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Annotated Species List of Marine Planktonic Copepods Occurring on the Shelf and Upper Slope of the Northwest Atlantic (Gulf of Maine to Ungava Bay)

M. J. Tremblay¹

*Department of Zoology
University of Guelph
Guelph, Ont. N1G 2W1*

and J. T. Anderson

*Department of Fisheries and Oceans
Fisheries Research Branch
P.O. Box 5667
St. John's, Nfld. A1C 5X1*

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¹Present address: Department of Fisheries and Oceans, Invertebrates and Marine Plants Division, 1707 Lower Water Street, Halifax, N.S. B3J 2K7.



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Abstract

TREMBLAY, M. J., AND J. T. ANDERSON. 1984. Annotated species list of marine planktonic copepods occurring on the shelf and upper slope of the northwest Atlantic (Gulf of Maine to Ungava Bay). *Can. Spec. Publ. Fish. Aquat. Sci.* 69: 12 p.

The occurrence of planktonic copepods in shelf and slope waters out to 1000 m depth, from the inner Gulf of Maine to Ungava Bay including the Gulf of St. Lawrence and Flemish Cap, was reviewed. An annotated species list is derived based on taxonomic and distributional information published since 1969. This is an update of marine copepods listed in *A synopsis of Canadian marine zooplankton* (Shih et al. 1971). In all, 38 new species occurrences are reported.

Résumé

TREMBLAY, M. J., AND J. T. ANDERSON. 1984. Annotated species list of marine planktonic copepods occurring on the shelf and upper slope of the northwest Atlantic (Gulf of Maine to Ungava Bay). *Can. Spec. Publ. Fish. Aquat. Sci.* 69: 12 p.

Le présent rapport porte sur les espèces de copépodes planctoniques présentes dans les eaux de la plate-forme et de la pente continentales jusqu'à une profondeur de 1 000 m, à partir des eaux intérieures du golfe du Maine jusqu'à la baie d'Ungava y compris le Golfe Saint-Laurent et le Bonnet flamand. On présente une liste annotée des espèces, basée sur les données taxonomiques et distributionnelles publiées depuis 1969. Le rapport constitue une mise à jour de la liste des copépodes marins énumérés dans le bulletin intitulé *A synopsis of Canadian marine zooplankton* (Shih et al. 1971). En tout, on signale la présence de 38 nouvelles espèces.

Introduction

During recent years there has been a large increase in the amount of biological and oceanographic research being carried out off Canada's east coast. Zooplankton studies have formed an integral part of this work. While this has added considerably to our knowledge of the distribution and taxa of marine zooplankton it has also pointed out the need for an updated review of the overall species list. To date the only complete synopsis of marine zooplankton is that of Shih et al. (1971). While an excellent piece of work, it is based on information published prior to 1970 and does not include the many changes in the literature since that time. To aid our work there has been a strong need for a revised zooplankton species list, particularly for planktonic copepods which form by far the largest proportion of plankton sampled.

The present review was undertaken to revise and update the list of planktonic copepod species found off Newfoundland and Labrador, to which a species code could be adapted. It became evident that an update of the copepod species list, as listed in *A synopsis of Canadian marine zooplankton* (Shih et al. 1971), was also necessary. Accordingly, this work relies heavily on the Synopsis and follows its basic format. Our species list covers the Atlantic Section and part of the Arctic Section (Ungava Bay) of the synopsis. To maintain uniformity, we define "zooplankton" as those species sampled in the water column, including holozooplankton, merozooplankton, as well as benthic forms. The phylogenetic hierarchy follows that of the Synopsis which is based on the system of Barnes (1968). The present species list for planktonic copepods, however, differs in four ways:

1. The division of suborders follows Kabata (1979). It differs from the Synopsis mainly in the recognition of the suborder Poecilostomatoida, which was thought of as a "natural section" of the Cyclopoida by Sars (1913).

2. The area covered by the list is extended. The Synopsis covered the area south of Hudson Strait to the Gulf of Maine, seaward to the 200-m contour, and included the Bay of Fundy and the Gulf of St. Lawrence. The present list includes the inner part of the Gulf of Maine as in the Synopsis, but the coverage from the Scotian Shelf and northwards is extended to include the 1000-m contour (Fig. 1). This allows the inclusion of several oceanic species which, although not yet recorded on the shelf proper, probably occur there during incursions of slope water. Besides the incorporation of the upper slope, Ungava Bay (excluding Hudson Strait) and the

Flemish Cap are included here to reflect the mandate of Fisheries Research Branch, Department of Fisheries and Oceans, St. John's, Newfoundland.

3. No additional records are given for species listed in the Synopsis. For new species occurrences in the study area, the location and author(s) of at least one reference are listed under Records.

