

review article

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MEIOBENTHIC HARPACTICOIDA (COPEPODA) FROM THE SOUTHERN PART OF THE GULF OF TRIESTE (NORTHERN ADRIATIC) I. LIST OF TAXA

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ABSTRACT

The article presents an integral systematic review of free - living nonparasitic meiobenthic harpacticoid copepods, arranged on the basis of the extensive material gathered during all the past investigation into this group in the area of the southern part of the Gulf of Trieste between 1970 and 2000. The emphasis is on the alphabetical and systematic survey, which includes a total of 130 species, and on morphological-taxonomic features presented with the taxonomic sketches of 62 species.

Key words: Harpacticoida, Copepoda, Gulf of Trieste, list of taxa

ARPACTICOIDI (COPEPODA: HARPACTICOIDA) MEIOBENTONICI DELLA PARTE MERIDIONALE DEL GOLFO DI TRIESTE (NORD ADRIATICO) I. ELENCO DELLE SPECIE

SINTESI

L'articolo presenta una revisione sistematica integrale di copepodi arpacticoidi meiobentonici, non-parassiti e conducenti vita libera, ottenuta grazie a un ampio numero di ricerche su questo gruppo, effettuate nella parte meridionale del Golfo di Trieste tra il 1970 ed il 2000. L'autore ha messo in evidenza sia la revisione alfabetica e sistematica, che comprende 130 specie, sia le caratteristiche morfo-tassonomiche, schematizzate per 62 specie.

Parole chiave: Harpacticoida, Copepoda, Golfo di Trieste, elenco delle specie

INTRODUCTION

The present contribution is an attempt at the very first integral systematic review of meiobenthic, non-parasitic, free-living species of harpacticoids of the southern part of the Gulf of Trieste, which predominantly belong to the territorial waters of the Republic of Slovenia. The emphasis is on the list of species and on the morphological-taxonomic characteristics of the more common species of this second most important

group of meiofauna, while the biocenotic and ecological aspects of the so far made investigations in respect of the harpacticoids of this part of the Gulf are presented in a separate article (Vrišer, 2000).

The aim of this contribution is to present a refined and fairly rounded up list of species supported with the author's so far unpublished morphological-taxonomic sketches (Figs. 1-9). As such it should be a basic aid to all future investigators of harpacticoids in our as well as a wider area.

METHODS

All samplings were carried out with the gravity core (Meischner & Rumohr, 1974) with the 10 cm² aperture, some 5-10 cm deep into the sediment, mostly in three replicates; the meiofauna was extracted with the shaking-supernatant technique of Wieser (1960) and sieved through 0.125 mm and 0.050 mm sieves. During the determination of species and the revision of nomenclature we relied mainly on the basic taxonomic literature (Lang, 1948; Bodin, 1979) and on various taxonomic periodic sources, of which only a restricted selection is referred to in this article.

ECOLOGICAL CHARACTERISTICS OF THE AREA

All the samplings of harpacticoids carried out so far in the southern part of the Gulf of Trieste covered the entire depth range of these waters: from 1-15 m during the study of copepods of coastal profiles to the investigations of the open waters of the Gulf (19-25 m, and exceptionally 30 m depths). The coastal harpacticoids (1-15 m in the Bays of Koper, Strunjan and Piran) were studied comparatively during the summer and winter months, while the fauna of the deeper open waters was investigated only during the summer. Thermal conditions of the entire area oscillated between 9-21°C, average salinity was 37.5 PSU, oxygen content from 55 to 96% saturation and only exceptionally below 40% (at the time of hypoxic crises).

The harpacticoids dealt with during the two coastal ecological studies (Marcotte, 1974; Vrišer, 1986) were only at two of their shallowest sampling localities (in the Koper and Piran Bays at depths ranging from 1-5 m) under the strong influence of organic pollution of urban origin, while the remaining Copepoda fauna that is dealt with by this article belonged to a clean, unpolluted environment. The substrate of the investigated area is in view of its geological structure clayey silt (with 10-20% of clay), which on the coast turns into silty clays (with up to 25% of clay), while in direction of the open sea it turns into fine sand (Ogorelec *et al.*, 1991).

THE EXTENT OF RESEARCH INTO HARPACTICOIDS OF THE SOUTHERN PART OF THE GULF OF TRIESTE

The first "pathfinding" investigations in the area were carried out by Marcotte during 1971-1972 within the framework of a comparative summer-winter study of the impacts of pollution on meiofauna of the coastal belt of the Piran Bay. From the depth transects of five localities ranging between 1 and 15 m, this research brought forth 53 harpacticoid species, 10 of which were not fully determined (Marcotte, 1973, 1974; Marcotte & Coull, 1974).

Some meiofaunal samples were taken by the two

Bulgarian copepodologists at 15 m near Piran in August 1971. In the published results of this study 25 species are treated (Marinov & Apostolov, 1981a, b).

On the basis of Marcotte's studies the author of this article carried out, in 1978-1979, a more extensive comparative summer-winter (February - August) ecological study of meiofauna (between 1 and 15 m) of the Piran and Strunjan Bays and in the polluted part of the Koper Bay. These investigations (Vrišer, 1982, 1983, 1986) have rendered 62 harpacticoid species, 25 of which were eventually determined by Trajan Petkovski, the Macedonian expert for this group, and the rest by the author himself, 28 of them fully and 9 only partially. Morphological sketches of this material are fully presented in this article (Figs. 1-10).

An extensive research into meiofauna of the entire area of Slovenian waters was carried out in August 1985 at 31 stations at depths ranging from 19 - 25 m (Vrišer, 1992). A survey of the entire collected material (almost 16000 harpacticoid individuals) has from this source rendered a total of 71 species. 34 of these have not been fully determined as yet.

Within the framework of research into seasonal and long-term changes in meiofauna occurring in the environment frequently affected by hypoxia, a total of 42 harpacticoid species were determined between 1992 and 1995 at the research station in the centre of the Gulf of Trieste (Vrišer, 1996, 1997), while the experiment on recolonization of artificially defaunated sediment during 1993-1995 at the experimental station off Piran (21 m) brought forth 32 harpacticoid species (Vrišer & Vuković, 1999).

In this article, a full list of all until now registered harpacticoid species of the research area is presented for the very first time. It has been made on the basis of all studies carried out to date and covers a total of 130 species, in 35 of which only their genus has been determined. The number of species greatly surpasses the original expectations as well as estimates by some copepodologists (e.g. B.M. Marcotte, B.C. Coull & M. Specchi, *pers. comm.*) about the possible species diversity of this group in our waters.

I believe that the actual number of harpacticoid species of the investigated area, *i.e.* in nature, is most probably not much greater than 150, although some of the present-day species determinations might well be refuted by future investigations.

Considering the number of species, the harpacticoid fauna of the Gulf of Trieste can be assessed as a medium diverse area, if compared with the studies of spatially much larger areas in the Mediterranean: 340 species on the entire Côte d'Azur (Chappuis, 1953), 164 in the Eastern Mediterranean, 140 along the Israeli coast, 121 in the Black Sea (Por, 1964), 250 along the Catalonian coast (Soyer, 1970), etc.

In spite of the exceptional abundance of specimens

from the research carried out so far, the determination of the greater part of the incompletely determined species has been rendered difficult due to the fact that only a few individuals have been found together, although quite often at more than just a single locality. In spite of a series of difficulties (e.g. a high share of juvenile individuals, unfavourable sex structure, injured individuals, ecological variability of taxonomic features, etc.), this still enabled to make a distinction among separate species, but certainly not their positive determination. Solution of such individual problems - some of the species may even be new to science - is extremely time-consuming, for a renewed search for these species demands specific repeated samplings which, however, are not necessarily successful at all times. These problems thus remain a goal and the subject of the future research.

In spite of the many studies carried out in the past, the knowledge of the Adriatic harpacticoids is today still rather modest. The extent of research into this group in the Slovene waters is a considerable exception, for in the Mediterranean, too, it is very difficult to find a comparable small area, where so much harpacticoid research has been carried out to date.

LIST OF TAXA

The list includes all till now registered and identified harpacticoid species of the Slovene part of the Gulf of Trieste. For utterly practical reasons, particularly in order to make the search easier, the species are arranged in alphabetical order. Separate incompletely determined species are marked *Genus sp.* and numbered.

The letter (M) by the consecutive number before the names of genus and species indicates that the species under the same number is also presented with a sketch of the morphological-taxonomic features (see the following chapter: morphological characteristics and taxonomic features of species).

