

SUBTIDAL MEIOFAUNA OF THE NORTH SEA : A REVIEW

by

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ABSTRACT. – The present state of knowledge on North Sea subtidal meiofauna is discussed. From an ecological point of view, mainly the hardbodied meiofauna taxa Nematoda and Copepoda have been studied to any extent.

A short review of relevant taxonomic studies of these groups is also presented, together with a list of the known North Sea nematode and harpacticoid species.

INTRODUCTION

In this paper, the North Sea is delimited by the boundaries defined by the International Council for the Exploration of the Sea (Fig. 1). The subtidal meiofauna in this region has been studied ecologically in several papers dealing mainly with nematodes and harpacticoid copepods (the hard-bodied taxa), while other groups are nearly completely ignored.

TAXONOMIC STUDIES

Harpacticoida

The publication of LANG's "Monographie der Harpacticiden" (1948) has stimulated the study of the biology and ecology of Harpacticoid Copepods throughout the world. This is reflected in the description of more than 1400 new species in the last decades. LANG's comprehensive work contains the systematic description of all species known till 1944, an extensive morphological study and chapters on the evolution and the biogeography of harpacticoid copepods. When available ecological notes per species were included.

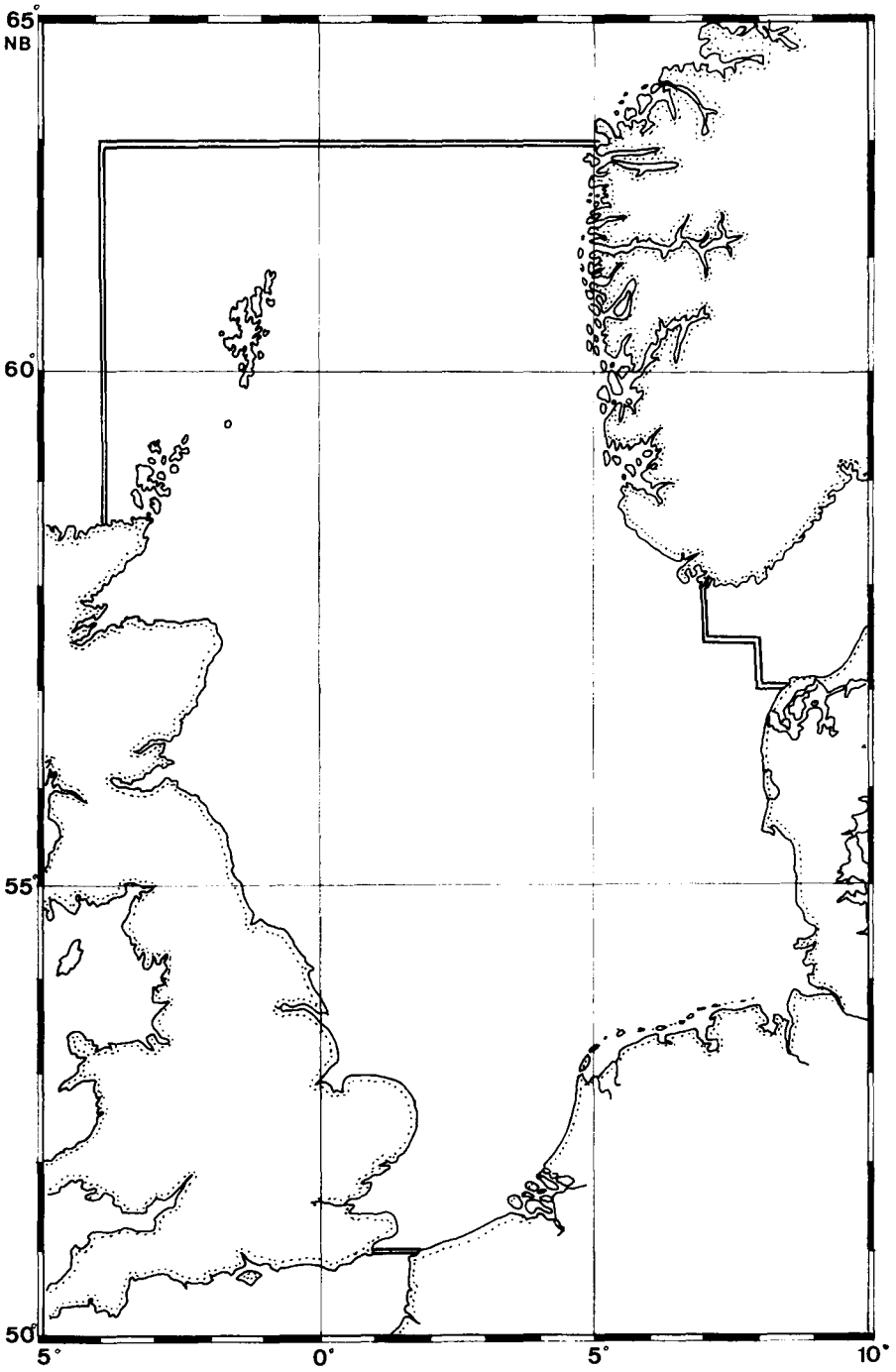


FIG. 1. - Boundaries of the North Sea as defined by the International Council for the Exploration of the Sea.

In 1965 LANG published his second important work "Copepoda Harpacticoida from the Californian coast", in which 81 new species were described and some important families and genera reviewed.

BODIN (1967, 1971, 1976a, b & 1979) compiled the taxonomic papers since LANG's monography and all descriptions of new species and taxonomical changes were listed in his "Catalogue des nouveaux Copépodes Harpacticoides marins" which should be consulted for further references. Very useful for non-specialists in harpacticoid taxonomy are the tabular keys published by WELLS (1976, 1978, 1978 & 1981).

