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THE MARINE AMPHIPODA (CRUSTACEA: GAMMARIDEA) OF THE REPUBLIC OF LIBYA, SOUTHEASTERN MEDITERRANEAN

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Abstract. In the material of amphipods collected from the Libyan coasts in 1975-76, 125 species were identified. They belong to 27 families, from the total of 34 families mentioned by Ruffo (editor), for the whole Mediterranean basin: Ampeliscidae, Amphilochidae, Aoridae, Calliopiidae, Carangoliopsidae, Corophiidae, Cressidae, Dexaminidae, Eusiridae, Gammaridae, Isaeidae, Iphimediidae, Ischyroceridae, Leucothoidae, Liljeborgidae, Lysianassidae, Megaluropidae, Melitidae, Oedicerotidae, Phliantidae, Phoxocephalidae, Podoceridae, Pontoporeiidae, Stegocephalidae, Stenothoidae, Urothoidae and Caprellidae (partially identified). A total of 14 families, 64 genera and 111 species are recorded for the first time at the Libyan waters.

Résumé. Dans le matériel d'amphipodes collecté des côtes de la Lybie en 1975-1976, 125 espèces ont été identifiées. Elles appartiennent à 27 familles, du total de 34 mentionnées par Ruffo (éditeur) pour le bassin Méditerranéen tout entier: Ampeliscidae, Amphilochidae, Aoridae, Calliopiidae, Corophiidae, Cressidae, Dexaminidae, Eusiridae, Gammaridae, Isaeidae, Iphimediidae, Ischyroceridae, Leucothoidae, Liljeborgidae, Lysianassidae, Megaluropidae, Melitidae, Oedicerotidae, Phliantidae, Phoxocephalidae, Podoceridae, Pontoporeiidae, Stegocephalidae, Stenothoidae, Urothoidae et Caprellidae (partiellement identifiées). Un total de 14 familles, 64 genres et 111 espèces sont mentionnées pour la première fois dans les eaux de la Lybie.

Key words: Amphipoda, Libyan waters, first records.

INTRODUCTION

Present paper is published honoring the scientific and educational life of the late Dr. Geza Julius Müller (1934-1997), Head Researcher at the Laboratory of Ecology, belonging to the Romanian Institute of Marine Research (IRCM), as well as, Professor at the Faculty of Biology at the University "Ovidius", Constantza (Romania).

Late Professor Geza J. Müller was the scientific leader of the Romanian Expedition carried out in 1975-1976 on the coasts of Lybia. At the end of the '70s, the primary searching of invertebrate material finished, and the Gammaridean amphipods of such a collection were loaned by Dr. Müller to the senior author, to be studied in Havana, later.

At that time only one monographic paper was published, "Amphipodes" by Chevreux and Fage, (1925), containing the known species of the group in the Mediterranean Sea. Only more recently, Ruffo (editor) (1982-1998), with some well-known European carcinologists published in four volumes the Amphipod crustaceans of the Mediterranean Sea.

Nevertheless, the Southeastern Mediterranean amphipods remained very poorly studied, and very few samples were collected when preparing Ruffo's papers.

First study on Libyan amphipods was published by Maccagno (1939), mentioning 18 species.

Țigănuș (1984) published the second paper on this subject, first on results of Romanian expedition from 1976, adding other 33 species. So, this is the third contribution to the knowledge of this group, at the Libyan waters.

In order to get a general overview regarding Dr. Müller's entire scientific and didactic life consult Țigănuș (1997).

MATERIALS AND METHODS

The expedition took place on May-June, Sept.-Nov. 1975 and July-Aug. 1976 on board of the R/V "Danube Delta" by a team of scientists from the former Romanian Institute of Marine Research to the marine waters of Libya, the Mediterranean Sea. The material was mainly collected by dredging using a Van Veen dredge (appendix 1).

For identification we used the famous papers "Amphipodes, Faune de France", of Chevreux and Fage (1925) and "The Amphipoda of the Mediterranean", by Ruffo (editor) (1982, 1989, 1993, and 1998). These papers are considered as the best and more actualized ones on the amphipods of this important marine region, so far. We also used Barnard & Karaman (1991) and Martin & Davis (2001).

The entire material will be deposited in the crustacean collection of the "Grigore Antipa" National Museum of Natural History from Bucharest (Romania).