- | | | | |
|---------|---|---------|---|
| 1. (M) | <i>Acrenhydrosoma perplexum</i> (T. Scott, 1899) | 18. | <i>Amphiascus</i> sp.1 |
| 2. (M) | <i>Ameira parvula</i> (Claus, 1866) | 19. (M) | <i>Asellopsis</i> sp.1 |
| 3. | <i>Ameira</i> sp.1 | 20. | <i>Bradya (Bradya) typica</i> Boeck, 1872 |
| 4. | <i>Ameira</i> sp.2 | 21. (M) | <i>Bulbamphiascus imus</i> (Brady, 1872) |
| 5. | <i>Amonardia similis</i> (Claus, 1866) | 22. (M) | <i>Bulbamphiascus inermis</i> (Sewell, 1940) |
| 6. (M) | <i>Amphiascoides debilis</i> (Giesbrecht, 1881) | 23. | <i>Bulbamphiascus minutus</i> (Dinet, 1971) |
| 7. | <i>Amphiascoides proxima</i> (T. Scott, 1914) | 24. | <i>Bulbamphiascus</i> sp.2 |
| 8. (M) | <i>Amphiascoides</i> sp.1 | 25. | <i>Brianola stebleri</i> (Monard, 1926) |
| 9. | <i>Amphiascopsis thalestroides</i> (Sars, 1911) | 26. (M) | <i>Canuelia furcigera</i> Sars, 1903 |
| 10. | <i>Amphiascopsis cinctus</i> (Claus, 1927) | 27. (M) | <i>Canuelia perplexa</i> T. & A. Scott, 1893 |
| 11. (M) | <i>Amphiascopsis</i> sp.1 | 28. | <i>Canuelia</i> sp.1 |
| 12. | <i>Amphiascopsis</i> sp.2 | 29. (M) | <i>Cletodes pusillus</i> Sars, 1920 |
| 13. | <i>Amphiascopsis</i> sp.3 | 30. (M) | <i>Cletodes limicola</i> Brady, 1872 |
| 14. | <i>Amphiascus caudaespinosus</i> Brian, 1927 | 31. | <i>Cletodes longicaudatus</i> Boeck, 1872 |
| 15. | <i>Amphiascus congener</i> Sars, 1909 | 32. | <i>Cletodes tenuipes</i> Brady, 1896 |
| 16. | <i>Amphiascus minutus</i> Claus, 1863 | 33. (M) | <i>D'Arcythompsonia scotti</i> Gurney, 1920 |
| 17. (M) | <i>Amphiascus varians</i> Norman & T. Scott, 1905 | 34. | <i>D'Arcythompsonia</i> sp.1 |
| | | 35. | <i>Dactylopadella flava</i> (Claus, 1866) |
| | | 36. (M) | <i>Dactylopodia tishboides</i> (Claus, 1863) |
| | | 37. | <i>Danielssenia perezi</i> Monard, 1935 |
| | | 38. (M) | <i>Diagoniceps menaiensis</i> Geddes, 1968d |
| | | 39. | <i>Diarthrodes minutus</i> (Claus, 1863) |
| | | 40. (M) | <i>Diosaccus tenuicornis</i> (Claus, 1863) |
| | | 41. | <i>Diosaccus</i> sp.1 |
| | | 42. (M) | <i>Ectinosoma normani</i> T. & A. Scott, 1894a |
| | | 43. (M) | <i>Ectinosoma obtusum</i> Sars, 1920 |
| | | 44. (M) | <i>Ectinosoma dentatum</i> Steuer, 1940 |
| | | 45. | <i>Ectinosoma melaniceps</i> Boeck, 1864 |
| | | 46. | <i>Ectinosoma</i> sp.1 |
| | | 47. | <i>Ectinosoma</i> sp.2 |
| | | 48. (M) | <i>Enhydrosoma buchholtzi</i> (Boeck, 1872) |
| | | 49. (M) | <i>Enhydrosoma caeni</i> Raibaut, 1965 |
| | | 50. | <i>Enhydrosoma longifurcatum</i> Sars, 1909 |
| | | 51. (M) | <i>Enhydrosoma sordidum</i> Monard, 1926b |
| | | 52. (M) | <i>Enhydrosoma propinquum</i> (Brady, 1880) |
| | | 53. | <i>Enhydrosoma tunisensis</i> Monard, 1935a |
| | | 54. (M) | <i>Enhydrosomella staufferi</i> Monard, 1935a |
| | | 55. (M) | <i>Esola longicauda</i> Edwards, 1891 |
| | | 56. | <i>Eurypletodes (Oligocletodes) latus</i>
(T. Scott, 1892) |
| | | 57. (M) | <i>Eurypletodes (Oligocletodes)</i> sp.1 |
| | | 58. (M) | <i>Euterpina acutifrons</i> (Dana, 1848) |
| | | 59. | <i>Halectinosoma angulifrons</i> (Sars, 1919) |
| | | 60. | <i>Harpacticus obscurus</i> T. Scott, 1895b |
| | | 61. | <i>Harpacticus tenellus</i> Sars, 1920 |
| | | 62. (M) | <i>Harpacticus</i> sp.1 |
| | | 63. (M) | <i>Harpacticus</i> sp.2 |
| | | 64. | <i>Harpacticus</i> sp.3 |
| | | 65. | <i>Harpacticus</i> sp.4 |
| | | 66. | <i>Harpacticus</i> sp.5 |
| | | 67. | <i>Haloschizopera bulbifera</i> (Sars, 1911) |
| | | 68. | <i>Haloschizopera junodi</i> (Monard, 1935b) |
| | | 69. (M) | <i>Haloschizopera pontarchis</i> Por, 1959 |
| | | 70. | <i>Haloschizopera</i> sp.1 |
| | | 71. (M) | <i>Hemimesochra nixe</i> Por, 1964 |
| | | 72. | <i>Hemimesochra</i> sp.1 |

73. *Heterolaophonte quinquispinosa*
Sewell, 1924
74. (M) *Heterolaophonte stroemi paraminuta*
Noodt, 1955d
75. (M) *Heterolaophonte sp.1*
76. (M) *Heteropsyllus curticaudatus* T. Scott, 1894a
77. *Heteropsyllus sp.1*
78. (M) *Horsiella sp.1*
79. *Itunella muelleri* (Gagern, 1922)
80. *Laophonte longicaudata* Boeck, 1864
81. (M) *Laophonte sima* Gurney, 1927
82. (M) *Laophonte inornata* A. Scott, 1902
83. (M) *Laophonte cornuta* Philippi, 1840
84. *Laophonte sp.1*
85. *Laophonte sp.2*
86. *Laophonte sp.3*
87. *Laophonte sp.4*
88. (M) *Laophontopsis lamellifera* (Claus, 1863)
89. (M) *Longipedia coronata* Claus, 1863
90. *Longipedia pontica* Kritzgagin, 1877
91. (M) *Mesochra sp.1*
92. *Mesopsyllus atargatis* Por, 1960
93. (M) *Microsetella norvegica* (Boeck, 1864)
94. *Nitocra divaricata* (Chappuis, 1923)
95. (M) *Nitocra fragilis* Sars, 1905b
96. (M) *Normanella mucronata* Sars, 1909
97. (M) *Paradactylopodia brevicornis* Claus, 1866
98. *Paradanielssenia kunzi* Soyer, 1970b
99. (M) *Paralaophonte congenera* var.
mediterranea Sars, 1908c
100. *Paralaophonte brevirostris* (Claus, 1863)
101. *Paralaophonte sp.1*
102. (M) *Paramphiascella coulli* Marcotte, 1974
103. *Paramphiascella sp.1*
104. (M) *Parathalestris sp.1*
105. *Phyllopodopsyllus pauli* Crisafi, 1959
106. (M) *Phyllopodopsyllus sp.1*
107. (M) *Pontocletodes ponticus* Apostolov, 1980
108. (M) *Proameira sp.1*
109. (M) *Pseudobradya sp.1*
110. (M) *Rhynchothalestris rufocincta* (Brady, 1880a)
111. *Robertgurneya rostrata* (Gurney, 1927d)
112. *Robertgurneya ecaudata* (Monard, 1936)
113. (M) *Robertsonia knoxi* (Thompson & A. Scott, 1903)
114. *Robertsonia propinquua* (T. Scott, 1893c)
115. (M) *Stenhelia (Delavalia) normani* T. Scott, 1905b
116. (M) *Stenhelia (Delavalia) minuta* A. Scott, 1902
117. *Stenhelia (Delavalia) adriatica* Marinov & Apostolov, 1981
118. *Stenhelia (Delavalia) intermedia* Marinov & Apostolov, 1981
119. *Stenhelia (Delavalia) reflexa* Brady & Robertson, 1880a
120. *Stenhelia (Delavalia) sp.1*
121. *Stenhelia (Delavalia) sp.2*

122. (M) *Stylicletodes longicaudatus* (Brady & Robertson, 1880a)
123. (M) *Thalestris rufoviolascens* Claus, 1866
124. (M) *Tisbe lancii* Marcotte, 1974
125. *Tisbe gracilis* T. Scott, 1895b
126. *Tisbe clodiensis* Bataglia & Fava, 1968
127. *Tisbe reluctantans* Volkmann-Rocco, 1968
128. (M) *Typhlamphiascus confusus* (T. Scott, 1902)
129. (M) *Typhlamphiascus sp.1*
130. *Zosime atlantica* Bodin, 1968c

SYSTEMATIC SURVEY

The survey includes 130 systematically arranged harpacticoid species from the collective list. For the spatial reasons the species are presented only with their consecutive numbers from the alphabetical list of species.