Although numerous taxonomical papers appeared in the last decades, very few were restricted to the North Sea area proper : German Harpacticoidologists, e.g. BECKER, KLIE, KUNZ, MIELKE, NOODT & SCHEIBEL, studied the harpacticoid fauna near Helgoland, the Island of Sylt and the Kieler Bucht in the Baltic. Other studies on the eastern parts of the North Sea by DRZYCISMKI, GEDDES and POR were restricted to the Norwegian coast. In the Western zone of the North Sea most of the recent papers were restricted to the intertidal zone or near-shore coastal inlets and estuaries (e.g. HAMOND, WELLS). Except for a few ecological studies by McINTYRE on the Fladen Grounds few work has been done in the central and northern North Sea area. In the Irish Sea important harpacticoid work was done around the Isle of Man by MOORE.

Finally, the Belgian group (e.g. CLAEYS, HEIP, HERMAN, VAN DAMME & WILLEMS) works in the Southern Bight of the North Sea. Besides ecological work they performed some taxonomic work on the estuaries of the Delta region in The Netherlands and the subtidal zones. Until now 515 harpacticoid species have been described from the North Sea (see addendum).

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Nematoda

Whereas prior to 1972, 456 nematode species were known from the North Sea (GERLACH, 1980), the number now approximates 735 (see addendum).

GERLACH & RIEMANN (1973, 1974) published a checklist with all the systematic references about free-living marine nematodes till 1973. The more recent references are given in this report.

Systematic research on marine nematodes started in the intertidal zone as this environment is sampled (much) easier than the subtidal region. We will deal with systematic papers on intertidal nematodes, because many species live in the subtidal as well as in the intertidal zone.

Neighbouring seas to the North Sea such as Kiel Bay, the Irish Sea and the Channel are also dealt with because the nematode species composition is similar.

Systematic work in and around the North Sea started at the end of the 19th century. The pioneer in North Sea nematode research, BASTIAN (1865), described several new species from the Falmouth region (Cornwall, U.K.). Most of those species are found back in the sub- and intertidal regions of the North Sea. It was nearly one hundred years later that WIESER (1951-1952) studied the free-living nematodes from the Plymouth area. Today, British coasts are intensively studied by JAYASREE, LAMBSHEAD, MOORE, PLATT, WARWICK and ZHAN. The Norwegian coasts, especially the fjords, have been studied by ALLGÈN (1925-1960). Many of the species found in those regions have not been found back in other North Sea regions.