RESULTS

There were identified 125 species from 64 genera and 27 families. There were 111 species recorded for the first time from Libya, other 13 species being previously mentioned by Maccagno and Țigănuș. A total of 169 species are known now from Libyan waters of Southern Mediterranean.

Table 1

Check list of the marine Amphipoda (Gammaridea) of the Republic of Libya
(* previously record for the Libyan waters).

No.	Taxa	M	F	Station
	Family Ampeliscidae Costa, 1857			
1	<i>Ampelisca brevicornis</i> (A. Costa, 1853)	1	2	282, 20.05.34
2	<i>Ampelisca diadema</i> (A. Costa, 1853)	3	2	20.05.34, 24.05.41, 278, 92
3	<i>Ampelisca gibba</i> Sars, 1882	2	1	197, 261, 23.05.34, 202
4	<i>Ampelisca rubella</i> A. Costa, 1864	10	1	120, 167, 236, 263, 285, 333, 24.06.66
5	<i>Ampelisca sarsi</i> Chevreux, 1888	8	2	59, 97, 101, 197, 20.05.24, 22.05.47, 24.06.66
6	<i>Ampelisca spinipes</i> Boeck, 1861	3		193
7	<i>Ampelisca tenuicornis</i> Liljeborg, 1855	16	7	119, 164, 234, 245, 281, 1.9, 23.05.34, 23.05.55, 324
8	<i>Ampelisca typical</i> (Bate, 1856)	2	2	1/20, 60, 165
9	<i>Ampelisca</i> sp. 1	1		24.05.57
10	<i>Ampelisca</i> sp. 2		1	234
11	<i>Byblis guernei</i> Chevreux, 1887	1		280
12	<i>Haploops dellavallei</i> Chevreux, 1900	2		197
	Family Amphilochoidea Boeck, 1871			
13	<i>Amphilochus brunneus</i> Della Valle, 1893	3	1	324, 23.05.34
14	<i>Amphilochus neapolitanus</i> Della Valle, 1893	5	3	236, 240, 241, 23.05.55
15	<i>Gitana sarsi</i> Boeck, 1871	2		236

Table 1 (continued)

No.	Taxa	M	F	Station
	Family Aoridae Stebbing, 1899			
16	<i>Aora typica</i> Kroyer, 1845	3	9	236
17	<i>Autonoe angularis</i> (Ledoyer, 1970)	1	1	332
18	<i>Autonoe viduarum</i> (Myers, 1974)	1		15
19	<i>Lembos</i> sp.	1	1	164, 330
20	<i>Lembos websteri</i> Bate, 1857*	3		153
21	<i>Leptocheirus bispinosus</i> Norman, 1908	4	19	164, 192, 237, 20.05.11
22	<i>Leptocheirus guttatus</i> (Grube, 1864)	1	14	162, 241, 20.05.46
23	<i>Leptocheirus hirsutimanus</i> (Bate, 1862)		1?	286
24	<i>Leptocheirus pectinatus</i> Norman, 1869	3	23	120, 143, 153, 162, 165, 198, 202, 229, 232, 263, 286, 324, 325, 334, 23.05.55
25	<i>Leptocheirus pilosus</i> Zaddach, 1844	1	10; juv.	246, 249, 21.05.33, 23.05.34, 24.06.66
26	<i>Leptocheirus tricristatus</i> (Chevreux, 1887)	3	8	149, 202, 229, 245, 330, 334
27	<i>Microdeutopus armatus</i> Chevreux, 1887		1	23
28	<i>Microdeutopus damnoniensis</i> (Bate, 1856)*	2	2	236, 333
29	<i>Microdeutopus versiculatus</i> (Bate, 1856)		1	No data
30	<i>Thetylombos viguieri</i> (Chevreux, 1911)	1		324
31	<i>Unciola crenatipalma</i> (Bate, 1862)	1		192, 233, 24.06.66
	Family Carangoliopsidae Bousfield, 1977			
32	<i>Carangaliopsis</i> sp. 1	1?		202
33	<i>Carangaliopsis</i> sp. 2	1		330
	Family Corophiidae Leach, 1814			
34	<i>Medicorophium runcicorne</i> (Della Valle, 1893)	1	1	20.05.24, 24.06.66
35	<i>Siphonoecetes sabatieri</i> de Rouville, 1894	3	46	324
	Family Cressidae Stebbing, 1899			
36	<i>Cressa dubia</i> (Bate, 1857)	4	3	153, 198, 244, 286, 20.05.46
	Family Dexaminidae Leach, 1814			
37	<i>Atylus guttatus</i> (A. Costa, 1851)	3		141, 286, 22.05.46
38	<i>Dexamine spiniventris</i> (A. Costa, 1853)*	1		240
39	<i>Dexamine spinosa</i> (Montagu, 1813)*	1	juv.	98, 236, 244
40	<i>Dexamine thea</i> Boeck, 1861		1	1.9 V.V.
41	<i>Guernea coalita</i> (Norman, 1868)	22	19	116, 153, 164, 165, 196, 229, 236, 241, 244, 325, 332, 334, 20.05.11, 21.05.33
	Family Eusiridae Stebbing, 1888			
42	<i>Eusirus longipes</i> Boeck, 1861	5		241, 23, 281, 24.06.62
43	<i>Apherusa bispinosa</i> (Bate, 1857)		1 juv.	1.9
44	<i>Apherusa hemneguyi</i> Chevreux & Fage, 1925	3	2	334
45	<i>Apherusa ovalipes</i> Norman & Scott, 1906	7	1	98, 116, 141, 240, 263
	Family Gammaridae Latreille, 1802			
46	<i>Echinogammarus olivii</i> (Milne Edwards, 1830)	1		167
47	Gammaridae sp.	1		24.06.61
	Family Isaeidae Dana, 1853			
48	<i>Gammaropsis maculate</i> (Johnston, 1828)	1		229
49	<i>Gammaropsis palmata</i> (Stebbing & Robertson, 1891)		2	24.05.57
50	<i>Gammaropsis</i> sp.	1		238
51	<i>Gammaropsis sophiae</i> (Boeck, 1861)	2 juv.		23, 324