Fam. LONGIPEDIIDAE Sars, Lang

Gen. *Longipedia* Claus, 1863 (89, 90)

CANUELLIDAE Lang

Canuella T. & A. Scott, 1893 (26, 27)

Brianola Monard, 1926 (25)

ECTINOSOMATIDAE Sars, Olofsson

Ectinosoma Boeck, 1864 (42, 43, 44, 45, 46, 47)

Halectinosoma Lang, 1948, 1965b (59)

Bradya Boeck, 1872 (20)

Microsetella Brady & Robertson, 1873 (93)

Pseudobradya Sars, 1904 (109)

D'ARCYTHOMPSONIDAE Lang

D'Arcythompsonia T. Scott (33, 34)

Horsiella Gurney (78)

TACHIDIIDAE Sars, Lang

Euterpina Norman, 1903 (58)

Danielssenia Boeck, 1872 (37)

Paradanielssenia Soyer, 1970b (98)

HARPACTICIDAE Sars

Harpacticus Milne-Edwards, 1840 (60, 61, 62, 63, 64, 65, 66)

TISBIDAE Stebbing, Lang

Tisbe Lilljeborg, 1853 (124, 125, 126, 127)

Zosime Boeck, 1872 (130)

THALESTRIDAE Sars, Lang

Thalestris Claus, 1863 (123)

Parathalestris Brady & Robertson, 1873 (104)

Rhynchothalestris Sars, 1905 (110)

Diarthrodes Thomson, 1872 (39)

Dactylopodia Lang, 1948 (36)

Paradactylopodia Lang, 1948 (97)

Dactylopodella Sars, 1905 (35)

DIOSACCIDAE Sars

Stenhelia Boeck, 1864 (115, 116, 117, 118, 119, 120, 121)

Diosaccus Boeck, 1872 (40, 41)

Robertsonia Brady, 1880 (113, 114)

- Amphiascus* Sars, 1905 (14, 15, 16, 17, 18)
Amphiascopsis Gurney, 1927 (9, 10, 11, 12, 13)
Amonardia Lang, 1948 (5)
Bulbampihascus Lang, 1948 (21, 22, 23, 24)
Robertgurneya Lang, 1948 (111, 112)
Typhlamphihascus Lang, 1948 (128, 129)
Amphiascoides Nicholls, 1941a, 1941b (6, 7, 8)
Paramphiascella Lang, 1948 (102, 103)
Haloschizopera Lang, 1948 (67, 68, 69, 70)
AMEIRIDAE Monard, Lang
Ameira Boeck, 1864 (2, 3, 4)
Proameira Lang, 1948 (108)
Nitocra Boeck, 1864 (94, 95)
TETRAGONICIPITIDAE Lang
Phyllopodopsyllus T. Scott, 1906 (105, 106)
Diagoniceps Willey, 1930 (38)
CANTHOCAMPTIDAE Sars, Monard, Lang
Mesochra Boeck, 1864 (91)
Itunella Brady, 1896 (79)
CLETODIDAE T. Scott
Cletodes Brady 1872 (31, 32)
Enhydrosoma Boeck, 1872 (48, 49, 50, 51,
52, 53)
Heteropsyllus T. Scott (76, 77)
Eurypletodes Sars, 1909 (56, 57)
Hemimesochra Sars, 1920 (71, 72)
Pontocletodes Apostolov, 1980 (107)
Stylicletodes Lang, 1936 (122)
Enhydrosomella Monard, 1935 (54)
Acrenhydrosoma Lang, 1948 (1)
Mesopsyllus Por, 1960b (92)
LAOPHONTIDAE T. Scott
Laophonte Philippi, 1840 (80, 81, 82, 83,
84, 85, 86, 87)
Heterolaophonte Lang, 1948 (73, 74, 75)
Paralaophonte Lang, 1948 (99, 100, 101)
Asellopsis Brady & Robertson, 1873 (19)
Esola Edwards, 1891 (55)
Laophontopsis Sars, 1908 (88)
Normanella Brady, 1880 (96)

MORPHOLOGICAL CHARACTERISTICS AND TAXONOMIC FEATURES OF SPECIES

Figure 1 schematically presents ventral and lateral appearance of the body of a harpacticoid copepod with diagnostic characters.

Figures 2-9 show taxonomically significant morphological details of the body and the extremities of 62 harpacticoid species from the research area, while figure 10 displays external appearance of the 12 more common species.

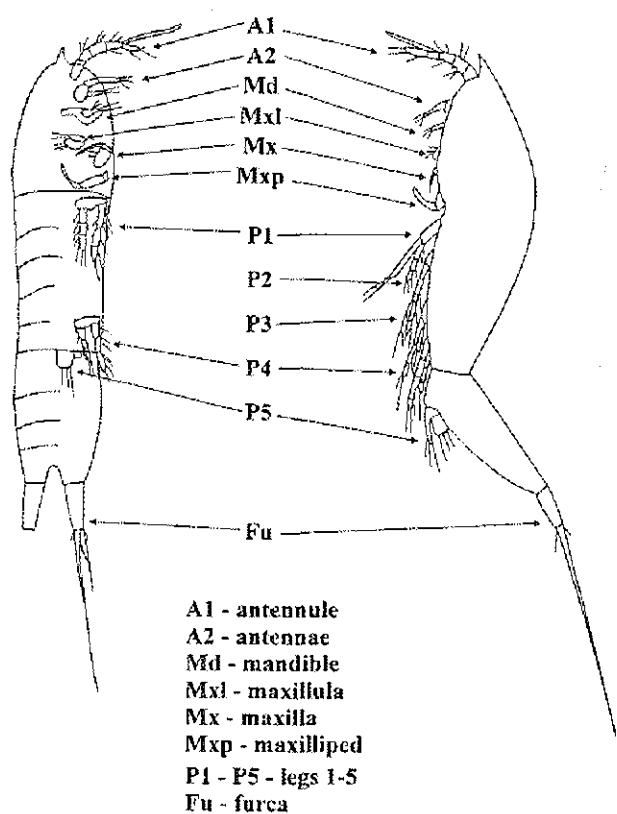


Fig. 1: Ventral and lateral views of a harpacticoid copepod with body parts (diagnostic characters) labelled.

Sl. 1: Ventralni in lateralni videz telesa harpaktikoidnega kopepoda z oznakami določevalnih znakov.

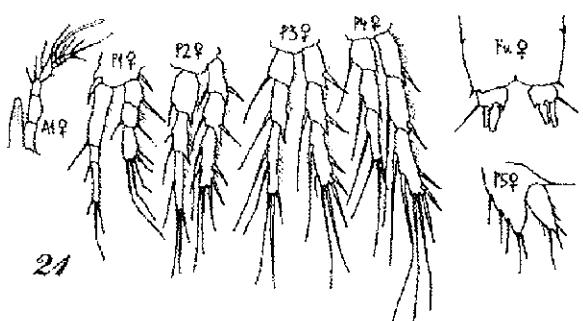
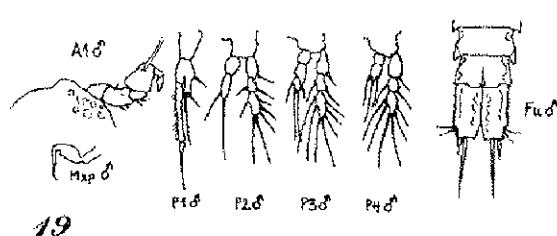
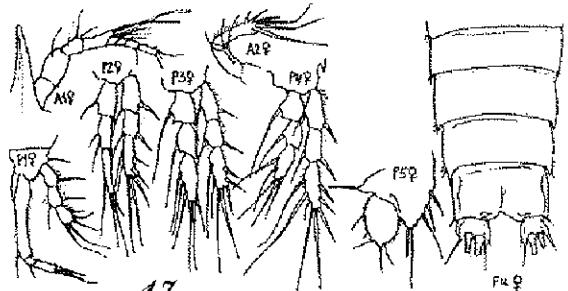
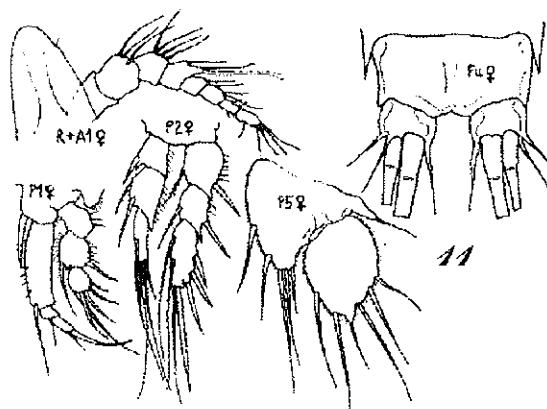
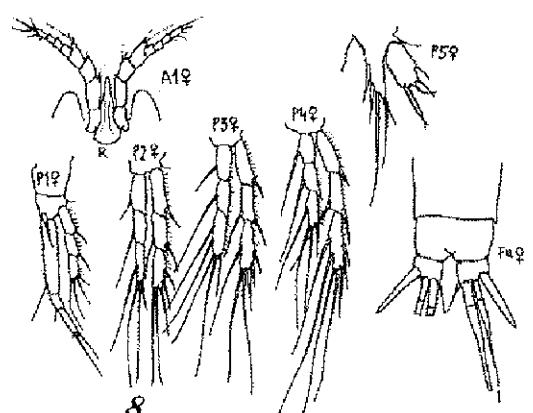
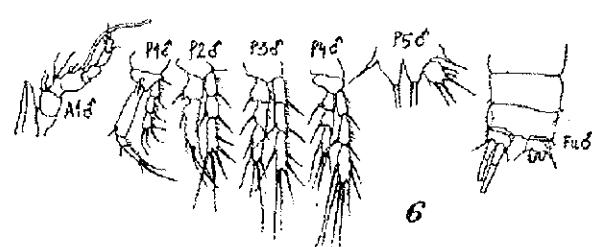
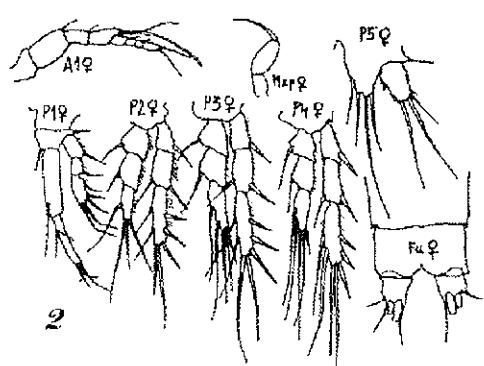
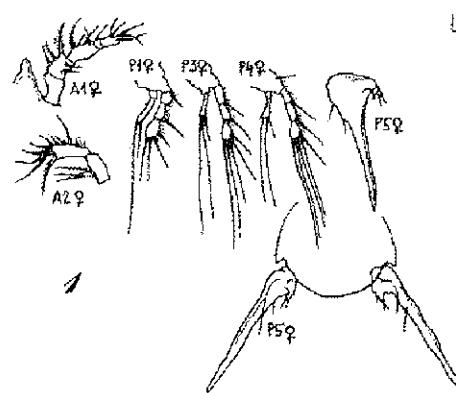