The German coasts (German Bight and Kiel Bay) have been studied by SCHULZ (1931-1938), SCHNEIDER (1939), GERLACH (from 1949 onwards), RIEMANN (1966-), LORENZEN (1966-), BLOME (1974-) and BENWELL (1981-). The southern part of the Dutch coast was examined by DE MAN (1876-1928), SCHURMANS STEKHOVEN (1929-1954), BRESSLAU (1940), JENSEN (1976-), DECRAEMER (1974-) and by VINCX (1981-). The French Channel coast was examined by KREIS (1929), DE MAN (1889-

1893), VITIELLO (1967-), BOUCHER (1975-), DECRAEMER (1979-), LUC & DE CONINCK (1959) and GOURBAULT (1981-).

For a review on the current state of the systematics of free-living marine nematodes, we refer to HEIP *et al.* (1982).

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ECOLOGY

In the Proceedings of the First International Meiofauna Conference, McINTYRE (1971) reviewed the literature on subtidal meiofauna. In all, 20 relevant papers published within the last 50 years were mentioned, and only 2 were from the North Sea : SMIDT's (1951) work from the Danish Wadden Sea and McINTYRE's (1964) own work from the Fladen Ground. Since 1971 the situation has improved, with work done on the East coast of England (WARWICK & BUCHANAN, 1971), the German Bight (several authors) and the Southern Bight (several authors). However, large parts of the North Sea remain unexplored, and some of the existing data on density and biomass are to be treated with extreme caution.

The first quantitative estimates of SMIDT (1951) are from the Danish Wadden Sea, not a typical North Sea environment. As with all earlier work, his estimates are certainly much too low and will consequently not be referred to. McINTYRE (1961) as well gives far too low densities for the Fladen Ground but provides corrections in a later publication (McINTYRE, 1964).

The Danish Wadden Sea

SMIDT (1951) took core samples from the channels and the intertidal flats of the Danish Wadden Sea. Sorting in the laboratory was done by

stirring up the material in a glass dish : the organisms were supposed to form the upper layer of the settled material. In our experience such a procedure will greatly underestimate densities and SMIDT's figures are therefore unreliable.

Wet weights were determined for Harpacticoida (9.9 $\mu\text{g}/\text{ind.}$), Ostracoda (12 $\mu\text{g}/\text{ind.}$) and small (0.6 μ) and large (7.8 $\mu\text{g}/\text{ind.}$) nematodes. Nematodes were not determined. Harpacticoids were more abundant on the waddens than in the channels. Species that were found exclusively or chiefly on sandy bottoms were *Asellopsis intermedia*, *Harpacticus flexus*, *Laophonte* spp. (?) and *Tachidius discipes*. On muddy bottoms *Amphiascus* spp., *Ectinosoma curticorne*, *Platychelipus littoralis* and *Microarthridion littorale* were dominant.

Canuella furcigera was found in both sandy or muddy sediments, as were several non-identified representatives of the Cletodidae and Ectinosomatidae.

Ostracoda being common on the sand waddens, were found in very low numbers in the channels.

Fladen Ground

McINTYRE (1964) sampled with a corer at a station situated at 58°20'N, 0°30'E, at a depth of 101 m. Fourteen cores were collected from three surveys. Although samples were sieved alive over a 76 μm sieve : the filtrate was examined as well, using resuspension and subsampling. 60% in number and 22% in weight of the nematodes passed alive through the sieve and other, fixed samples in which the filtrate was discarded were corrected consequently (it should be noted however that McINTYRE (1964) cited different correction measures in the abstract of his article).

Nematodes and harpacticoids predominated in all samples. The results are shown in Table 1. Average meiofauna density was 1959 ind./10cm², nematodes numbered 1845 ind./10cm². The average biomass was 0.43 g dwt/m² for nematodes and 0.76 g dwt/m² for meiofauna as a whole.