Table 1 (continued)

No.	Taxa	M	F	Station
52	<i>Isaea montagui</i> (Milne Edwards, 1830)			No data
53	<i>Megamphopus cornutus</i> Norman, 1869	4	2	23, 59, 165, 325, 24.05.41, 20.05.46
54	<i>Megamphopus</i> sp.	1		21.05.33
55	<i>Photis longicaudata</i> (Bate and Westwood, 1862)	1		233
56	<i>Photis</i> sp. *	2	3; 1 juv.	59, 167
	Family Iphimediidae Boeck, 1871			
57	<i>Iphimedia obesa</i> Rathke, 1843	juv.		229, 237
58	<i>Iphimedia eblanae</i> (Bate, 1857)	1		278
59	<i>Iphimedia minuta</i> (Sars, 1882)	3	1	149, 192, 244, 22.05.38
60	<i>Iphimedia</i> sp.	1		No data
	Family Ischyroceridae Stebbing, 1899			
61	<i>Erichthonius difformis</i> Milne Edwards, 1830 *	1	1	162, 247
62	<i>Cerapus tubularis</i> Say, 1817			No data
	Family Leucothoidae Dana, 1852			
63	<i>Leucothoe incisae</i> Robertson, 1892	15	2	162, 165, 193, 198, 236, 237, 241, 276, 286, 1.9, 334, 23.05.34, 24.05.41
64	<i>Leucothoe spinicarpa</i> (Abildgaard, 1789)*	1		20.05.11
	Family Liljeborgidae Stebbing, 1899			
65	<i>Idumella pirata</i> Krapp-Schickel, 1975	1?		165, 229, 236, 237, 241, 280, 286, 325, 334, 1.9, 21.05.33
66	<i>Idumella pirata</i> ?	juv.		22.05.38
67	<i>Liljeborgia dellavallei</i> Stebbing, 1906	1		240
68	<i>Liljeborgia pallida</i> (Bate, 1857)	1?		1.9, 20.05.11
	Family Lysianassidae Dana, 1849			
69	<i>Acidostoma obesum</i> (Bate & Westwood, 1861)	1		332
70	<i>Hippomedon denticulatus</i> (Bate, 1857)	1?		120, 232, 325, 20.05.46
71	<i>Hippomedon oculatus</i> Chevreux & Fage, 1925	1?		165, 196, 24.06.66
72	<i>Hippomedon</i> sp.	1		143
73	<i>Ichnopus taurus</i> A. Costa, 1853	juv.		141
74	<i>Lepidepecrum longicornis</i> (Bate and Westwood, 1861)	2	2	197, 234
75	<i>Lysianassa costae</i> Milne Edwards, 1830	7	1	162, 198, 20.05.11, 22.05.47
76	<i>Lysianassa ceratina</i> (Walker, 1889)	3	3; 1 juv.	19, 236, 237
77	<i>Lysianassa pilicornis</i> Heller, 1866*	2	1	236, 244, 1.9
78	<i>Lysianassa longicornis</i> Lucas, 1849*	3	2; 9 juv.	100, 149, 162, 240, 20.05.11
79	<i>Lysianassa plumosa</i> Boeck, 1871	2	2; 3 juv.	60, 116, 143, 165, 23.05.34
80	<i>Nannonyx propinquus</i> Chevreux, 1911	1		330
81	<i>Nannonyx spinimanus</i> Walker, 1895		juv.	330
82	<i>Orchomene humilis</i> (A. Costa, 1853)	1		162
83	<i>Orchomene</i> sp.	1		162
84	<i>Perrierella audouiniana</i> Bate, 1857	1?		23, 165, 167, 192, 232, 236, 238, 244, 245, 324, 333, 22.05.46, 24.06.61
85	<i>Tryphosa</i> sp.	1		332

