<i>I. thoracicus</i> P.Roux,1830	1.7/1.6 (M)	1 M
	<i>Macropodia longirostris</i> (J.C.Fabricius,1775)	2.5/1.3 (M)	2 M
	<i>M. linaresi</i> Forest & Zariquiey Alvarez, 1964	1.0/0.6 (F)	3M, 3F
	<i>M. rostrata</i> (Linnaeus, 1761)	2.0/1.2 (M)	14M, 4F
<i>M. tenuirostris</i> (Leach, 1814)	2.7/1.2 (M)	6 M	
DORIPPIDAE	<i>Medorippe lanata</i> (Linnaeus,1767)	2.2/2.7 (F)	2M, 3F
	<i>Ethusa mascarone</i> (Herbst, 1785)	1.3/0.8 (F)	1 F
LEUCOSIIDAE	<i>Ilia nucleus</i> (Linnaeus, 1758)	2.6/2.4 (M)	2M, 3F
CALAPPIDAE	<i>Calappa granulata</i> (Linnaeus,1767)	7.8/10.6 (M)	14M, 19F
ATELECYCLIDAE	<i>Atelecyclus rotundatus</i> (Olivi,1792)	1.2/1.3 (M)	2 M
PIRIMELIDAE	<i>Pirimela denticulata</i> (Montagu, 1808)	1.1/1.3 (M)	3M, 1F
PORTUNIDAE	<i>Carcinus aestuarii</i> Nardo, 1847	4.9/6.3 (M)	5 M
	<i>Portumnus latipes</i> (Pennant,1777)	2.4/2.5 (F)	2M, 1F
	<i>Polybius (Necora) corrugatus</i> (Pennant, 1777)	3.5/4.5/ (F)	17M, 5F

² ML = maximum length of carapace; MW = maximum width of carapace; M = males; F = females.

	<i>P. (Macropipus) tuberculatus</i> (P.Roux,1830)	2.2/3.3 (F)	1M, 1F
	<i>P. (Polybius) depurator</i> (Linnaeus,1758)	3.2/4.2 (F)	20M, 4F
	<i>P. arcuatus</i> (Leach, 1814)	2.8/3.5 (M)	18M, 5F
PARTHENOPIDAE	<i>Parthenope angulifrons</i> Latreille,1825	2.4/2.5 (M)	4M, 2F
	<i>P. macrochelos</i> (Herbst,1790)	2.4/3.1 (M)	1 M
	<i>P. massena</i> (P.Roux, 1830)	0.6/0.6 (M)	2 M

Table 1

properties in the sampling stations

Stations	Ecological properties				
	Depth, m	t ⁰ C	p.s.u.	mg l ⁻¹	Bottom structure
5-14-20-25-49	5-30	12.8-17.3	37.1-38.2	7.4-11.1	Sand
35	45	14.2	38.6	8.2	Mud
27-35	35-45	14.2-14.9	38.3-38.6	7.7-8.2	Mud
5-8-20-24-25-27-35-41-42-50	9-45	14.2-17.5	36.8-38.6	7.4-11.6	Sand + Mud
3-4-5-7-9-10-15-18-20-24-25-28-36-37-42-43-49	0.5-30	13.4-23.0	32.0-38.2	5.4-11.8	Various types
29-36-37-46	5-8	13.6-17.9	37.2-37.9	7.3-10.0	Various types
26-37	0.5-5	12.8-17.7	37.4-37.7	7.4-7.8	Rock
21-27-35	17-45	14.2-15.3	35.3-38.6	7.7-10.7	Sand + Mud
22-31-38	0.5	13.7-22.4	32.1-37.6	7.5-8.6	Rock
9	9	16.3	35.4	9.4	Sand
35	45	14.2	38.6	8.2	Mud
43	5	17.2	37.0	8.6	Sand
35	45	14.2	38.6	8.2	Mud
27	35	14.9	38.3	7.7	Mud + Sand
34-45-47	5-8	16.5-17.1	36.7-37.9	8.7-11.0	Sand
5-21-27-35-36	5-45	14.2-17.7	35.3-38.6	7.6-11.1	Various types
35	45	14.2	38.6	8.2	Mud
20-27	30-35	14.7-14.9	38.2-38.3	7.7	Sand + Mud
27	35	14.9	38.3	7.7	Mud
4-5-15-24	7-25	13.4-16.8	36.2-37.5	7.8-11.8	Sand
5-20-24-25-27-35-50	20-45	14.2-17.2	36.8-38.6	7.4-11.6	Sand + Mud
35	45	14.2	38.6	8.2	Mud
10-17-19	0.5	19.5-20.2	32.0-33.8	5.8-6.0	Rock
10-12-36	0.5-5	13.8-19.5	32.0-37.4	5.8-7.7	Rock
44-48	0.5	15.7-21.0	32.2-36.3	5.4-7.9	Sand