Species composition of the nematodes is unknown. The harpacticoids are better described with 41 species, the dominant ones being *Amphiascus tenuiremis*, *Cletodes pusillus*, *Zozime valida*, *Stenhelia* sp. A and *Pseudotachidius coronatus*. Among the Kinorhyncha Homalorhagae were poorly represented and species of *Echnoderes* were dominant, followed by *Centroderes multispinosus*, *Semmoderes armiger* and juvenile Cyclorhagae. Young stages of only a few species of mollusks and especially polychaetes were also present.

Table 1

Fladen, numbers of animals per 10 cm² in 14 cores (from McINTYRE, 1964)

	29 April 1962				15 January 1963						8 August 1963				Mean
	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	
Nematoda	2215	1867	2027	1852	1258	1115	1715	2392	3020	2695	1493	1535	1895	755	1845
Kinorhyncha	5	8	5	3	15	15	18	3	23	8	10	—	3	5	9
Ostracoda	8	5	5	5	10	5	8	3	—	3	5	3	—	3	5
Nauplii	3	—	5	13	15	10	15	—	13	8	18	3	10	35	11
Total	2272	1915	2085	1926	1344	1240	1866	2466	3117	2777	1619	1567	1951	878	1931
Polychaeta	5	3	3	10	10	35	10	18	13	15	10	8	3	3	10
Lamellibranchiata	3	3	—	3	15	30	63	20	33	13	18	10	13	23	18
Total	8	6	3	13	25	65	73	38	46	28	28	18	16	26	28
Grand total	2280	1921	2088	1939	1369	1305	1939	2504	3163	2805	1647	1585	1967	904	1959

The density data obtained by McINTYRE may be compared with estimates obtained from a cruise of RV. Knorr with a box-corer in the same area (HERMAN, SHARMA, VINCX and HEIP, unpublished). The average density and biomass for five stations sampled in May 1976 are given in Table 2. In general these figures are higher than McINTYRE'S : on average the meiofauna numbers 2552 ind./10 cm², with nematodes 2447 ind./10 cm², the biomass figures are 1.14 g dwt/m² for the entire meiofauna and 0.56 g dwt/m² for the nematodes. Two stations, however, had meiofauna densities of over 3000 ind./10 cm².

Table 2

*Density of the principal meiobenthic taxa on Fladen Ground (N per 10 cm²).
Means of two samples (unpublished data)*

	St 19	St 22	St 32	St 44	St 59	Mean
Nematoda	3875	2964	2429	1334	1733	2467
Copepoda	26	49	37	43	66	44
Polychaeta	13	4	3	10	20	9
Kinorhyncha	3	2	2	3	4	3
Ostracoda	3	3	2	1	7	3
Others	9	50	9	19	42	26
Total	3929	3072	2481	1409	1868	2552

McINTYRE (1964) mentions that the Fladen Ground is one of the poorest known in terms of standing stock B of the macrofauna, with only 1.6 g dwt/m². Meiobenthos production P, assuming a P/B-ratio of 10, will be greater than macrobenthos production, and McINTYRE hypothesises that competition exists between nematodes and the larger (and economically valuable) macrofauna.

FAUBEL, HARTWIG & THIEL (1983) studied the meiofauna over 6 dates at 5 stations in the Fladen Ground in the framework of the campaigns PREFLEX (1975) and FLEX (1976). A completely yearly cycle has been reported for 3 stations.

Meiofauna abundance was fairly high at all stations and varied between 751 and 3490 ind./10 cm². Stations 1 and 2, which contained more than 80% silt and clay, had the highest numbers. Nematodes were the dominant group, comprising between 79 and 94% of the meiofauna. In general, meiofauna abundance was highest in December and lowest in

April. However, at station 1 (58°20'N, 0°07'W), a minimum was reached in June. Over all samples the density increased from 1457 ind./10 cm² in April to 2067 ind./10 cm² in July. The average density for all samples was 1945 ind./10 cm². For the other meiofauna taxa a similar trend was found as the one for the nematodes.