Table 1 (continued)

No.	Taxa	M	F	Station
86	<i>Tryphosites longipes</i> (Bate & Westwood, 1861)	2		162
	Family Megalurotidae Thomas & Barnard, 1986			
87	<i>Megaluropus agilis</i> Hoek, 1889	1	1	285
	Family Melitidae Bousfield, 1973			
88	<i>Ceradocus semiserratus</i> (Bate, 1862)	5	4; juv.	116, 229, 240, 241, 281, 1.9, 22.05.46, 21.05.33
89	<i>Cheirocratus sundevallii</i> (Rathke, 1843)	2	6	23, 119, 153, 164, 229, 240, 281, 334
90	<i>Eriopisella pusilla</i> Chevreux, 1920		3	288
91	<i>Gammarella fucicola</i> (Leach, 1814)*	1		No data
92	<i>Maera grossimana</i> (Montagu, 1808)	2		23, 141
93	<i>Maera hamigera</i> Haswell, 1880	1?		149, 262, 286, 330, 334, 24.06.72
94	<i>Maera</i> sp.	1	1	153
95	<i>Melita pellucida</i> Sars, 1882	1?		165, 333
96	<i>Melita</i> sp. *		1	263
	Family Oedicerotidae Lilljeborg, 1865			
97	<i>Monoculodes carinatus</i> (Bate, 1857)	1?		233, 22.05.38
98	<i>Monoculodes gibbosus</i> Chevreux, 1888	2		281, 333
99	<i>Monoculodes rostratus</i> Stephensen, 1931	1		277
100	<i>Monoculodes subnudus</i> Norman, 1889	8	6	98, 164, 192, 196, 241, 262, 276, 324, 330, 333, 1.9, 22.05.46, 23.05.34
101	<i>Monoculodes</i> sp.	1		117
102	<i>Perioculodes longimanus</i> (Bate & Westwood, 1868)*	1?		60, 240, 22.05.47
103	<i>Pontocrates arenarius</i> (Bate, 1858)	1		330
104	<i>Synchelidium maculatum</i> Stebbing, 1906	7	1	23, 141, 149, 153, 197, 325, 23.05.55
	Family Phliantidae Stebbing, 1899			
105	<i>Pereionotus testudo</i> (Montagu, 1808)	3		162, 1.9, 20.05.11
	Family Phoxocephalidae Sars, 1891			
106	<i>Harpinia antennaria</i> Meinert, 1890	2?		23, 59, 98, 149, 229, 241, 331, 335, 20.05.11, 20.05.12, 22.05.46,
107	<i>Harpinia crenulata</i> (Boeck, 1871)	1?		59, 165, 233, 236, 244, 245, 325, 23.05.55, 24.05.41, 24.06.62
108	<i>Harpinia dellavallei</i> Chevreux, 1910	1?		60, 167, 276, 335
109	<i>Harpinia pectinata</i> Sars, 1891	1	3	15, 97, 162, 281
110	<i>Harpinia</i> sp.	1		141
111	<i>Metaphoxus fultoni</i> (Scott, 1890)	10	20	23, 98, 116, 120, 141, 149, 167, 198, 202, 229, 236, 237, 240, 241, 245, 249, 262, 281, 325, 330, 331, 334, 335, 1.9, 20.05.11, 20.05.12, 20.05.46, 22.05.46
112	<i>Metaphoxus simplex</i> (Bate, 1857)	1		325

Table 1 (continued)