Fig./Sl. 2: 1. *Acrenhydrosoma perplexum*, 2. *Ameira parvula*, 6. *Amphiascoides debilis*, 8. *Amphiascoides* sp. 1, 11. *Amphiascopsis* sp. 1, 17. *Amphiascus varians*, 19. *Asellopsis* sp. 1, 21. *Bulbamphiascus imus*.

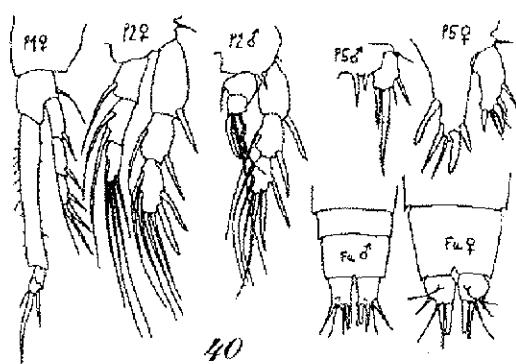
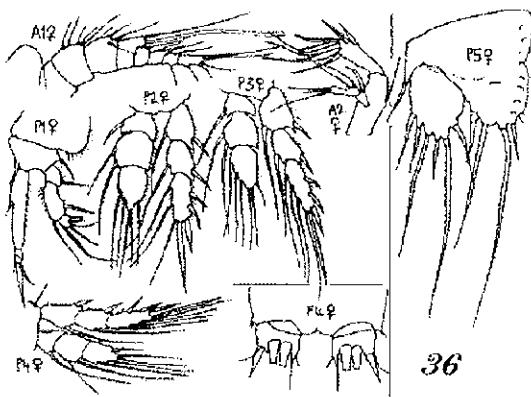
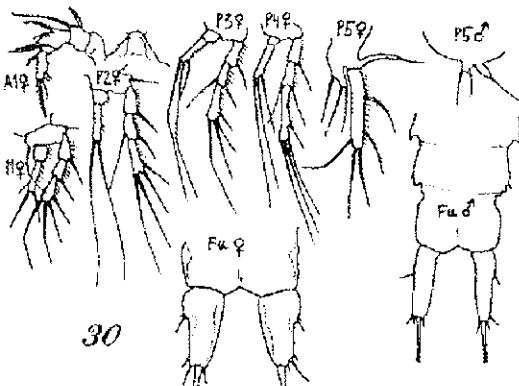
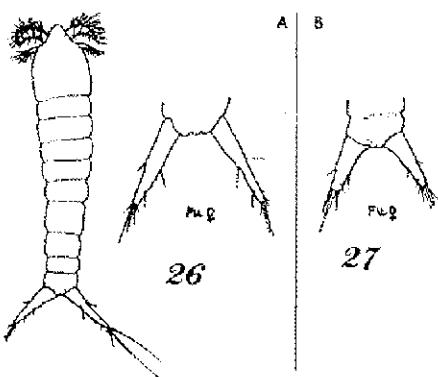
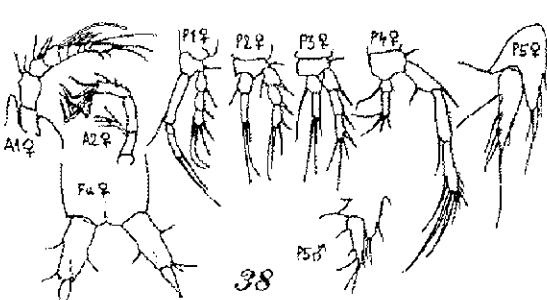
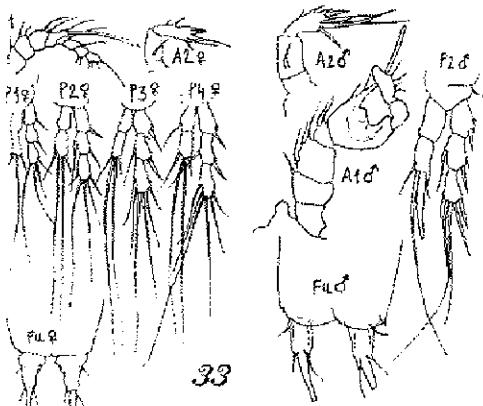
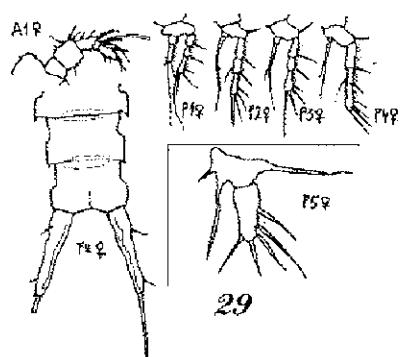
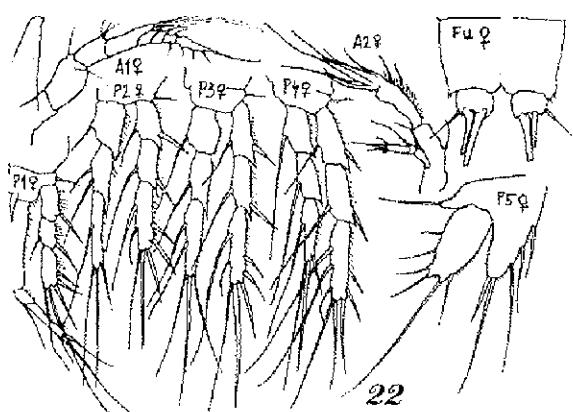


Fig./Sl. 3: 22. *Bulbamphiascus inermis*, 26. *Canuella furcigera*, 27. *Canuella perplexa*, 29. *Cletodes pusillus*, 30. *Cletodes limicola*, 33. *D'Arcythompsonia scotti*, 36. *Dactylopodia tishoides*, 38. *Diagoniceps menaiensis*, 40. *Diosaccus tenuicornis*.

