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ABSTRACT

Harpacticoid copepods were identified from meiofauna samples taken in the Gulf of Maine, U.S.A., over a 2 year period (August, 1975 to September, 1977). Fifty-seven species are listed, which represent 15 families. Sandy substrates, and holdfasts and fronds of 6 algal species were sampled. Twenty-seven species have not been reported before in the Gulf of Maine. For some boreal species the Gulf of Maine is their southernmost reported location. Some of these populations may represent glacial relicts, stranded in pockets of cold water in the Gulf of Maine.

Harpacticoid copepods are numerically important members of marine and brackish water meiofauna (McINTYRE, 1969; TIETJEN, 1969; COULL, 1970; McINTYRE and MURISON, 1973). Of the reports on northwestern Atlantic meiofauna (WEISER, 1960; WIGLEY and McINTYRE, 1964; TIETJEN, 1969) only WILSON (1932) has attempted to deal with the harpacticoid fauna in its entirety. The scope of this work, however, is limited. COULL's (1977) Marine Flora and Fauna of the Northeastern U.S. Copepoda, Harpacticoida, lists 121 species occurring between Maine and New Jersey. COULL (1977) admits that the assemblages in the Gulf of Maine are poorly known, and that his key is undoubtedly incomplete.

The present paper presents a list of harpacticoid species found during studies on meiofauna communities along the west coast of the Gulf of Maine, U.S.A., which began in 1975. It will supplement

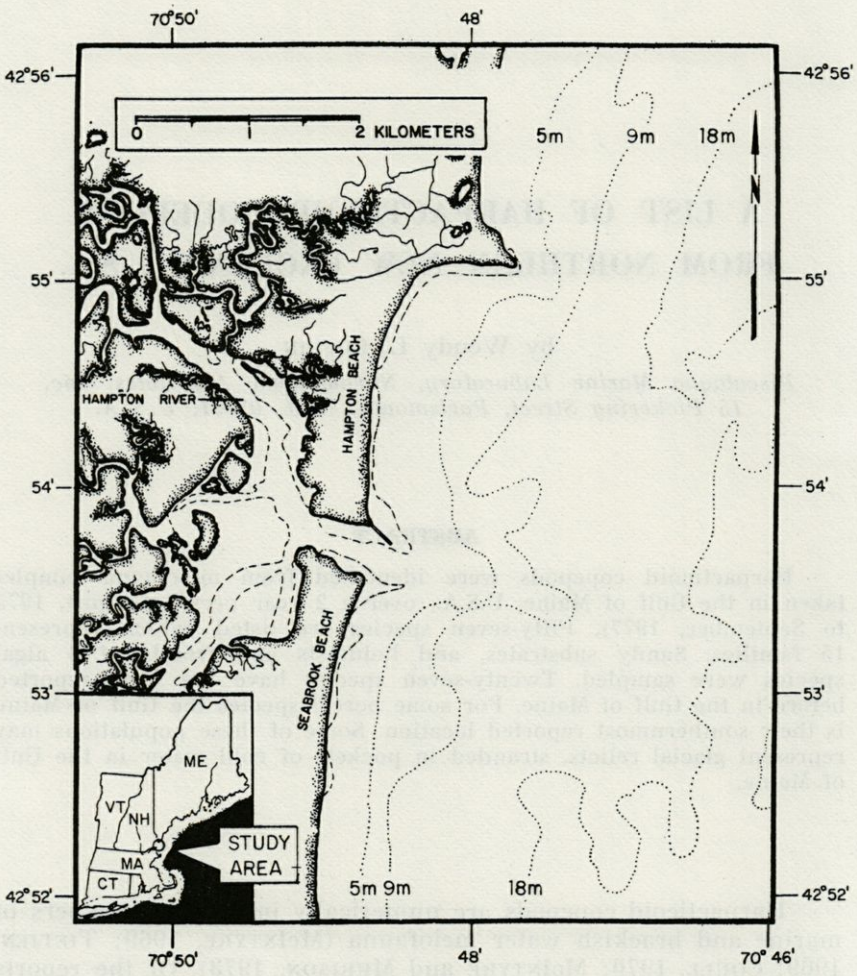

FIG. 1. — Map of the study site.

the work of COULL (1977), listing additional species and reporting on the known geographic distribution of other species.

The study site was in coastal New Hampshire waters, in the vicinity of Hampton, N.H. (Fig. 1). Several habitats were studied, including offshore and estuarine sand, and offshore epiphytic habitats (Table I). Sandy bottom substrates were sampled by SCUBA divers using hand held cores. The cores were inserted 5 cm into the substrate. They circumscribed an area of 9.07 cm^2. Algal

Tableau I

General description of substrates studied.
N/A : not applicable.