4. Parasitic copepod species are not listed.

The scientific names listed follow the most recent taxonomic revisions. No attempt was made to give all synonyms for each copepod species; this would require much more space than is available here. Rather, the synonyms included are those that have been commonly used in the North American literature, or those which are found in the major taxonomic works dealing with copepods (e.g. the many publications of Sars 1900-25; Wilson 1932; Rose 1933; Brodskii 1950; Vervoort 1963, 1965). References and short notes are provided to clarify both recent taxonomic changes and species names which have a somewhat convoluted history of usage. For reference we have included a list of studies involving planktonic copepod species from the entire study area from 1969 to 1981 in Appendix I.

Although this list is intended primarily for use by ecologists, it is hoped that those working in systematics will also find it useful. The present list represents a relatively thorough search of both the taxonomic and distributional literature since 1969. Literature not accessed by Abstracts, such as Environmental Impact Statements not yet released and unpublished work, were used as availability permitted. In our literature review no judgments were made as to the accuracies of species identification. We assume responsibility for any errors that may exist in this document.

Acknowledgments

Several people were invaluable as sources of reference material and in the discussion of recent taxonomic revisions and their help is gratefully acknowledged. Special thanks go to Dr C.-t. Shih, National Museum of Natural Sciences for his thorough and comprehensive review of this manuscript at several stages of the work. Dr G. Harding, Marine Ecology Division, Bedford Institute of Oceanography and S. Wilson, Dept. of Oceanography, Dalhousie University, contributed significantly in the early stages of this work. Thanks are also extended to Dr C. C. Davis, Memorial University of Newfoundland for use of unpublished data and to Mobil Oil Canada Ltd. for access to data collected on the Grand Banks. We also extend our appreciation to Dr C.-t. Shih of the National Museum and Dr G. Gardner, Memorial University, for useful comments and suggestions given upon reviewing the manuscript. Dr J. C. Roff, University of Guelph, is thanked for help in administering this work.