At station 1, which was examined in most detail, the average abundance of the nematodes was 2367 ind./10 cm², with an average individual weight of 0.63 µg and an average total biomass of 1.5 g dwt/m². From these figures an attempt was made to estimate annual production of the meiofauna using the concept of minimal production, i.e. the difference between the highest and the lowest biomass found during the year. However, as the authors acknowledge, this concept bears no relationship with real production and the term is ambiguous. It is therefore impossible to estimate production from such a measure. A more sound approach was followed by estimating the yearly number of generations. On the Fladen Ground, where temperature is around 6-7° C throughout the year and food input is low, this was estimated to be between 1 and 2 for the nematodes. This estimate was said to be confirmed by microscopical observations, which are however not reported in the paper. With 1.5 generations annually and a life-cycle turnover of 3 (WATERS, 1969), annual P/B would be 4.5 and production of nematodes would amount to 6.57 g dwt/m²/yr, about ten times the value for 'minimum production'. The production of the meiofauna as a whole would be in the order of 9 g dwt/m²/yr, instead of 3 as claimed by FAUBEL *et al.* (l.c.), who multiplied the average standing stock with the annual number of generations only. This will introduce a considerable bias and the value of annual P/B = 2 proposed by the authors is certainly too low.

During the spring bloom on the Fladen Ground about 40 g C/m² is produced by the phytoplankton. The energy demand of the meiobenthos can be estimated as roughly 4.9 times production (HEIP *et al.*, in press) (based on nematodes) and thus amounts to more than 40 g dwt/m² or 24 g C/m²/yr, when accepting that carbon makes up 57% of the dry weight as found by FAUBEL *et al.* (l.c.). The value of 40 g C/m² was found by FAUBEL *et al.* (l.c.) by using an ecological efficiency of 10%, which may well be too low. However, it is clear that a large part of the primary production has to pass through the meiofauna.

Another striking result of the paper by FAUBEL *et al.* (1983) concerns the amount of organic matter in the sediment, as determined by weight loss after combustion at 550°C. From April to August 1976 this amount

increases by roughly 3% in the upper two centimeters and roughly 1% in the next two centimeters of the sediment. Accepting that the sediment has a density of 1.5, this indicates that during these months around 1.2 kg of organic matter enters the sediments per m² and is reworked over the rest of the year. Assuming that this organic matter contains 40% carbon, the yearly turn-over of organic carbon would reach the high amount of 300 g C/m²/yr. There are two possible errors: WOLLAST (1977) found for sediments in the Belgian coastal zone that the weight loss is about double the amount of organic matter; secondly, combustion at 550° C may be slightly too high. When halving the figure obtained above, there is still 150 g C/m²/yr that is metabolized by the benthos. As the total primary production is only around 90 g C/m²/yr (STEELE, 1974) another source of organic matter seems to be necessary to account for the figure observed.

The Northumberland coast

The qualitative distribution of nematodes of various sediment types in the Northumberland coastal waters had been investigated by WARWICK & BUCHANAN (1970, 1971). Average densities were 185 ind./10 cm² on a fine sand station (-35 m), 815 ind./10 cm² on another fine sand station (-54 m) and 713 ind./10 cm² on a silt station (-80 m). On the fine sand station A the dominant species were *Sabatieria ornata*, *Dorylaimopsis punctatus*, *Actinonema pachydermatum*, *Mesacanthion* sp., *Terschellingia longicaudata*, *Sphaerolaimus* sp. and *Theristus* sp. 1, which together accounted for 54% of all individuals. On the fine sand station B the dominant species were *Sabatieria ornata*, *Odontophora longisetosa*, *Terschellingia longicaudata*, *Mesacanthion* sp., *Sabatieria hilarula* and *Theristus setosus*, together accounting for 51% of all individuals. On the silty station C the dominant species were *Dorylaimopsis punctatus*, *Leptolaimus elegans*, *Sabatieria cupida*, *Sabatieria ornata*, which accounted for 52% of all individuals. The first three of these species were considered to be typical of muddy sediments. For the sandy stations *Odontophora longisetosa* was characteristic.