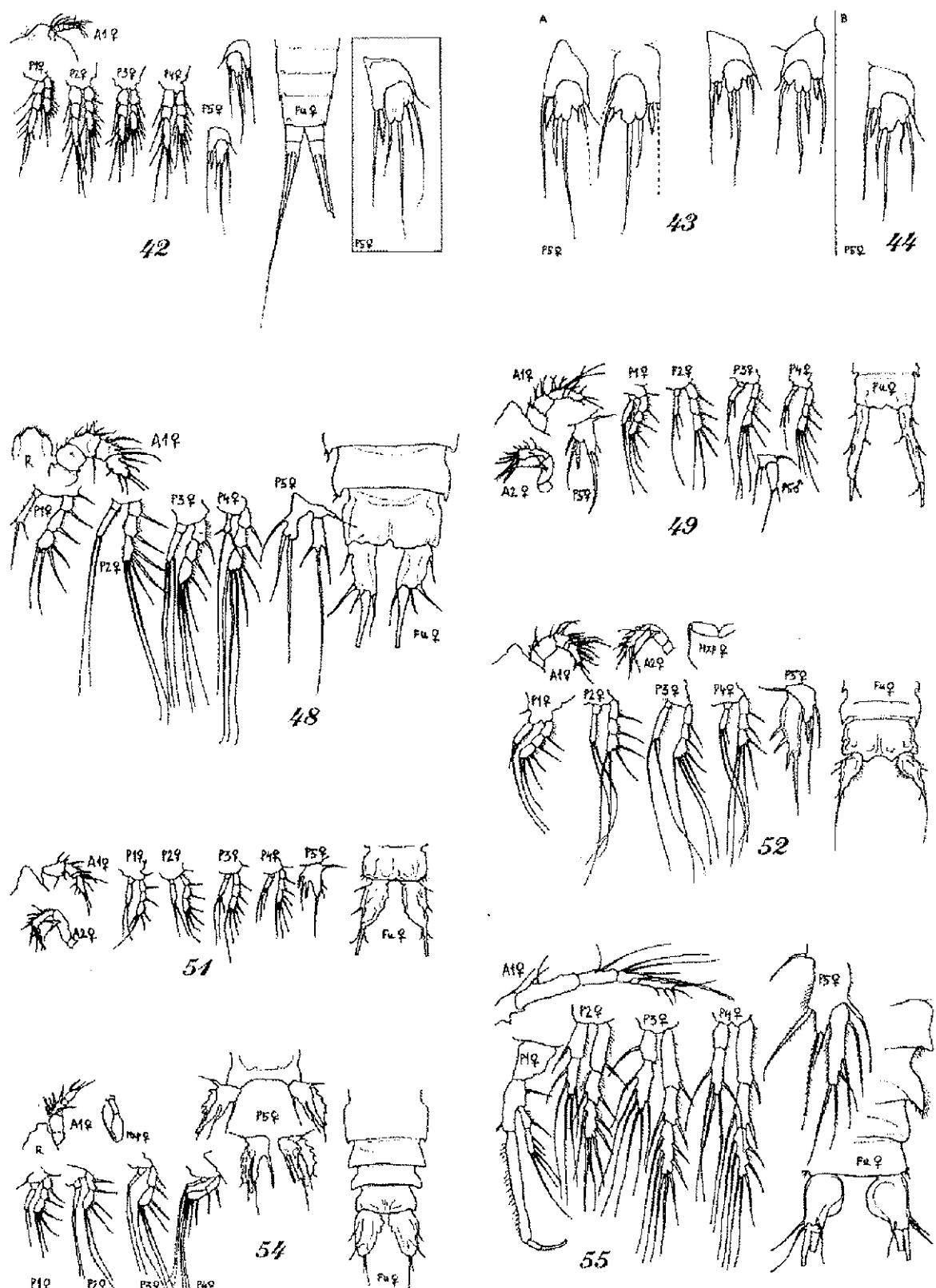


Fig./Sl. 4: 42. *Ectinosoma normani*, 43. *Ectinosoma obtusum*, 44. *Ectinosoma dentatum*, 48. *Enhydrosoma buchholzti*, 49. *Enhydrosoma caeni*, 51. *Enhydrosoma sordidum*, 52. *Enhydrosoma propinquum*, 54. *Enhydrosomella staufferi*, 55. *Esola longicauda*.

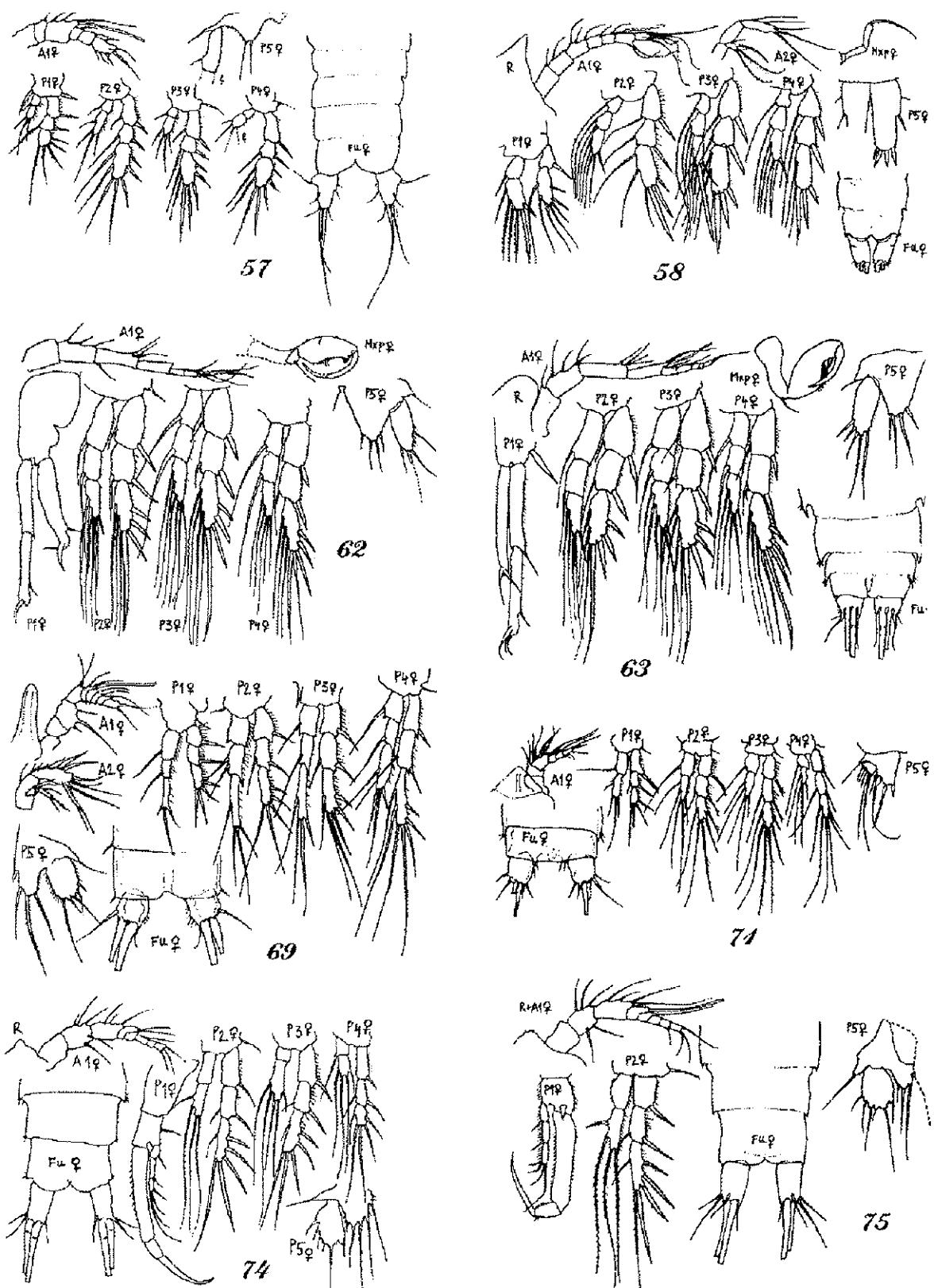
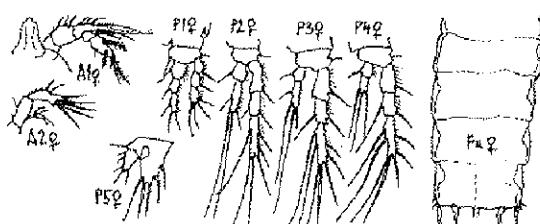
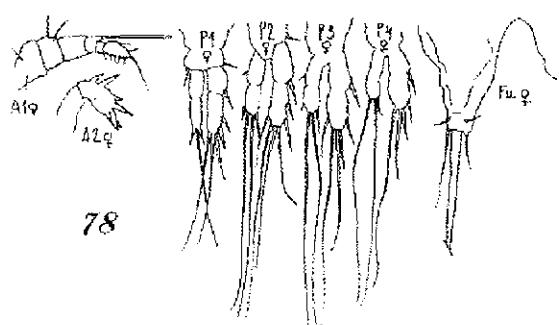


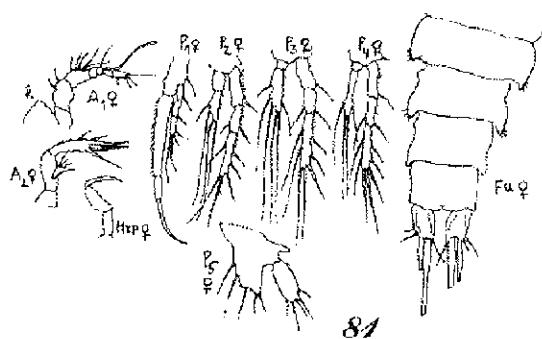
Fig./Sl. 5: 57. *Eurypletodes (Oligocletodes) sp.1*, 58. *Euterpina acutifrons*, 62. *Harpacticus sp.1*, 63. *Harpacticus sp.2*, 69. *Haloschizopera pontarchis*, 71. *Hemimesochra nixe*, 74. *Heterolaophonte stroemi*, 75. *Heterolaophonte sp.1*.