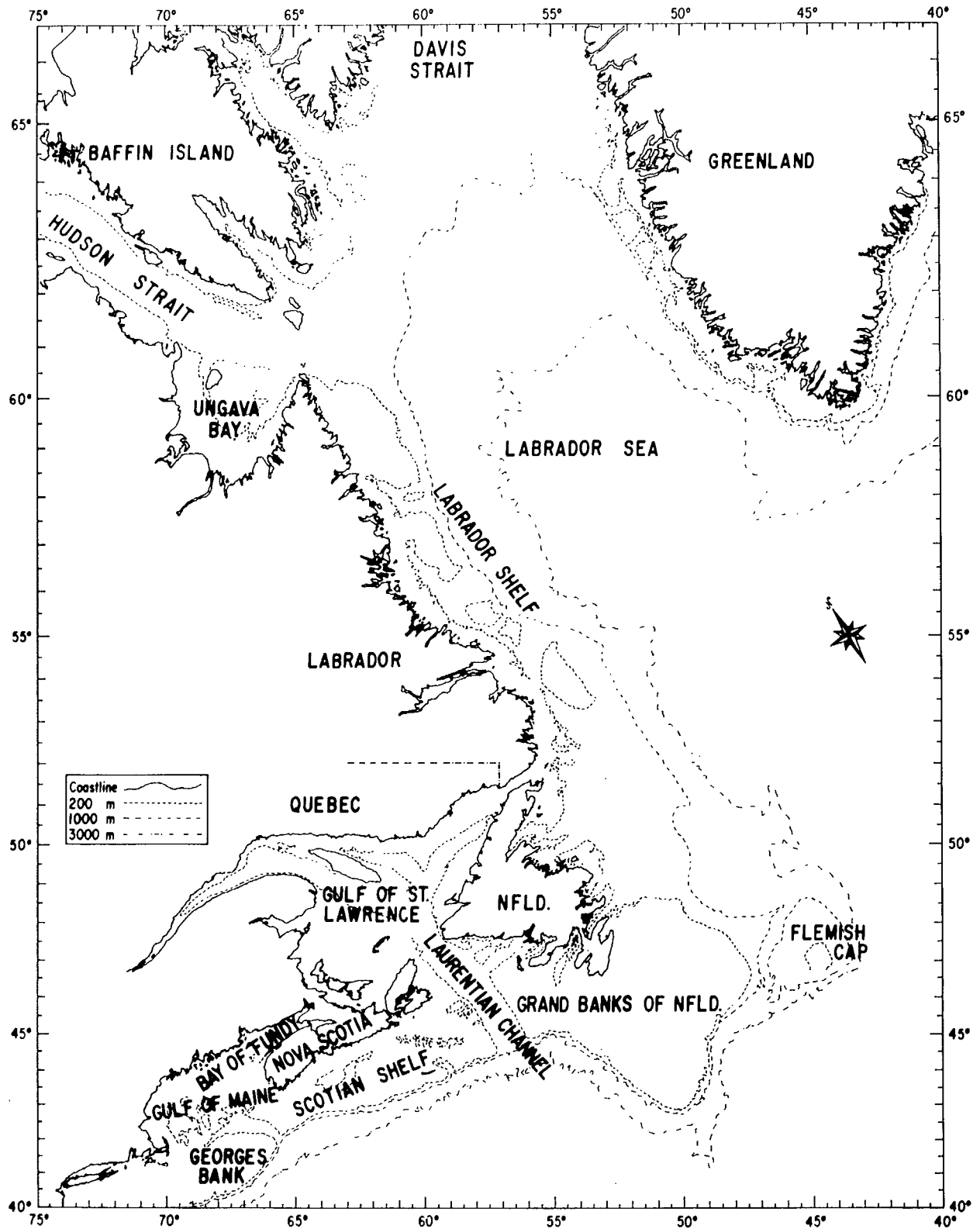


FIG. 1. Study areas of the northwest Atlantic for which planktonic copepod species occurrences were recorded.

Planktonic Copepod Species List

Syn. — Synonym

* — Not recorded in *A synopsis of Canadian marine zooplankton* C.-t. Shih, A. T. G. Figueira, and E. H. Grainger. 1971. Fish. Res. Board Can. Bull. 176: 264 p.

PHYLUM ARTHROPODA

CLASS CRUSTACEA

SUBCLASS COPEPODA

Suborder Calanoida

Remarks: J. C. Roff (1978) has provided a key for the calanoids of the Bay of Fundy; G. Harding, D. Maclellan, and C.-t. Shih are preparing a key for the calanoids of the northwest Atlantic.

FAMILY ACARTIIDAE

Remarks: See Bradford (1976) for a partial revision of the subgenus *Acartiura*.

Acartia bifilosa (Giesbrecht, 1881)

*Acartia danae** Giesbrecht, 1889

Record: Edge of Scotian Shelf and Slope (Tremblay and Roff 1983); Flemish Cap (NAFC 1981).

Acartia denticornis ?

Remarks: This species and *A. laxa* were recorded by Herdman et al. (1898). Shih et al. (1971) were uncertain of the identity of these species and neither have been recorded again.

Acartia forcipata Thompson and Scott, 1898

Remarks: Herdman et al. (1898) reported this as a new species. It does not appear to have been recorded since 1898.

Acartia hudsonica Pinhey, 1927¹

Syn. (after Bradford 1976): *A. clausi hudsonica* Pinhey, 1927 *A. clausi*: Carillo and Miller 1974 (in part) (not Giesbrecht)

Remarks: Elevated from subspecies to species by Bradford (1976), this species is found in James Bay and the Atlantic coast southward to Chesapeake Bay. It is closely related to *A. clausi* Giesbrecht, 1889 and in the Northwest Atlantic, has usually been recorded under this name. *Acartia clausi* is found only in the eastern Atlantic according to Bradford (1976).

Acartia laxa ?

Remarks: See *A. denticornis*

Acartia longiremis (Lilljeborg, 1853)

Acartia tonsa Dana, 1848

FAMILY AETIDEIDAE

Remarks: There are several recent reviews of the genera comprising this large family. Among these are Bradford (1969, 1971); Park (1975a, b and 1976); and Bradford and Jillett (1980).

*Aetideopsis rostrata** G. O. Sars, 1903

Aetideus armatus (Boeck, 1872)

*Aetideus giesbrechti** Cleve, 1904

Syn. (after Bradford 1971):

Euaetideus giesbrechti: G. O. Sars 1925

Record: Flemish Cap (NAFC 1981).

Remarks: Bradford (1971) found morphological differences were insufficient to warrant the separation of *Euaetideus* from *Aetideus*.

Bradyidius similis (G. O. Sars, 1902)

Syn. (after Bradford 1969):

Undinopsis similis G. O. Sars, 1902

Remarks: See Shih et al. (1981) for a description of the copepodid stages.

*Chiridius gracilis** Farran, 1908

Record: Gulf of St. Lawrence (Maclellan and Shih 1974).

Chiridius obtusifrons G. O. Sars, 1903

*Chirundina streetsi** Giesbrecht, 1895

Records: Flemish Cap (NAFC 1981); slope off Scotian Shelf (Sameoto and Lewis 1980b).

*Euchirella acadiana** Willey, 1919

Record: Slope off Scotian Shelf (Willey 1919).

Remarks: Reported as a new species by Willey (1919), *E. acadiana* has not been recorded again.