No.	Taxa	M	F	Station
	Family Podoceridae Stebbing, 1906			
113	<i>Laetmatophilus purus</i> Stebbing, 1888	1		23.05.34
114	<i>Laetmatophilus tuberculatus</i> Bruzelius, 1859	juv.		335
	Family Pontoporeiidae Kroyer, 1842			
115	<i>Bathyporeia pelagica</i> (Bate, 1856)	1?		100, 120, 162, 282, 332
	Family Scopelocheridae Lowry & Stoddart, 1997			
116	<i>Scopelochirus hopei</i> (A. Costa, 1851)	3	46	117, 167, 198, trawl 332
	Family Stegocephalidae Dana, 1853			
117	<i>Stegocephaloides christianiensis</i> (Boeck, 1871)	1		22.05.46
	Family Stenothoidae Boeck, 1871			
118	<i>Metopa longicornis</i> Boeck, 1871	1		281
119	<i>Stenothoe monoculoides</i> (Montagu, 1813)*	2		1.9
	Family Urothoidae Bousfield, 1978			
120	<i>Urothoe brevicornis</i> Bate, 1862	1		164
121	<i>Urothoe elegans</i> Bate, 1857	10	4; 2 juv.	23, 98, 116, 149, 196, 202, 236, 245, 277, 281, 282, 286, 325, 334, 1.9
122	<i>Urothoe grimaldii</i> Chevreux, 1895	2?		198, 23.05.34
123	<i>Urothoe marina</i> (Bate, 1857)	1?		100, 165, 244, 263, 24.05.41
124	<i>Urothoe pulchella</i> (A. Costa, 1853)	1		162
	Family Caprellidae Leach, 1814			
125	Caprellidae sp.	5	1	44, 162, 202, 236, 286

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AMFIPODE MARINE (CRUSTACEA: GAMMARIDEA) DIN REPUBLICA LIBIA,
SUD-ESTUL MEDITERANEI

REZUMAT

Materialul de amfipode determinat a fost colectat de expediția organizată de fostul Institut Român de Cercetări Marine din Constanța la litoralul libian în 1975-1976.

Au fost identificate 125 specii din 64 genuri și 27 familii. Sunt 111 specii menționate acum pentru prima oară din Libia, alte 14 specii fiind citate anterior de aici de Maccagno în 1939 și de Țigănuș în 1984. Se cunosc astfel până acum din apele libiene 169 specii.

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Data on stations.

No.	Station	Data	Depth (m)	Coordinates	Sample	Substratum	Community
1.	20.05.11	06.06.75	67	32°10' N 19°52' E	qualitative, quantitative	Coarse maerloid sand	<i>Vidalia</i> and a rich population of <i>Stylocidaris</i>
2.	20.05.12	06.06.75	67	32°10' N 19°57' E	qualitative, quantitative	Coarse maerloid sand	Active maerl with <i>Halophila</i> and <i>Codium bursa</i>
3.	20.05.24	09.05.75	110	32°37.8' N 20°22' E	qualitative, quantitative	Coarse maerloid sand with <i>Dentalium</i>	<i>Palmophyllum</i> belt with bryozoans and few <i>Stylocidaris</i>
4.	22.05.46	27.05.75	80	32°59.5' N 22°29' E	quantitative	Maerloid sand	Maerl with <i>Halimeda</i> and <i>Udotea</i>
5.	21.05.33	20.05.75	52	32°56' N 21°47' E	qualitative, quantitative	Compact maerl	complex algal belt with associated fauna
6.	22.05.38	25.05.75	125	32°54' N 22°54' E	qualitative, quantitative	Coarse maerloid sediment	<i>Muhlefeldtia</i> and various echinoderms
7.	22.05.46	27.05.75	80	32°59.5' N 22°29' E	quantitative	Maerloid sand	Maerl with <i>Halimeda</i> and <i>Udotea</i>
8.	22.05.47	27.05.75	60	32°55.5' N 22°29' E	qualitative, quantitative	Compact maerl with shells	active maerl, with rich macrofauna
9.	23.05.34	05.05.75	78	32°38.5' N 23°07' E	qualitative, quantitative	Compact maerl	<i>Muhlefeldtia</i> and <i>Stylocidaris</i>
10.	23.05.55	31.05.75	145	32°20.7' N 23°39' E	qualitative, quantitative	Muddy sand with shells	Brachiopods and <i>Hyalinoecia</i> , <i>Leptometra</i>
11.	24.05.41	No data					
12.	24.05.57	No data					
13.	24.06.61	01.06.75	165	32°09.8' N 24°26.3' E	quantitative	medium muddy sand	without macroscopic life
14.	24.06.62	01.06.75	110	32°05.5' N 24°26' E	qualitative, quantitative	medium muddy sand with maerl	<i>Palmophyllum</i> and <i>Stylocidaris</i>
15.	24.06.66	02.06.75	190	32°11' N 24°43' E	qualitative, quantitative	fine muddy sand	<i>Muhlefeldtia</i> with few cidarid echinoids and <i>Amphiura</i>
16.	24.06.72	No data					
17.	15	No data					
18.	23	No data					
19.	43	No data					
20.	59	No data					
21.	60	No data					
22.	65	No data					