	SAND SUBSTRATE			ALGAE SUBSTRATE					
	OFFSHORE	ESTUARINE		*Corallina officianalis L.*	*Laminaria saccharina L.*	*Agarum cribrosum* (Mertens)	*Phyllophora pseudoceranoides* (Goodenough and Woodward) and *Phycodrys rubens* (Hudsons)	*Ptilota serrata* Kützing	*Corallina officianalis L.* and *Ptilota serrata* Kützing
	Subtidal	Intertidal	Subtidal	Fronds	Holdfast	Holdfast	Fronds	Fronds	Fronds
Number of Stations	5	4	4	2	3	1	1	1	1
Approximate number of collections	8	4	4	8	5	1	1	1	1
Approximate depth of stations (meters)	7.6 to 18.5 m	M.L.W., .6m and 1.2 m above MLW	1.2 - 2.4 m below MLW	5.1 to 6.3 m	6.3 to 12.2 m	27.4 m	27.4 m	27.4m	27.4m
Median Grain Size	fine to very fine sand	medium to fine sand	medium to fine sand	N/A	N/A	N/A	N/A	N/A	N/A

habitats consisting primarily of *Corallina officinalis* fronds and *Laminaria saccharina* holdfasts were sampled according to GERLACH (1971). Divers scraped approximately 10 grams of algae into a plastic bag which was then sealed. At some of the collection sites two algae species co-occurred making separation impossible. Sampling effort was not distributed equally among all habitats. Offshore sand and the algae *Corallina officinalis* were sampled most often (8 collections each). Estuarine sand was sampled 4 times and *Laminaria saccharina* holdfasts were sampled 5 times. The remaining algal species were sampled only once.

The aggregate species list (Table II) represents 2 years of data collected approximately quarterly from August, 1975 to September, 1977. In all, 57 species representing 15 families were identified. Twenty-seven of the identified species have not been previously reported in the Gulf of Maine. Consequently, they were not included in COULL's (1977) list.

For some of the boreal species (*P. macera, P. hyperborea, D. typica, L. inopinata, S. hippolytes, R. minuta, Z. abbreviatus, L. vaga, P. intermedia, H. minuta*) these collections represent the southernmost populations reported. This may also be true for *H. neglectum*. COULL (1970, 1971) reported this species from North Carolina and Bermuda and suggested a cosmopolitan distribution, however his identification is uncertain (COULL, pers. comm.). Personal observation of COULL's North Carolina specimens revealed morphological differences from *H. neglectum* reported herein. These boreal species may be isolated populations (living in pockets of cold water found in the Gulf of Maine) or alternatively, are continuously distributed from Arctic waters into the Gulf of Maine (MARCOTTE, pers. comm.).

The following species have been previously reported in the Gulf of Maine but from Canadian waters and thus were not included in COULL's (1977) U.S. review : *Halectinosoma neglectum, Zaus abbreviatus, Leimia vaga,* and *Enhydrosoma bucholtzi. H. neglectum* and *Z. abbreviatus* were collected in plankton near St. Andrews, N.B., Canada by MCMURRICH (BIGELOW, 1926) and *L. vaga* and *E. buccholtzi* were reported in the same area by WILLEY (1939).

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TABLEAU II

List of harpacticoid copepods present in the various substrates sampled.
* : not listed in COULL (1977).