Euchirella rostrata (Claus, 1866)

Gaetanus brevispinus (G. O. Sars, 1900)

Syn. (after Park 1975a):

Chiridius brevispinus G. O. Sars, 1900

Gaidius brevispinus: G. O. Sars, 1903

Gaidius major Wolfenden, 1904

Remarks: Park (1975a) reviewed the genera *Gaetanus* and *Gaidius* and proposed their union.

*Gaetanus minor** Farran, 1905

Record: Flemish Cap² (NAFC 1981).

Gaetanus tenuispinus (G. O. Sars, 1900)

Syn. (after Park 1975a):

Chiridius tenuispinus G. O. Sars, 1900

Gaidius tenuispinus: G. O. Sars 1903

Gaidius boreale Wolfenden, 1902

Gaidius gracialis Brady, 1918

¹Incorrectly quoted as 1926 in Bradford (1976).

²Dr. C.-t. Shih examined a reference collection sample and could not verify identification of this species due to its poor condition.

- Undeuchaeta major** Giesbrecht, 1888
Records: Slope off Scotian Shelf (Willey 1919; Sameoto and Lewis 1980a).
- Undeuchaeta plumosa** (Lubbock, 1856)
Syn. (after Rose 1933):
U. minor Giesbrecht, 1892
Record: Slope off Scotian Shelf (Sameoto and Lewis 1980a); Tail of Grand Banks (Edinburgh Oceanographic Laboratory 1973).
- FAMILY ARIETELLIDAE
- Phyllopus bidentatus* Brady, 1883
- FAMILY CALANIDAE
- Remarks: There have been two reviews of the Calanidae since 1970 — Brodskii (1972) and Bradford and Jillett (1974). Here the more recent classification is followed without implying that it is superior. See Fleminger and Hulsemann (1977) for a comparison of the morphology and distribution of the North Atlantic *Calanus* species.
- Calanus finmarchicus* (Gunnerus, 1765)
- Calanus glacialis* Jaschnov, 1955
Syn.: *C. finmarchicus glacialis*: Matthews 1969; Brodskii 1972.
- Calanus helgolandicus* (Claus, 1863)
- Calanus hyperboreus* Krøyer, 1838
- Calanus minor* (Claus, 1863)
Syn. (after Brodskii 1972; Bradford and Jillett 1974):
Nannocalanus minor G. O. Sars, 1925
Canthocalanus minor: Brodskii 1972
- Megacalanus princeps* Wolfenden, 1904
Syn. (after Gueredrat 1969):
Macrocalanus longicornis G. O. Sars, 1905
Megacalanus bradyi Wolfenden, 1905
Megacalanus longicornis Pearson, 1906
- Mesocalanus tenuicornis** (Dana, 1849)
Syn. (after Brodskii 1972; Bradford and Jillett 1974):
Calanus tenuicornis Dana, 1849
Neocalanus tenuicornis: Brodskii 1965
Calanus (Neocalanus) tenuicornis: Brodskii 1972
Record: Slope off Scotian Shelf (Sameoto and Lewis 1980a); Flemish Cap (NAFC 1981).
- Neocalanus gracilis** (Dana, 1849)
Syn. (after Bradford and Jillett 1974):
Calanus gracilis Dana, 1849
- Record: Edge of Scotian Shelf (Sameoto and Lewis 1980a); edge of Grand Banks (Edinburgh Oceanographic Laboratory 1973).
- Undinula vulgaris* (Dana, 1849)
- FAMILY CALOCALANIDAE
- Remarks: See Corral (1972) for a description of this family.
- Calocalanus pavo** (Dana, 1849)
Record: Edge of Scotian Shelf (Tremblay and Roff 1983)
Remarks: Reported by Tremblay and Roff as *Calocalanus* sp., some specimens were *C. pavo* (C.-t. Shih, National Museum of Natural Sciences, Ottawa, Ont., personal communication).
- Calocalanus* sp.*
Records: Flemish Cap (NAFC 1981); Scotian Shelf and slope (Sameoto and Lewis 1980a).
- Mecynocera clausi** Thompson, 1888
Records: Scotian Shelf and slope (Paranjape and Conover 1973; Sameoto and Lewis 1980a); Grand Banks (Strong 1981); Flemish Cap (NAFC 1981).
- FAMILY CANDACIIDAE
- Candacia armata* (Boeck, 1873)
- Candacia bipinnata* (Giesbrecht, 1889)
- Candacia pachydactyla* (Dana, 1849)
- Candacia varicans* (Giesbrecht, 1892)
- Paracandacia simplex* (Giesbrecht, 1889)
- FAMILY CENTROPAGIDAE
- Centropages bradyi* Wheeler, 1889
- Centropages hamatus* (Lilljeborg, 1853)
- Centropages typicus* Krøyer, 1849
- Centropages violaceus** (Claus, 1863)
Record: Southwest Grand Banks (Edinburgh Oceanographic Laboratory 1973).
- Isias clavipes* Boeck, 1864
- FAMILY DIAPTOMIDAE
- Remarks: All species within this family are freshwater inhabitants, occurring occasionally in estuaries.