5-9-20-21-24-25-27-35	9-45	14.2-17.2	35.3-38.6	7.4-11.1	Sand + Mud
35	45	14.2	38.6	8.2	Mud
20-27-35-45	8-45	14.2-16.5	37.9-38.6	7.7-11.0	Sand + Mud
5-9-20-21-25-40-42-48	0.5-30	14.7-21.0	32.2-38.2	7.4-11.1	Sand
5-21-50	17-26	14.7-15.3	35.3-37.4	10.7-11.6	Sand
35	45	14.2	38.6	8.2	Mud
47	5	17.1	36.9	8.7	Sand

(to be continued)

Family	Species	ML/MW ³ cm	Material examined
XANTHIDAE	<i>Monodaeus couchii</i> (Couch, 1851)	2.3/3.5 (M)	2M, 1F
	<i>Xantho incisus</i> Leach, 1814	1.0/1.4 (M)	3 M
	<i>X. pilipes</i> A.Milne Edwards, 1867	1.8/2.5 (M)	2M, 1F
	<i>X. poressa</i> (Olivi, 1792)	2.3/3.6 (M)	26M, 7F
ERIPHIIDAE	<i>Eriphia verrucosa</i> (Forskål, 1775)	6.3/8.9 (M)	17M, 3F
PILUMNIDAE	<i>Pilumnus hirtellus</i> (Linnaeus, 1761)	1.4/2.2 (F)	7M, 6F
	<i>P. spinifer</i> H.Milne-Edwards, 1834	1.8/2.0 (F)	2M, 1F
GONEPLACIDAE	<i>Goneplax rhomboides</i> (Linnaeus, 1758)	1.3/2.3 (M)	1 M
PINNOTHERIDAE	<i>Nepinnotheres pinnotheres</i> (Linnaeus, 1758)	1.3/1.4 (F)	5 F
	<i>Pinnotheres pisum</i> (Linnaeus, 1767)	0.9/0.9 (M)	2 M
GRAPSIDAE	<i>Brachynotus sexdentatus</i> (Risso, 1827)	0.9/1.1 (M)	4M, 1F
	<i>Pachygrapsus marmoratus</i> (J.C. Fabricius, 1787)	3.1/3.7 (M)	62M, 12F

³ ML = maximum length of carapace; MW = maximum width of carapace; M = males; F = females.

Stations	Ecological properties				
	Depth, m	t°C	p.s.u.	mg l ⁻¹	Bottom structure
27-35	35-45	14.2-14.9	38.3-38.6	7.7-8.2	Mud
26-32	0.5	13.7-20.0	33.5-37.6	7.8-8.8	Rock
8-15-21	8-17	13.4-16.3	35.3-37.3	7.8-10.7	Sand
1-3-6-10-11-17-18- 23-26-31-36	0.5	13.7-25.1	32.0-37.6	5.4-7.9	Rock
10-11-13-17-18-22-26	0.5	13.7-25.1	30.0-37.6	5.4-10.6	Rock
11-23-30-32-36-37-38	0.5-5	17.7-25.1	32.1-36.6	7.5-11.2	Rock
27-35	35-45	14.2-14.9	38.3-38.6	7.7-8.2	Mud
35	45	14.2	38.6	8.2	Mud
28-47	5-7	17.1-17.8	35.5-36.9	6.6-8.7	Inside <i>Pinna nobilis</i>
28	7	17.8	35.5	6.6	Inside <i>Pinna nobilis</i>
16-23-38	0.5	17.8-22.5	32.1-34.0	7.5-11.4	Rock
1-2-3-6-10-11-12-13- 16-17-18-19-22-23- 26-30-31-32-33-38- 39					