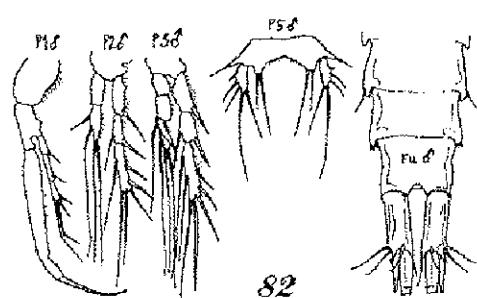
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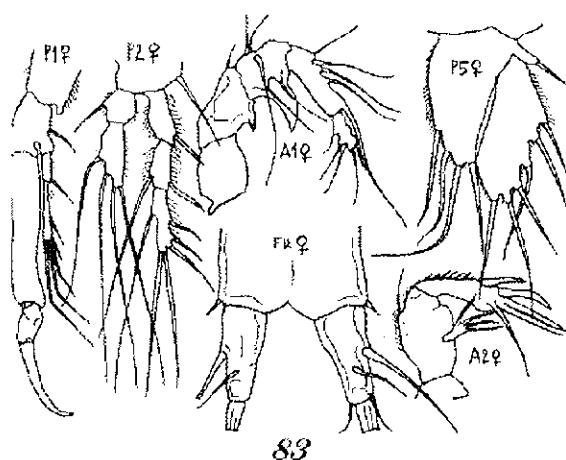
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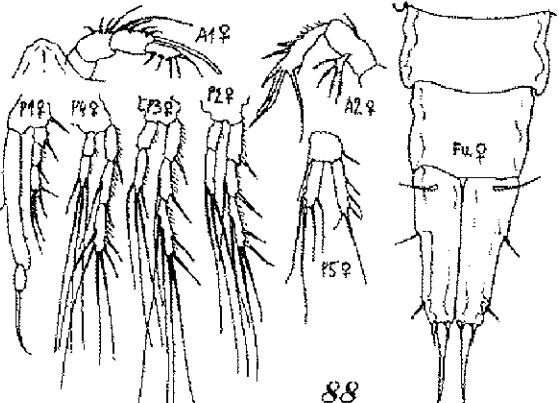
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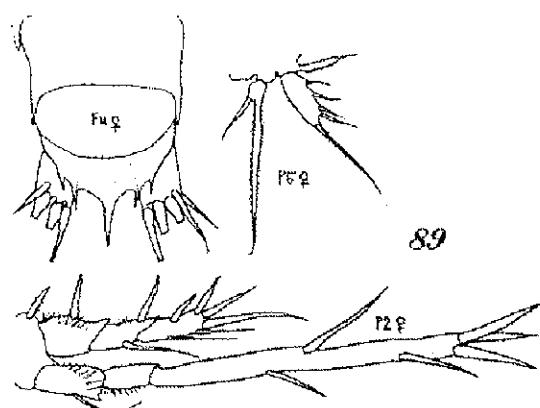
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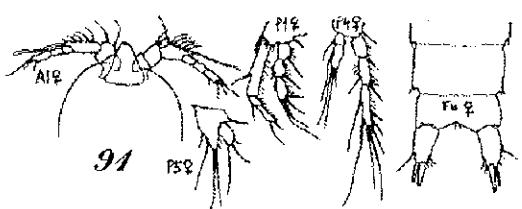
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Fig./Sl. 6: 76. *Heteropsyllus curticaudatus*, 78. *Horsiella* sp.1, 81. *Laophonte sima*, 82. *Laophonte inornata*, 83. *Laophonte cornuta*, 88. *Laophontopsis lamellifera*, 89. *Longipedia coronata*, 91. *Mesochra* sp.1.

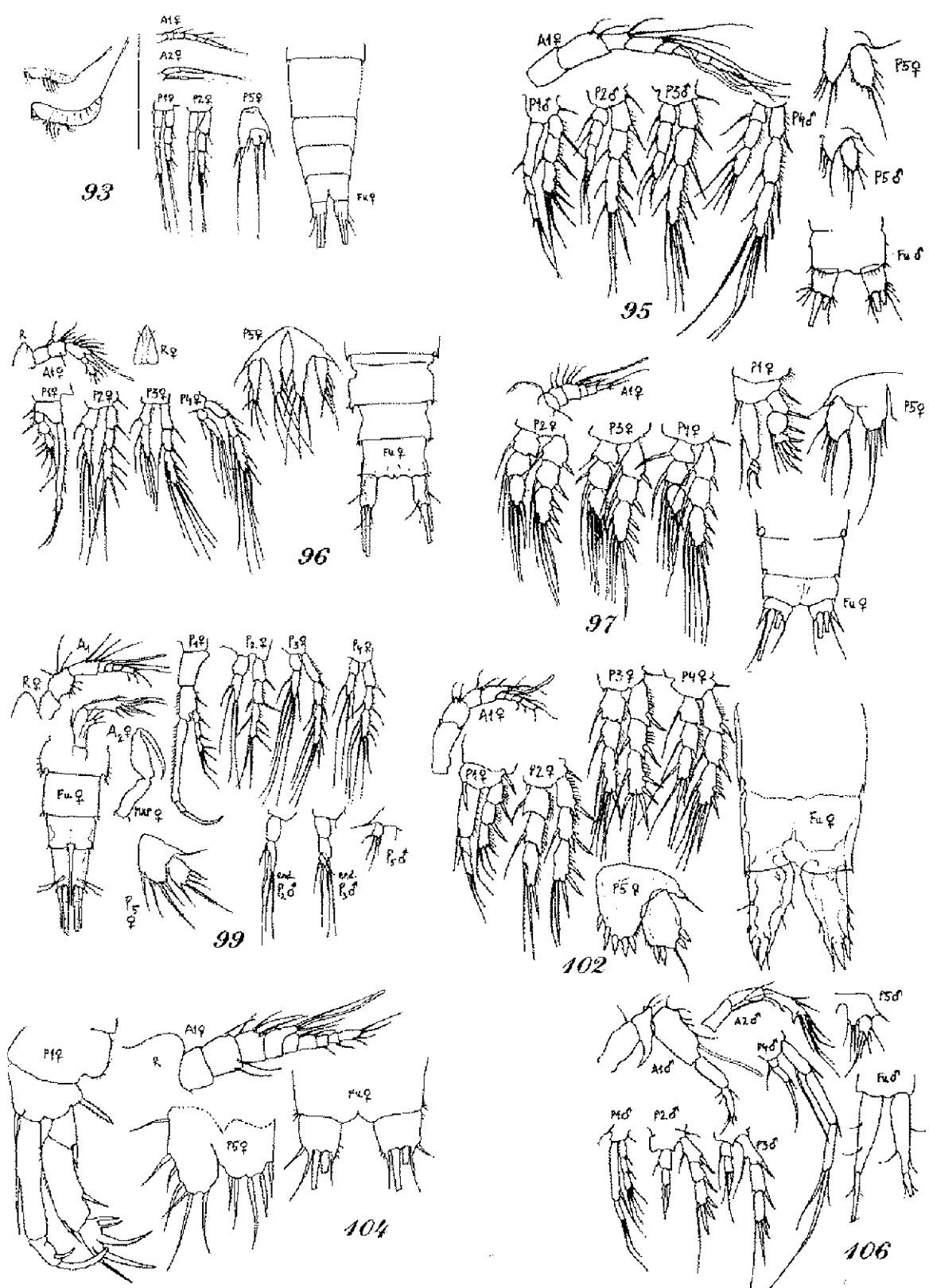
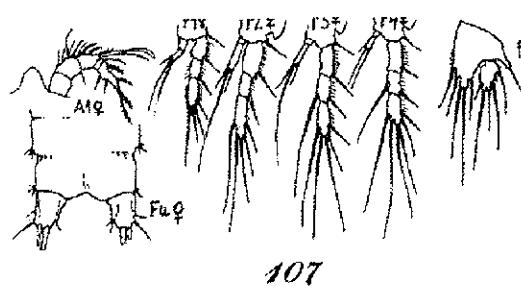
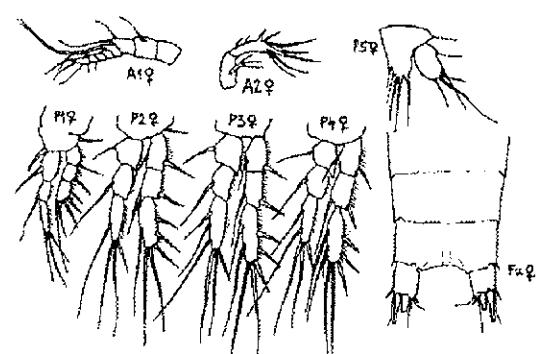


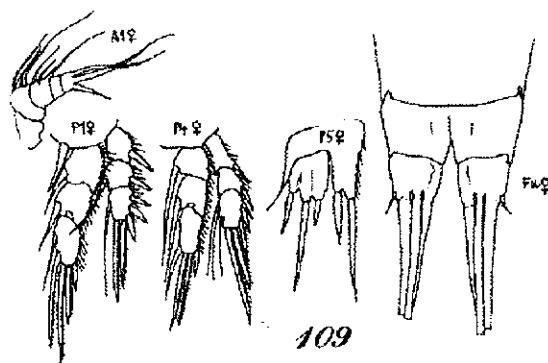
Fig./Sl. 7: 93. *Microsetella norvegica*, 95. *Nitocra fragilis*, 96. *Normanella mucronata*, 97. *Paradactylopodia brevicornis*, 99. *Paralaophonte congenera* var. *mediterranea*, 102. *Paramphiscella coulli*, 104. *Parathalestris* sp. 1, 106. *Phyllopodopsyllus* sp. 1.