Diaptomus minutus Lilljeborg, 1889

Diaptomus tyrelli Poppe, 1888

FAMILY EUCALANIDAE

Eucalanus attenuatus (s.l. Dana, 1849)

Remarks: Fleminger (1973) split *E. attenuatus* s.l. into four species based on integumental pore patterns. No Atlantic specimens from north of 37°N were examined by Fleminger but the only species of this group found north of Florida was *E. sewelli*.

Eucalanus elongatus (Dana, 1849)

Remarks: *Eucalanus hyalinus* was the only species of the *E. elongatus* group which Fleminger (1973) found in the northwest Atlantic.

Rhincalanus cornutus Dana, 1849

Rhincalanus nasutus Giesbrecht, 1888

FAMILY EUCHAETIDAE

Remarks: Park (1975c) reviewed this family's representatives in the Gulf of Mexico and western Caribbean Sea. He placed *Euchaeta* and *Paraeuchaeta* under a single genus, *Euchaeta*.

*Euchaeta acuta** Giesbrecht, 1892

Records: Slope off the Scotian Shelf (Sameoto and Lewis 1980a); Flemish Cap (NAFC 1981); La Have Bank (Edinburgh Oceanographic Laboratory 1973).

Euchaeta glacialis Hansen, 1886

Syn.: *Paraeuchaeta glacialis*: A. Scott 1909

Euchaeta marina (Prestandrea, 1833)

Euchaeta media Giesbrecht, 1888

Euchaeta norvegica Boeck, 1872

Syn.: *Paraeuchaeta norvegica*: A. Scott 1909

FAMILY HETERORHABDIDAE

Heterorhabdus norvegicus (Boeck, 1872)

*Heterorhabdus papilliger** (Claus, 1863)

Records: Off Cape Sable (Edinburgh Oceanographic Laboratory 1973); Slope off Scotian Shelf (Sameoto and Lewis 1980a).

Remarks: There may be confusion in the discrimination of *H. papilliger* from *H. spinifrons* — see Bowman (1971) for details.

Heterorhabdus spinifrons (Claus, 1863)

Remarks: See *H. papilliger*.

FAMILY LUCICUTIIDAE

*Lucicutia curta** Farran, 1905

Syn. (after Hulsemann 1966):

L. longiserrata: Sars 1925

L. ellipsoidalis Brodskii, 1950

Not *L. curta*: Grice and Hulsemann 1965

Record: Slope off the Scotian Shelf (Sameoto and Lewis 1980a).

*Lucicutia flavicornis** (Claus, 1863)

Records: Scotian Shelf (Sameoto and Lewis 1980a); Grand Banks (Strong 1981); Flemish Cap (NAFC 1981).

FAMILY METRIDIIDAE

Metridia longa (Lubbock, 1854)

Metridia lucens Boeck, 1864

Pleuromamma abdominalis (Lubbock, 1856)

Pleuromamma borealis (Dahl, 1893)

Pleuromamma gracilis (Claus, 1863)

*Pleuromamma piseki** (Farran, 1929)

Record: Flemish Cap (NAFC 1981).

Remarks: This species can be difficult to distinguish from *P. gracilis*. See Bowman (1971) for key morphological differences.

Pleuromamma robusta (Dahl, 1893)

Pleuromamma xiphias (Giesbrecht, 1889)

FAMILY PARACALANIDAE

Paracalanus parvus (Claus, 1863)

FAMILY PHAENNIDAE

Cornucalanus chelifera (I. C. Thompson, 1903)

FAMILY PONTELLIDAE

Anomalocera opalus Pennell, 1976

Syn.: *A. patersoni*: Shih et al. 1971

Remarks: Pennell (1976) described this species after comparing specimens from the Gulf of St. Lawrence with specimens of *A. patersoni* Templeton, 1837 from the eastern North Atlantic. *Anomalocera opalus* is found in Canadian east coast waters and the Gulf of Maine; *A. patersoni* is confined to the northeast Atlantic (Pennell 1976).

Labidocera aestiva Wheeler, 1900

Pontellina plumata (Dana, 1849)

FAMILY PSEUDOCALANIDAE

Clausocalanus arcuicornis (Dana, 1849)

Remarks: The genus *Clausocalanus* underwent a major revision by Frost and Fleminger (1968). In the western Atlantic, they did not examine samples from north of Cape Hatteras. The only study of *Clausocalanus* species north of Cape Hatteras (since Frost and Fleminger 1968) appears to be that of Williams and Wallace (1975). Given that Williams and Wallace (1975) found three species of *Clausocalanus* in the area of interest, none of which was *C. arcuicornis*, previous records of this species seem questionable. *Clausocalanus arcuicornis* was recorded in deep water southeast of the Grand Banks.