In their second paper WARWICK & BUCHANAN (1971) investigated the temporal stability of the nematode community on the muddy station C. There appeared to be no seasonal fluctuations in the relative dominance of the different species. Juveniles dominated the populations at all times and gravid females were present in all seasons. Asynchronous, continuous reproduction thus seemed to prevail, at least in the dominant species. Although significant fluctuations in density were found, they were thought to result from patchiness rather than represent true fluctuations.

The average weight of a nematode was $0.45 \mu\text{g}/\text{ind.}$, the biomass of the entire taxocene varied between 0.3 and $0.7 \text{ g dwt}/\text{m}^2$.

The Yorkshire coast

MOORE (1971) studied the rather specialized fauna of holdfasts of *Laminaria* from fifteen sites. 61 species of nematodes were found. The order Enoplida was clearly dominant, with as important species : *Enoplus communis* (45%), *Anticoma acuminata* (17%), *Thoracostoma coronatum* (13%) and *Phanoderma albidum* (5%).

The German Bight

STRIPP (1969b) gives estimates of density and biomass of meiofauna from 3 stations in the Helgoland Bight. As his samples were subsamples from Van Veen grab his results should be considered as underestimated. They served nevertheless as a basis for GERLACH'S (1971) paper on the importance of marine meiofauna in a trophic sense. Furthermore the large mesh size of $100 \mu\text{m}$ used by STRIPP (1969a) must have resulted in an extra underestimation of the nematode fraction ; it is therefore advisable not to use his results on total density and biomass.

Individual wet weight figures are given for large nematodes ($4.2 \mu\text{g}/\text{ind.}$), intermediate nematodes ($1.2 \mu\text{g}/\text{ind.}$) and small nematodes ($0.3 \mu\text{g}/\text{ind.}$). Weight determinations of other meiofauna were made with scale models and gave : Harpacticoida : $8 \mu\text{g}$; Halacarida : $6 \mu\text{g}$ and interstitial Polychaeta : $5 \mu\text{g}$.

In all stations there was a yearly cycle in density with maximum values in summer and a minimum in March. Summer densities and biomass were on average 1.5-1.6 times higher than winter values. They averaged between 81 and 349 ind./ 10 cm^2 in sand, between 694 and 750 ind./ 10 cm^2 in silt and between 833 and 1311 ind./ 10 cm^2 in silty sand. Corresponding wet weight biomasses were $0.2\text{-}0.5 \text{ g}/\text{m}^2$ in sand, $1.1\text{-}1.3 \text{ g}/\text{m}^2$ in silt and $0.9\text{-}2.0 \text{ g}/\text{m}^2$ in silty sand.

The same area was studied in much more detail as far as the nematodes are concerned by LORENZEN (1974) and JUARIO (1975). LORENZEN (1974) compared nematode faunas from a TiO_2 dumping ground in the German Bight. The area is 23-27 m deep, the sediment consists of fine sand with a median grain size of $200 \mu\text{m}$. The residual current in the area is to the north with a velocity of 5-10 cm/sec. The macrofauna of the area belongs to the *Venus gallina*-community.

Fifty species of nematodes are common in the area. Lorenzen's procedures did not permit density estimates, but he found that juveniles

represent about 50% of the population throughout the year. On the whole 191 species were found with 42 new to science.

Some samples were taken quantitatively and yielded average densities superior to the values of STRIPP (1969b). For fine sand and average density was 530 ind./10 cm², for silty sand 2310 ind./10 cm² and for mud 920 ind./10 cm². There were no clear winter-summer fluctuations.

The coarse sand was dominated by *Chromadorita obliqua*, *Paracyatholaimus occultus*, *Prochromadorella attenuata*, *Monhystera* spp. ; fine sands by *Daptonema leviculum*, *Richtersia inaequalis*, *Sabatiera celtica* and *Viscosia rustica* ; silty sands by *Microlaimus turgofrons*, *Longicyatholaimus complexus*, *Sabatiera celtica*, and *Sabatiera pulchra* and muds by *Sabatiera pulchra*, *Terschellingia longicaudata* and *Desmolaimus* aff. *bulbulus*.