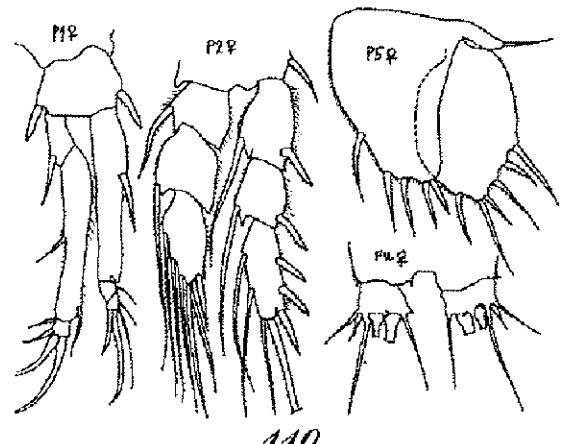
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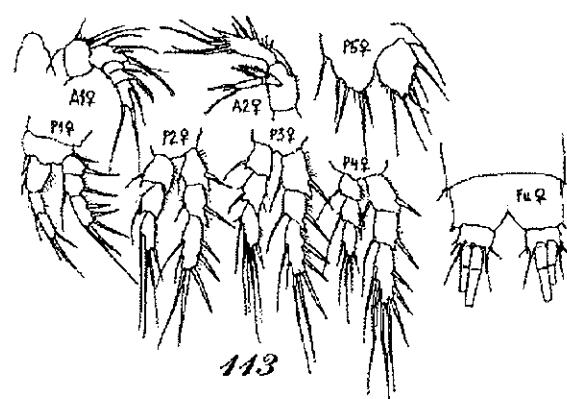
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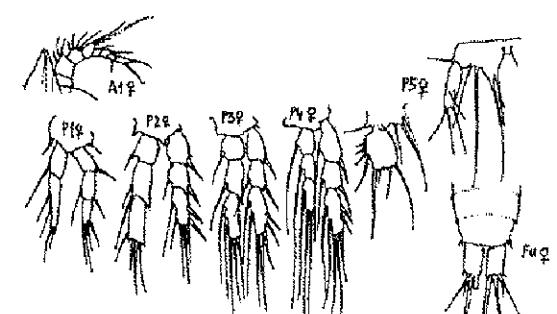
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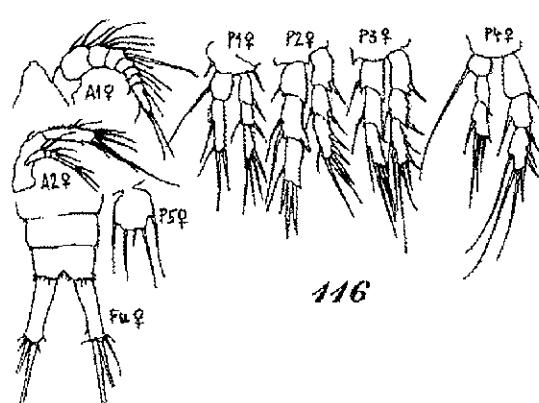
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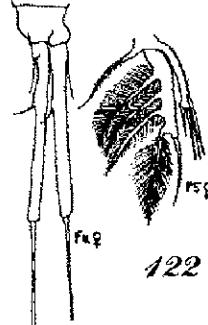
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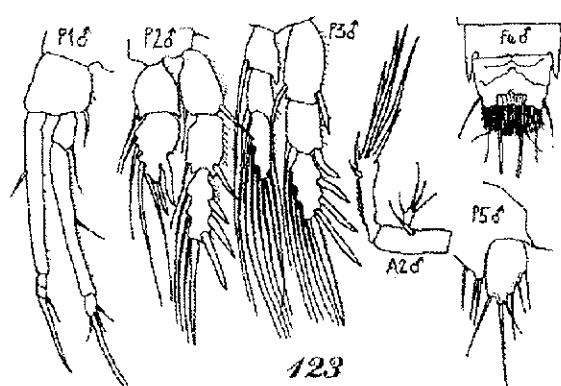


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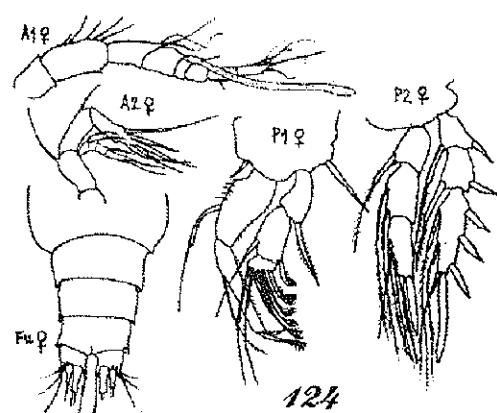


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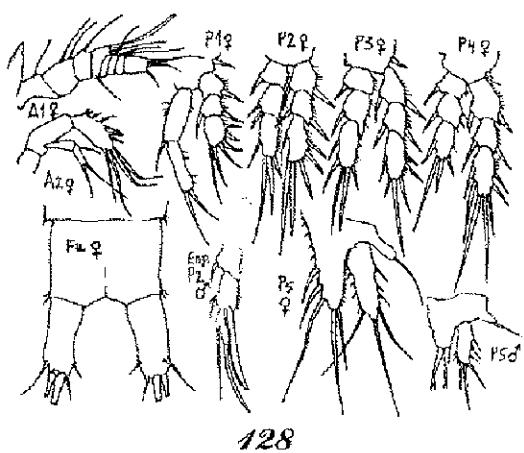
Fig./Sl. 8: 107. *Pontocletodes ponticus*, 108. *Proameira* sp. 1, 109. *Pseudobradya* sp. 1, 110. *Rhynchothalestris rufocincta*, 113. *Robertsonia knoxi*, 115. *Stenelia (Delavalia) normani*, 116. *Stenelia (Delavalia) minuta*, 122. *Stylicletodes longicaudatus*.