*Clausocalanus furcatus** (Brady, 1883)

Record: Tail of Grand Banks (Williams and Wallace 1975).
Remarks: See *C. arcuicornis*.

*Clausocalanus lividus** Frost and Fleminger, 1968

Record: Southwest Grand Banks (Williams and Wallace 1975)
Remarks: See *C. arcuicornis*.

*Clausocalanus pergens** Farran, 1926

Record: Grand Banks (Williams and Wallace 1975).
Remarks: See *C. arcuicornis*.

Microcalanus pusillus G. O. Sars, 1903

Microcalanus pygmaeus (G. O. Sars, 1900)

Pseudocalanus minutus (Krøyer, 1849)

Remarks: The nomenclature of this species has an involved history (see Corkett and McClaren 1978). Here the practice of Shih et al. (1971) is followed and *P. minutus* includes the "forms" *P. elongatus* (Boeck, 1872); *P. gracilis* G. O. Sars, 1903 and *P. major* G. O. Sars, 1900.

FAMILY PSEUDODIAPTOMIDAE

Pseudodiaptomus coronatus Williams, 1906

FAMILY SCOLECITHRICIDAE

Remarks: See Bradford (1973) for a revision of this family.

*Amallothrix emarginata** (Farran, 1905)

Syn. (after Bradford 1973):
Scolecithrix inornata Esterly, 1906
Scolecithrix aequalis Wolfenden, 1911
Record: Slope off Scotian Shelf (Sameoto and Lewis 1980a).
Remarks: Vervoort (1965) and others place this species in the genus *Scolecithricella*.

Scolecithricella minor (Brady, 1883)

Syn. (after Bradford 1973):
Scolecithrix roemeri Mrazek, 1902

*Scolecithricella ovata** (Farran, 1905)

Records: St. Margaret's Bay (Paranjape and Conover 1973); Flemish Cap (NAFC 1981).

Scolecithrix bradyi Giesbrecht, 1888

Records: Slope off Scotian Shelf (Willey 1919; Sameoto and Lewis 1980a); Flemish Cap (NAFC 1981).

*Scolecithrix cuneifrons** Willey, 1919

Record: Slope off Scotian Shelf (Willey 1919).
Remarks: The identity of this species is uncertain and seems to be totally ignored by current workers, e.g. Bradford (1973).

Scolecithrix danae (Lubbock, 1856)

*Scottocalanus persecans** (Giesbrecht, 1895)

Record: Slope off Scotian Shelf (Sameoto and Lewis 1980a, b).

*Scottocalanus securifrons** (T. Scott, 1894)

Syn. (after Rose 1933):
S. acutus G. O. Sars, 1905
Records: Slope off Scotian Shelf (Sameoto and Lewis 1980a, as *S. securiformis*); Flemish Cap (NAFC 1981).

FAMILY SPINOCALANIDAE

Remarks: See Damkaer (1975) for a review of this family.

Spinocalanus sp.*

Record: Flemish Cap (NAFC 1981).
Remarks: *Spinocalanus* is comprised of deep living copepods.

FAMILY TEMORIDAE

Epischura lacustris S. A. Forbes, 1882

Remarks: Primarily a freshwater species.

Eurytemora affinis (Poppe, 1880)

Syn. (after Heron and Damkaer 1976):
E. inermis (Boeck, 1865)
E. hirundo Giesbrecht, 1881
E. hirundoides (Nordquist, 1888)
Remarks: *E. hirundoides* is still used in the literature; that it is synonymous with *E. affinis* is indicated elsewhere (e.g. Gurney 1931; Wilson and Yeatman 1959; Katona 1971).

Eurytemora americana Williams, 1906

Syn. (after Heron and Damkaer 1975):
E. thompsoni Willey, 1923

Eurytemora herdmanni Thompson and Scott, 1897

Temora longicornis (O. F. Muller, 1785)

Temora stylifera (Dana, 1849)

FAMILY TORTANIDAE

Tortanus discaudatus (Thompson and Scott, 1897)

Suborder Cyclopoida

FAMILY CYCLOPINIDAE

*Cyclopina gracilis** Claus, 1863

*Cyclopina schneideri** T. Scott, 1903

Remarks: Members of this family are primarily freshwater or marine.

FAMILY CYCLOPIDAE

Cyclops viridis Jurine, 1820

Remarks: According to I. Sutherland (personal communication with NAFC) the record in Shih et al. (1971:54) is probably *C. vernalis* Fischer, 1853. *Cyclops viridis* may occur in North America but keys to this group have not been too reliable. Members of this family are primarily freshwater or marine.