Appendix (continued)

No.	Station	Date	Depth (m)	Coordinates	Sample	Substratum	Community
23.	97	9-11.75	170	32°11' N 24°08' E	Van Veen dredge	fine bioclastic sand with low silty content	<i>Leptometra-Hyalinoecia</i> community
24.	98	9-11.75	70	32°07' N 24°06' E	Van Veen dredge	medium bioclastic, bryalgal sand and active maerl	interference between <i>Palmophyllum</i> and <i>Codium bursa</i> communities
25.	100	9-11.75	40	32°12.3' N 23°45' E	Van Veen	fine detritic sandy sediment	<i>Zostera</i> community
26.	101	9-11.75	150	32°16' N 23°45' E	Van Veen dredge	fine bioclastic sand with silt and relictous maerl concretions	<i>Muhlefeldtia</i> – <i>Stylocidaris</i> community
27.	116	9-11.75	66	32°41' N 23°00' E	Van Veen dredge	stony outcrops mixed with large sandy patches, fine sand	<i>Vidalia-Caulerpa</i> community
28.	117	9-11.75	115	32°44' N 23°00' E	Van Veen dredge	bry-algal fine/ medium sand with active maerl	<i>Palmophyllum</i> - <i>Stylocidaris</i> community
29.	119	9-11.75	145	32°53' N 23°00' E	Van Veen dredge	Medium bry-algal sand with few active maerl	<i>Stylocidaris</i> - <i>Hyalinoecia</i> community
30.	120	9-11.75	62	32°54' N 22°15' E	Van Veen dredge	bry-algal sand with active compact maerl	<i>Vidalia-Caulerpa</i> community
31.	141	9-11.75	75	32°40' N 20°28' E	Van Veen dredge	bry-algal sand with active maerl	<i>Palmophyllum</i> - <i>Stylocidaris</i> community
32.	143	9-11.75	27	32°33.3' N 20°33' E	Van Veen dredge	Inshore stony belt with sandy enclaves	<i>Cystoseira</i> complex and <i>Posidonia</i> in small colonies
33.	149	9-11.75	62	32°21' N 20°06' E	Van Veen dredge	Fine/medium bry-algal sand and active maerl	<i>Caulerpa</i> - <i>Vidalia</i> - <i>Codium</i> community with sponges
34.	153	9-11.75	102	32°13' N 19°53' E	Van Veen dredge	bry-algal sand with stoneheads	Scarce <i>Palmophyllum</i> - <i>Stylocidaris</i> community
35.	162	9-11.75	65	31°45' N 19°42' E	Van Veen dredge	Medium/coarse bioclastic, bryalgal sand and active maerl	<i>Vidalia</i> - <i>Codium</i> – <i>Caulerpa</i> complex
36.	164	9-11.75	26	31°30' N 19°54' E	Van Veen dredge	Rough stony bottom	<i>Cystoseira</i> complex
37.	165	9-11.75	42	31°30' N 19°49' E	Van Veen dredge	fine/ medium bioclastic sand	<i>Caulerpa</i> only dominating element

Appendix (continued)