Several of the dominant species showed a higher reproductive activity in Spring. Adults of *Mesacanthion diplochma* were found only in June-July, indicating that this species has a one year life-cycle.

A silty sand station in the same area was investigated in great detail by JUARIO (1975). The macrofauna of the area belonged to the *Echinocardium cordatum-Amphiura filiformis*-community. Subsampling a Van Veen grab probably has resulted in biased estimates. The use of a sieve of 50 μ m assured maximal recovery of all animals except the smallest nematodes. Total meiofauna density varied between 3047 and 5261 ind./10 cm², much higher values than found by previous authors. Nematodes made up between 93 and 99% of this. A peak in meiofauna abundance was found in April and in August. Biomass varied between 0.5 and 0.9 g dwt/m² with most values close to 0.8 g dwt/m².

Nematodes varied between 2867 ind./10 cm² in February and 5037 ind./10 cm² in August. Harpacticoids were next, varying between 26 to 179 ind./10 cm². From the other groups only the Kinorhynch and Polychaetes had some importance.

Only nematodes were studied systematically. In general the common species are eurytopic and were similar to those found by LORENZEN (1974). There is no seasonal pattern in species dominance, gravid females and juveniles are present throughout the year and juveniles make up a constant proportion of the total community, indicating year-round continuous reproduction. In most species higher numbers were found in summer, but in *Microlaimus turgofrons* highest density occurred in winter.

Individual biomass of nematodes was very stable, between 0.13 and 0.19 μ g/ind. This indicates a predominance of very small species. A total

of 87 species was found, the most abundant being *Microloaimus turgofrons*, *Sabatieria pulchra*, *Microloaimus torosus*, *Microloaimus* aff. *honestus*. Diversity was very high. Comparing his data with those of LORENZEN (1974), JUARIO (1975) proposes the following average values for different sediment types in the German Bight :

- coarse sand : 5.11 bits/ind.
- fine sand : 5.38 bits/ind.
- silty sand : 4.30 bits/ind.
- mud : 2.55 bits/ind.

He distinguishes the following communities in the German Bight :

- a coarse sand community dominated by *Prochromadorella attenuata*, *Chromadorita obliqua* and *Monhystera* sp.
- a fine sand community dominated by *Sabatieria celtica*, *Metadesmolaimus heteroclitus* and *Paracanthonchus caecus*.
- a silty sand community dominated by *Microloaimus turgofrons*, *Sabatieria pulchra* and *Microloaimus torosus*.
- a mud community dominated by *Sabatieria pulchra*.

The Southern North Sea

There exist no published data on the Southern North Sea proper. HERMAN (unpublished) gives the following densities from two box-core samples on station AUR 10 situated 54°00'N and 3°40'E, depth 46 m, median grain size of the sand fraction 113 μ m, 12.7% silt.

	<i>Nematoda</i>	<i>Harpacticoida</i>
Core A	3723	11
Core B	3024	16

Eight harpacticoid species were found in both samples.

The Southern Bight

Much work has been done since the 70's on meiofauna of the Southern Bight by Belgian workers. A summary of some of the results has been presented by GOVAERE *et al.* (1980). They found three zones on bases of the harpacticoid copepods :

- A *Microarthridion litorale*-*Halectinosoma herdmani*-community.

This community is found in very shallow water not exceeding 10 m depth. It inhabits a zone of sediments polluted by material derived from

the Western Scheldt estuary. The harpacticoids consists of large epibenthic species with *Microarthridion littorale* extremely dominant, followed by *Pseudobradya beduina*, *Halectinosoma sarsi*, *Halectinosoma herdmani*, *Canuella perplexa* and others. Nematodes are dominated by the genus *Sabatieria* and to a lesser degree *Theristus* (*Daptonema*) in very muddy sediments. In more sandy stations a richer fauna occurs with the genera *Spilophorella*, *Rhips* and *Hypodontolaimus*.

Turbellarians from this zone were studied by DEGADT who described numerous species with the Macrostromida dominant.