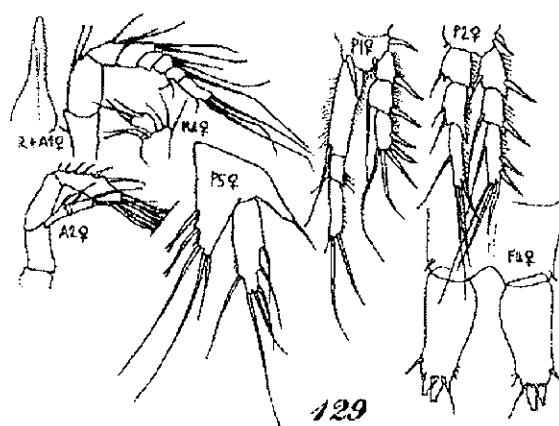
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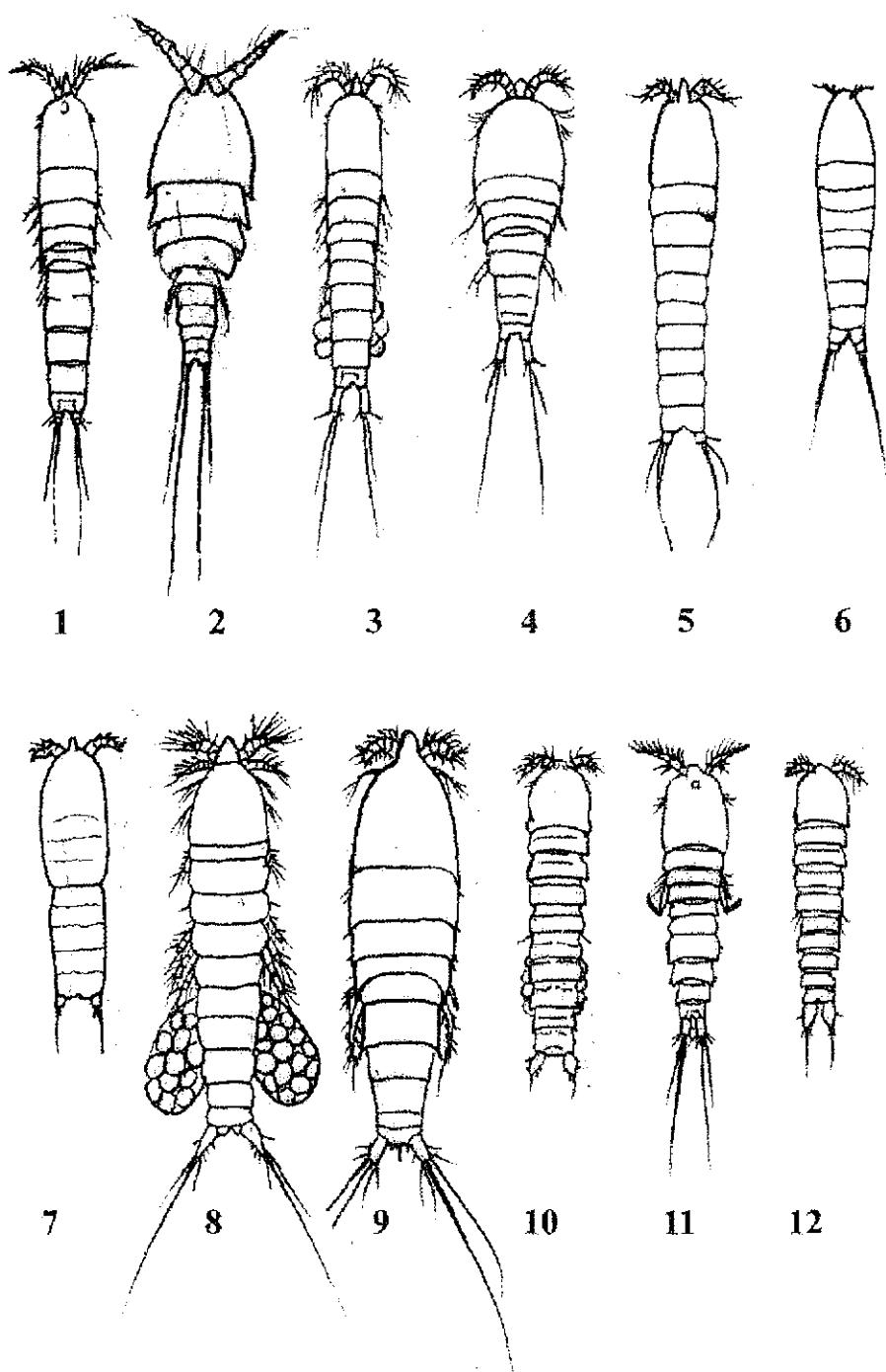


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Fig./Sl. 9; 123. *Thalestris rufoviolascens*, 124. *Tisbe lancii*, 128. *Typhlamphiascus confusus*, 129. *Typhlamphiascus sp.1*.



- | | | | |
|---|-------------------------------------|----|------------------------------------|
| 1 | <i>Bulbamphiascus inermis</i> | 7 | <i>Heteropsyllus curticaudatus</i> |
| 2 | <i>Tisbe lancii</i> | 8 | <i>Canuella perplexa</i> |
| 3 | <i>Typhlamphiascus confusus</i> | 9 | <i>Longipedia coronata</i> |
| 4 | <i>Stenhelia (Delavalia) minuta</i> | 10 | <i>Enhydrosoma propinquum</i> |
| 5 | <i>Haloschizoperus pontarchis</i> | 11 | <i>Paralaophonte congenera</i> |
| 6 | <i>Ectinosoma normani</i> | 12 | <i>Enhydrosoma sordidum</i> |

Fig. 10: Some frequent Harpacticoida species from the investigated area (after Lang, 1948).
Sl. 10: Nekaj pogostejših vrst harpaktikoidov raziskovanega področja (po Langu, 1948).

**MEIOBENTOŠKI HARPATIKOIDI (COPEPODA: HARPACTICOIDA)
JUŽNEGA DELA TRŽAŠKEGA ZALIVA
I. PREGLED VRST**

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POVZETEK

Prispevek podaja celovit sistematski pregled prostozivečih, neparazitskih meiobentoških vrst harpaktikoidnih kopepodov, zbran in urejen iz obsežnega gradiva vseh dosedanjih raziskav te skupine na področju južnega dela Tržaškega zaliva med leti 1970 in 2000. Poudarek dela je na abecednem in sistematskem pregledu, ki obsega 130 vrst in na morfološko-taksonomskih značilnostih, prikazanih s skicami 62 vrst.

Ključne besede: Harpacticoida, Copepoda, Tržaški zaliv, seznam vrst

REFERENCES

- Bodin, P. (1979): Catalogue des nouveaux Copépodes Harpacticoïdes marins (Nouvelle édition). Université de Bretagne Occidentale, Laboratoire d'Oceanographie Biologique, Brest Cedex, 228 pp.**
- Chappuis, P. A. (1953):** Harpacticoïdes psammiques recoltes par C. Delamare - Deboutteville en Méditerranée. Vie Milieu, 4(2), 254-276.
- Lang, K. (1948):** Monographie der Harpacticiden I., II. Lund 1948, 1682 pp. Reprint: Otto Koeltz Science Publishers, 1975.
- Marcotte, B. M. (1973):** The effects of organic pollution on meiofaunal population density, species diversity and community structure in the Bay of Piran, Yugoslavia (North Adriatic). B. Sc. Thesis, Clark University, Worcester, Mass., 45 pp.
- Marcotte, B. M. (1974):** Two new harpacticoid copepods from the North Adriatic and a revision of the genus *Paramphiascella*. Zool. J. Linn. Soc., 55, 65-82.
- Marcotte, B. M. & B. C. Coull (1974):** Pollution, diversity and meiobenthic communities in the North Adriatic (Bay of Piran, Yugoslavia). Vie Milieu, 24 (2-B), 281-300.
- Marinov, T. M. & A. M. Apostolov (1981a):** Contribution à l'étude des Copepodes Harpacticoides de la mer Adriatique (Côte yougoslave). I. Le genre *Stenhelia* Boeck. Acta zoologica bulgarica, 17, 66-72.
- Marinov, T. M., & A. M. Apostolov (1981b):** Contribution à l'étude des Copepodes harpacticoides de la mer Adriatique (Côte yougoslave). II. Sur le meiobenthos du Cap Piran. Acta zoologica bulgarica, 18, 23-30.
- Meischner, D. & J. Rumohr (1974):** A light-weight high momentum gravity corer for subaqueous sediments. Senckenb. Marit., 6, 105-116.
- Ogorelec, B., M. Mišić & J. Faganeli (1991):** Marine geology of the Gulf of Trieste (Northern Adriatic): Sedimentological aspects. Marine Geology, 99, 79-92.
- Por, F. (1964):** A study of the Levantine and Pontic Harpacticoida (Copepoda Crustacea). Zool. Verh. Leiden, 64, 1-128.
- Soyer, J. (1970):** Bionomie benthique du plateau continental de la côte Catalane française, III. Les peuplements de Copépodes Harpacticoides (Crustacea). Vie Milieu, 21(2-B), 337-516.
- Vrišer, B. (1982):** Primerjave združb meiobentne čistih in onesnaženih področij. Disertacija, Univerza v Ljubljani, 85 str.
- Vrišer, B. (1983):** Meiobentnal community structure and species diversity in the Bays of Koper, Strunjan and Piran (Gulf of Triest, North Adriatic). Nova Thalassia, 6, 5-17.
- Vrišer, B. (1986):** Vpliv organskega onesnaženja na meiobentne priobalne glinastih muljev Koprskega zaliva. Biol. vestn., 34, 93-104.

- Vrišer, B.** (1992): Meiofauna južnega dela Tržaškega zaliva. III. Fauna in združbe harpaktikoidov (Copepoda: Harpacticoida). Biol. vestn., 40, 89-106.
- Vrišer, B.** (1996): Sezonska dinamika in variabilnost harpaktikoidov (Copepoda: Harpacticoida) v Tržaškem zalivu: triletna raziskava. Annales, 9, 53-60.
- Vrišer, B.** (1997): Seasonal and three-year variability of meiofauna in the Gulf of Trieste (Northern Adriatic). Period. biol., 99(2), 209-212.

- Vrišer, B.** (2000): Meiobenthic Harpacticoida (Copepoda) from the Southern part of the Gulf of Trieste. II. Ecology and spatial distribution. Annales. (*this issue*)
- Vrišer, B. & A. Vuković** (1999): Meiofaunal recolonization of defaunated sediments: II. Harpacticoida (Copepoda); preliminary results. Period. biol. (*in press*)
- Wieser, W.** (1960): Benthic studies in Buzzards Bay. II. The meiofauna. Limnol. Oceanogr., 5, 121-137.