No.	Station	Date	Depth (m)	Coordinates	Sample	Substratum	Community
38.	167	9-11.75	96	31°30' N 19°40' E	Van Veen dredge	Rough bottom with alternating stoneheads and shelly deposits	No dominating macrobenthos, tunicates (<i>Distalpa</i>) still present
39.	192	2-03.76	70	32°41' N 23°00' E	Van Veen dredge	Medium/fine sand with silt and concretions	<i>Codium</i> – <i>Vidalia</i> - <i>Caulerpa</i> association, many decapods
40.	193	2-03.76	100	32°44' N 23°00' E	Van Veen dredge	Fine muddy sand with partly active maerl	<i>Palmophyllum</i> community, <i>Stichopus</i> and tunicata
41.	196	2-03.76	40	32°43' N 22°50' E	Van Veen dredge	Stony outcrops with sandy enclaves, coarse bioclastic sand	Some spatangoid urchins, <i>Sargassum</i>
42.	197	2-03.76	65	32°47' N 22°50' E	Van Veen dredge	Medium/fine sand with few silt	<i>Caulerpa</i> - <i>Codium</i> – <i>Vidalia</i> community
43.	198	2-03.76	80	32°51' N 22°50' E	Van Veen dredge	Maerly sand, partially coarse	Active maerl with <i>Codium</i> – <i>Vidalia</i> - <i>Caulerpa</i> vegetation
44.	202	2-03.76	70	32°57' N 22°35' E	Van Veen dredge	Bioclastic mainly coarse sand	<i>Codium</i> – <i>Vidalia</i> - <i>Caulerpa</i> community, <i>Antedon</i> and tunicata
45.	229	2-03.76	77	32°32' N 20°13' E	Van Veen dredge	Coarse maerly sand	<i>Caulerpa</i> - <i>Udotea</i> community with <i>Stylocidaris</i>
46.	232	2-03.76	32	32°09' N 20°01' E	Van Veen dredge	Stony bottom with patchy sandy enclaves	Indefinite community
47.	233	2-03.76	66	32°10' N 19°57' E	Van Veen dredge	Coarse maerly sand	<i>Codium</i> – <i>Vidalia</i> - <i>Caulerpa</i> with <i>Stylocidaris</i>
48.	234	2-03.76	125	32°13' N 19°53' E	Van Veen dredge	Maerly sand with high content of limy mud	<i>Palmophyllum</i> – <i>Stylocidaris</i> community
49.	236	2-03.76	28	32°18' N 20°09' E	Van Veen dredge	Medium/fine bioclastic sand with detritus	<i>Posidonia</i> community with few <i>Cystoseira</i>
50.	237	2-03.76	62	32°21' N 20°06' E	Van Veen dredge	Compact maerl with low content of limy mud	<i>Caulerpa</i> vegetation with <i>Antedon</i> and pectinid bivalves

Appendix (continued)

No.	Station	Date	Depth (m)	Coordinates	Sample	Substratum	Community
51.	238	2-03.76	150	32°24' N 20°02' E	Van Veen dredge	Medium sand with silty mud and <i>Dentalium</i> shells	Community with <i>Microcosmus</i> , <i>Cidaris</i> , and sponges
52.	240	2-03.76	26	32°00' N 19°53' E	Van Veen dredge	Very rough bottom with stony outcrops and sandy patches	<i>Posidonia</i> community on soft sediments
53.	241	2-03.76	63	32°00' N 19°48' E	Van Veen dredge	Compact maerl with low content of finer fractions	<i>Caulerpa</i> – <i>Vidalia</i> community
54.	244	2-03.76	30	31°45' N 19°51' E	Van Veen dredge	Stony bottom	<i>Cystoseira</i> community
55.	245	2-03.76	50	31°45' N 19°46' E	Van Veen dredge	Compact maerl without finer sediment	<i>Caulerpa</i> – <i>Vidalia</i> community and <i>Corbula</i>
56.	246	2-03.76	62	31°45' N 19°42' E	Van Veen dredge	Compact maerl with low finer sediments	<i>Caulerpa</i> – <i>Codium</i> - <i>Cystoseira</i> with <i>Antedon</i> and pectinid bivalves
57.	247	2-03.76	98	32°00' N 19°48' E	Van Veen dredge	Maerly coarse/medium sand with gravels	Indefinite community, sponges prevalent
58.	249	2-03.76	58	31°30' N 19°45' E	Van Veen dredge	Compact maerl with low content of finer sediments	<i>Caulerpa</i> - <i>Vidalia</i> - <i>Codium</i> community with rich macrobenthic fauna
59.	261	7-08.76	170	32°09' N 24°20' E	Van Veen dredge	Fine/medium sand with some silt and detritus	<i>Leptometra</i> - <i>Hyalinoecia</i> community
60.	262	7-08.76	100	32°05' N 24°20' E	Van Veen dredge	Secondary hard bottom of compact maerl	Typical form of <i>Palmophyllum</i> - <i>Stylocidaris</i> community
61.	263	7-08.76	43	32°01' N 24°20' E	Van Veen dredge	Medium sand of abasive origin with detritus	Heterogenous psamophile fauna
62.	276	7-08.76	63	32°41' N 23°00' E	Van Veen dredge	Fine bioclastic sand with few active concretion of maerl	Lower limit of <i>Corbula</i> community
63.	277	7-08.76	110	32°44' N 23°00' E	Van Veen dredge	Fine bioclastic sand with a relative high number of <i>Melobesia</i> concretions	Typical form of <i>Palmophyllum</i> - <i>Stylocidaris</i> community