FAMILY OITHONIDAE

Remarks: Recent reviews of Oithonidae include those of Nishida et al. (1977), Ferrari and Bowman (1980), and Shuvalov (1980).

Oithona atlantica Farran, 1908

Syn. (after Nishida et al. 1977):

O. spinirostris: G. O. Sars 1913

? *O. spinirostris* Claus, 1863

? *O. plumifera*: Mori 1937

Remarks: *Oithona spinirostris* Claus, 1863 is not a valid species name because Claus' description was insufficient to distinguish *O. spinirostris* from *O. setigera* Dana, 1849. It is uncertain if Claus' specimen is the same species as that described as *O. spinirostris* in Sars (1913) (Nishida et al. 1977). *Oithona atlantica* and *O. plumifera* have often been confused. Although they resemble one another, they have distinct morphologies and distributions. *Oithona atlantica* is a boreal species inhabiting the temperature zone of the North Atlantic, Mediterranean and Gulf of Mexico, while *O. plumifera* is predominantly tropical in all three oceans (Shuvalov 1972).

Oithona nana Giesbrecht, 1892

Syn. (after Shuvalov 1980):

Oithonina nana: Sars 1913; Wilson 1932

Oithona plumifera Baird, 1843

Remarks: See *O. atlantica*.

*Oithona setigera** Dana, 1853

Record: St. Margaret's Bay (Paranjape and Conover 1973).

Remarks: See *O. atlantica*.

Oithona similis Claus, 1866

Syn.: ? *O. helgolandica* Claus, 1863

Remarks: Sars (1913) considered *O. similis* Claus, 1866 to be synonymous with *O. helgolandica* Claus, 1863. This is now in doubt — see Nishida et al. (1977).

Suborder Poecilostomatoida

FAMILY CORYCAEIDAE

*Corycaeus anglicus** Lubbock, 1857

Record: Southwest Grand Banks (Edinburgh Oceanographic Laboratory 1973).

*Corycaeus clausi** Dahl, 1894

Record: Slope off Scotian Shelf (Sameoto and Lewis 1980a); Flemish Cap (NAFC 1981).

*Corycaeus carinata** Giesbrecht, 1891

Record: Slope off Scotian Shelf (Sameoto and Lewis 1980a).

*Corycaeus lautus** Dana, 1852

Record: Flemish Cap (NAFC 1981).

Remarks: Specimen upon which record based may be *C. furcifer* Claus, 1863 (C.-t. Shih, personal communication).

*Corycaeus typicus** (Krøyer, 1849)

Syn. (after Razouls 1981):

C. elongatus Claus, 1863

Record: Flemish Cap (NAFC 1981, as *C. elongatus*).

Remarks: Specimen upon which record based may be *C. flaccus* Giesbrecht, 1891 (C.-t. Shih, personal communication).

FAMILY ONCAEIDAE

Remarks: Boxshall (1977) reviewed the planktonic members of this family found in the northeast Atlantic.

Oncaea borealis G. O. Sars, 1918

Oncaea conifera Giesbrecht, 1891

*Oncaea minuta** Giesbrecht, 1892

Record: Grand Banks (Strong 1981).

Oncaea venusta Philippi, 1843

FAMILY SAPPHIRINIDAE

Sapphirina gema Dana, 1849

*Sapphirina nigromaculata** Claus, 1863
Record: Flemish Cap (NAFC 1981).

*Sapphirina ovatolanceolata** Dana, 1852
Record: Flemish Cap (NAFC 1981).

Suborder Monstrilloida

FAMILY MONSTRILLIDAE

Monstrilla canadensis McMurrich, 1918

Monstrilla dubia T. Scott, 1904

Monstrilla helgolandica Claus, 1863

*Thaumaleus gigas** A. Scott, 1909
Record: Chaleur Bay (Lacroix and Filteau 1970).

Thaumaleus rigidum (Thompson, 1888)
Syn. (after Davis 1948)
Cymbasoma rigidum Thompson, 1888

Suborder Harpacticoida

Remarks: Bodin (1979) has recently updated a catalogue of marine harpacticoids; Coull (1977) provided a key to the harpacticoids from the northeastern United States.

FAMILY CANTHOCAMPTIDAE

Mesochra pygmaea (Claus, 1863)

FAMILY CANUELLIDAE

Scottolana canadensis (Willey, 1923)
Syn. (after Coull 1972):
Canuella canadensis Willey, 1923
Canuella elongata Wilson, 1932
Remarks: Coull (1972) placed this species in the genus *Scottolana*.