COPEPODA HARPACTICOIDA	SAND SUBSTRATE			ALGAE SUBSTRATE					
		ESTUARINE							
	OFFSHORE SUBTIDAL	INTERTIDAL	SUBTIDAL	*Corallina officinalis* Fronds	*Laminaria saccharina* Holdfast	*Agarum cribrosum* Holdfast	*Phyllophora pseudoceranoides* and *Physoclrys rubens* Fronds	*Ptilota serrata* Fronds	*Corallina officinalis* and *Ptilota serrata* Fronds
Canuellidae, Lang									
Scottolana canadensis (Willey)		+	+						
Ectinosomatidae, Sars									
**Ectinosoma melaniceps* Boeck	+				+	+	+	+	+
Halectinosoma curticorne Boeck	+	+	+	+	+	+	+	+	+
**Halectinosoma neglectum* (Sars)	+			+	+		+	+	+
Microsetella norvegica Boeck	+	+	+		+		+		
**Halectinosoma finmarchicum* T. Scott	+		+		+		+		
**Pseudobradya cornuta* Lang	+								
**Pseudobradya* sp.	+								
**Bradya typica* Boeck				+					
Tachidiidae, Sars									
**Danielssenia typica* Boeck	+		+		+		+	+	+
Microarithridon littorale (Poppe)		+	+						
Tachidius discipes (Giesbrecht)	+	+	+	+	+				
Thompsonula hyaenae (Thompson)	+	+	+	+					
Harpacticidae, Sars									
Harpacticus sp.			+						
**Zaus abbreviatus* Sars				+		+	+	+	
Tisbidae (Stebbing)									
Tisbe sp.	+		+	+	+		+	+	+
**Scutellidium hippolytes* (Krøyer)				+	+	+		+	
Peltidiidae									
**Alteutha oblonga* (Goodsir)	+		+	+	+		+		
Tegastidae, Sars				+	+	+	+	+	+
Thalestridae, Sars									
Dactylopodia vulgaris (Sars)	+	+	+	+	+	+	+	+	+
Diarthrodes sp.							+		
**Parathalestris intermedia* Gurney		+			+		+		
Parastenheliidae, Lang									
Parastenhelia spinosa (Fisher)	+			+	+	+	+		+
Diosaccidae, Sars									
Amphiascus minutus (Claus)		+	+	+	+	+	+	+	+
**Paramphiascella mediterranea* Lang		+			+				
Stenhelia divergens Nicholls	+	+	+			+			
Ameiridae, Monard									
**Ameira longipes* Boeck		+		+	+	+	+	+	+
Ameira parvula (Claus)			+	+					
Canthocamptidae, Sars									
Nesochra pygmaea (Claus)	+	+	+	+	+		+	+	+
**Orthopsyllus linearis* (Claus)				+	+	+	+	+	+
Cylindropsyllidae, Sars									
**Cylindropsyllus laevis* Brady	+	+	+						+
Cletodidae, T. Scott		+	+						
Cletocamptus bicolor (Wilson)		+							
Cletocamptus deitersi (Richard)		+							
Cletodes sp.	+								
**Cletodes tenuipes* T. Scott	+								
**Enhydrosoma buchholtzi* (Boeck)		+							
Enhydrosoma longifurcatum Sars	+	+	+						
Enhydrosoma propinquum (Brady)		+	+						
Enhydrosoma sp.	+	+	+						
**Heteropsyllus nunni* Coull		+							
**Heteropsyllus* sp. 1		+							
**Leimia vaga* Willey			+						
**Rhizothrix minuta* (T. Scott)	+								
**Stylicletodes* sp.			+						
Laophontidae T. Scott	+	+	+	+	+		+	+	
**Asellopsis littoralis* Nicholls	+								
Echinolaophonte horrida (Norman)				+	+				
**Heterolaophonte minuta* (Boeck)		+	+						
Heterolaophonte sp. (*capillata?*)				+					
**Laophonte inopinata* T. Scott				+	+		+	+	+
Laophonte depressa T. Scott							+		+
**Normanella minuta* (Boeck)			+						
**Normanella* sp. (*serrata?*)	+		+	+		+		+	+
**Paralaophonte hyperborea* Sars				+					
**Paralaophonte macera* (Sars)		+		+	+		+	+	+
Paronychocamptus wilsoni Coull	+	+	+		+			+	
**Pseudonychocamptus koreni* (Boeck)		+							
**Pseudolaophonte* sp. 1			+						
TOTAL NUMBER OF TAXA	26	28	29	25	24	12	22	18	17

SUMMARY

Fifty-seven species of harpacticoid copepods were indentified from meiofauna samples taken over a 2 year period (August, 1975 to September, 1977) in coastal waters of New Hampshire, U.S.A. Substrates sampled were : offshore and estuarine sandy bottom areas, and fronds and holdfasts of 6 algal species. For some of the boreal species (*P. macera, P. hyperborea, D. typica, L. inopinata, S. hippolytes, R. minuta, Z. abbreviatus, L. vaga, P. intermedia, H. minuta, H. neglectum*), this collection represents the southernmost extent of their known distributions.

RÉSUMÉ

57 espèces de Copépodes Harpacticoïdes ont été identifiées à partir d'échantillons de méiofaune prélevés au cours de deux années (août 1975 à septembre 1977), dans les eaux territoriales du New Hampshire, U.S.A.. Les substrats échantillonnés provenaient des fonds de sable du large et d'estuaires, et des frondes et des crampons d'algues de six espèces. Pour certaines espèces boréales (*P. macera, P. hyperborea, D. typica, L. inopinata, S. hippolytes, R. minuta, Z. abbreviatus, L. vaga, P. intermedia, H. minuta, H. neglectum*), cet échantillonnage représente l'extrême sud de leur distribution.

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