Appendix (continued)

No.	Station	Date	Depth (m)	Coordinates	Sample	Substratum	Community
64.	278	7-08.76	130	32°48' N 23°00' E	Van Veen dredge	Heterogenous bioclastic sand and compact maerl, partly active	<i>Muhlefeldtia</i> community, with <i>Zanardinia</i> and Bryozoa
65.	280	7-08.76	90	32°51' N 22°50' E	Van Veen dredge	Fine calcareous sand with about 30% of mud	Interference between algal association dominated by <i>Palmophyllum</i> and dense <i>Muhlefeldtia</i> population
66.	281	7-08.76	80	32°51' N 22°50' E	Van Veen dredge	Compact maerl forming a secondary hard bottom on a sandy bed	<i>Codium bursa</i> dominated algal community with relatively rich sessile and vagile invertebrata
67.	282	7-08.76	63	32°47' N 22°50' E	Van Veen dredge	Medium sand of abrasive as well as of bioclastic origin	<i>Caulerpa</i> bed with a large aspect of associated invertebrata
68.	285	7-08.76	39	32°53' N 22°35' E	Van Veen dredge	Rocky bottom with patches of sandy sediment; pebbles and gravel	<i>Sargassum-Cystoseira</i> algal association, scarce fauna
69.	286	7-08.76	68	32°57' N 22°35' E	Van Veen dredge	Very clean coarse-medium bioclastic sand, few concretions of <i>Lithotamnion</i>	<i>Caulerpa</i> bed with associated <i>Udotea</i> , <i>Codium</i> , <i>Sargassum</i> and <i>Vidalia</i> , very rich fauna
70.	288	7-08.76	63	32°54' N 22°15' E	Van Veen dredge	Bioclastic sand with a high content of politic fraction and detritus, concretions of <i>Lithotamnion</i>	<i>Codium bursa</i> - <i>Cystoseira</i> community with other algae, scarce associated fauna
71.	324	7-08.76	26	32°00' N 19°53' E	Van Veen dredge	Hard bottom, mainly stony outcrops, few sandy patches	<i>Cystoseira</i> & <i>Sargassum</i> on rocks, <i>Posidonia</i> on sand
72.	325	7-08.76	63	32°00' N 19°54.8' E	Van Veen dredge	Coarse maerloid sand with very low content of politic fraction	<i>Caulerpa</i> bed with relatively rich association, <i>Corbula</i> and pectinids dominated

Appendix (continued)

No.	Station	Date	Depth (m)	Coordinates	Sample	Substratum	Community
73.	330	7-08.76	62	31°45' N 19°42' E	Van Veen dredge	Heterogenous sandy sediment with 25% pelitic fraction	<i>Caulerpa –Vidalia</i> bed with comparatively rich associated fauna
74.	331	7-08.76	100	31°45' N 19°37' E	Van Veen dredge	Sediment dominated by fractions of fine sand and mud	Indefinite, dominating element, <i>Microcosmus sulcatus</i>
75.	332	7-08.76	25	31°30' N 19°54' E	Van Veen dredge	Fine to medium clean sand	<i>Posidonia</i> community
76.	333	7-08.76	41	31°30' N 19°49' E	Van Veen dredge	Coarse bioclastic sand with 15% pelitic components	<i>Caulerpa</i> bed with associated fauna interfering with <i>Corbula</i> community
77.	334	7-08.76	59	31°30' N 19°45' E	Van Veen dredge	Coarse bioclastic sand with greyish detritic mud	Compact <i>Caulerpa</i> bed, rich fauna of various invertebrates
78.	335	7-08.76	98	31°30' N 19°40' E	Van Veen dredge	Compact sandy mud with shells and maerl concretions	Variant of the <i>Dentalium</i> community
79.	1.9	No data					
80.	1.20	No data					