FAMILY CLETODIDAE

Arenhydosoma perplexum (T. Scott, 1880)

Leimia vaga Willey, 1923

Nannopus palustris Brady, 1880
Syn. (after Lang 1948):
N. littoralis Willey, 1923

FAMILY DIOSACCIDAE

Diosaccus tenuicornis (Claus, 1863)

FAMILY ECTINOSOMATIDAE (emended from Ectinosomidae by Moore 1978)

Remarks: Lang (1965) elevated the subgenus *Halectinosoma* to genus.

Halectinosoma neglectum (G. O. Sars, 1904)
Syn. (after Lang 1948; 1965):
Ectinosoma neglectum G. O. Sars, 1904
Ectinosoma (Halectinosoma) neglectum: Lang 1948

Halectinosoma proximum (G. O. Sars, 1919)
Syn. (after Lang 1948; 1965):
Ectinosoma proximum G. O. Sars, 1919
Ectinosoma (Halectinosoma) neglectum: Lang 1948

Halectinosoma sarsi (Boeck, 1872)
Syn. (after Lang 1948; 1965):
Ectinosoma sarsi Boeck, 1872
Ectinosoma (Halectinosoma) sarsi: Lang 1948

Microsetella norvegica (Boeck, 1864)
Syn. (after Lang 1948):
Ectinosoma atlanticum: Herdman et al. 1898
M. atlanticum: Wright 1907

Microsetella rosea (Dana, 1848)

FAMILY HARPACTICIDAE

Harpacticus chelifera (O. F. Muller, 1776)

Harpacticus gracilis Claus, 1863

Harpacticus littoralis G. O. Sars, 1910

Harpacticus superflexus Willey, 1920
Record: Labrador Coast (Buchanan and Browne 1981).

Harpacticus uniremis Krøyer, 1842

Zaus abbreviatus G. O. Sars, 1904

Zaus goodsiri Brady, 1880

Zaus spinatus Goodsir, 1845

FAMILY LAOPHONTIDAE

Laophonte elongata Boeck, 1872

Paronychocamptus huntsmani (Willey, 1923)
Syn. (after Lang 1948):
Laophonte huntsmani Willey, 1923

FAMILY METIDAE

Metis ignea Philippi, 1843

FAMILY MIRACIDAE

Macrosetella gracilis (Dana, 1848)

FAMILY PELTIDIIDAE

Alteutha oblonga (Goodsir, 1845)

Syn. (after Lang 1948):

A. depressa: G. O. Sars 1904; Wilson 1932

FAMILY PSEUDOPELTIDIIDAE

*Clytemnestra scutellata** Dana, 1848

Record: Near shelf break, Scotian Shelf
(Sameoto and Lewis 1980a).

FAMILY TEGASTIDAE

Tegastes falcatus (Norman, 1868)

FAMILY THALESTRIDAE

Dactylopodia signata (Willey, 1920)

Syn. (after Lang 1948):

Dactylopusia signata Willey, 1920

Dactylopodia tisboides (Claus, 1863)

Syn. (after Lang 1948):

Dactylopusia t(h)isboides: G. O. Sars 1905;
Wilson 1932

Dactylopodia vulgaris (G. O. Sars, 1905)

Syn. (after Lang 1948):

Dactylopusia vulgaris G. O. Sars, 1905; Wilson
1932

Dactylopusia distans Willey, 1931

Remarks: Not a valid species according to Lang
(1948) (Nomina nuda).

Parathalestris croni (Krøyer, 1845)

Syn. (after Lang 1948):

Halithalestris croni: G. O. Sars 1905;
Wilson 1932; Rose 1933

Parathalestris jacksoni (T. Scott, 1898)

Parathalestris pygmaea ?

Remarks: Recorded by Legaré and Maclellan
(1960); identity uncertain (Shih et al. 1971).

Thalestris gibba (Krøyer, 1842)

Thalestris longimana Claus, 1863

FAMILY TISBIDAE

Scutellidium longicauda (Philippi, 1840)

Syn. (after Lang 1948):

Psamathe sargassi: G. O. Sars 1916

Tisbe furcata (Baird, 1837)

Syn. (after Lang 1948):

Idya furcata: Sars 1905

Idyaea furcata: Willey 1920

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Appendix I

A List of Studies Involving Planktonic Copepod Species from the Gulf of Maine to Ungava Bay Since 1969. Origin of Copepods Indicated if Not Self Evident; Reviews also Indicated.

- AKENHEAD, S. 1980. The development and distribution of *Calanus finmarchicus* on Flemish Cap in the spring of 1979. NAFO Ser. Doc. 80/IX/151.
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- HERMAN, A. W., AND M. R. MITCHELL. 1981. Counting and identifying copepod species with an *in situ* electronic zooplankton counter. Deep-Sea Res. 28: 739-755. [Scotian Shelf and slope]
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