Nematodes from the southern part of the area have been studied by HEIP & DECRAEMER (1974). They found 140 species in five stations, with only two species common to all stations : *Sabatieria* sp. and *Richtersia inaequalis*. Six species occurred in 4 stations. The author found a linear relationship between diversity as calculated by the Shannon-Wiener index and the median grain size of the sand fraction given by $H = -0.261 + 15 Md$ with H in bits/ind. and Md in mm.

– A *Halectinosoma herdmani*-*Leptastacus laticaudatus*-community.

This community inhabits a transition zone with stations between 15 and 10 m depth. Organic matter in the sediment is lower, but the stations often contain large amounts of detritus. The most frequent harpacticoids are the two species after which the community is named, i.e. a large epibenthic and a small interstitial species. Other harpacticoids are *Halectinosoma sarsi*, *Canuella perplexa*, *Dactylopodia vulgaris*, *Ectinosoma dentatum*, *Euterpina acutifrons* (in fact a planktonic species), *Thompsonula hyaenae*, etc. Nematodes from this zone have been studied by JENSEN (1974) in 7 samples from 1 station. The dominant species was *Sabatieria*, followed by *Richtersia inaequalis*, *Microlaimus* and *Theristus* spp.

Turbellarians from this zone were studied by DEGADT (1973). Otoplanidae and Acoela were dominant.

Several interstitial polychaetes are important in this zone, with *Hesionura augeneri* and *Streptosyllis websteri*. Nemertineans, Oligochaeta and Archiannelida occur regularly : Hydrozoa, Gastrotricha and Halacarida are rare : Kinorhyncha were never found.

– A *Leptastacus laticaudatus*-*Paramesochra helgolandica*-community.

This community is found in stations with depths exceeding 20 m. The sediment consists of clean sand, except in some places where gravel is found. The median grain size varies with decreasing velocity of the tidal currents from larger than $350\mu\text{m}$ south of 52°N , between $300\text{-}350\mu\text{m}$ between 52°N and $52^\circ12'\text{N}$ and between $250\text{-}300\mu\text{m}$ between $52^\circ12'\text{N}$ and $52^\circ25'\text{N}$.

In fourteen stations 54 species of harpacticoids were found, the most common being small interstitial species such as *Leptastacus laticaudatus*, *Paramesochra helgolandica*, *Arenosetella germanica*, *Kliopsyllus paraholsaticus*, *Psammotopa phyllosetosa*, *Intermediopsyllus intermedius* and *Evansula incerta*. The average number of species per station was 13.7, the average diversity 2.7 bits/ind.

Most nematodes in the area are epigrowth feeders with dominant genera such as *Chromadorita*, *Neochromadora*, *Hypodontolaimus* and *Dichromadora* (JENSEN, 1974). Other meiofauna groups are also present : among the Turbellaria the Coelogynoporidae (Proseriata) are dominant, followed by Schizorhynchidae, Acoela and Macrostomida. A number of truly interstitial polychaetes occur : *Exogone naidina* and *Hesionura augeneri* are dominant, followed by *Exogone hebes*, *Microphthalmus listensis*, *Sphaeropsyllis hystrix* and *Streptopsyllis websteri*. A number of interstitial gastropods was found : *Caecum glabrum*, *Microhedyle* spp., *Pseudovermis papillifera* and *Philinoglossa helgolandica*. In most samples the genus *Halammohydra* was found. Gastrotrichs were common. Archiannelids included *Polygordius* spp., *Saccocirrus*, *Protodrilus* and *Protodriloides*. *Batillipes mira* (Tardigrada) was found in this zone as well. In one station the interstitial sea cucumber *Leptosynapta minuta* was found. Kinorhyncha and Ostracoda are rare.

Table 3

Total density and biomass of meiobenthos in three zones of the Southern Bight.
 $N : \text{ind.}/10 \text{ cm}^2 - B : \text{g dwt}/\text{m}^2$

Year	Coastal zone		Transition zone		Open sea zone	
	N	B	N	B	N	B
1971 (summer)	934	1.21	1739	2.44	1640	2.24
1972	1182	1.51	27235	1.81	1340	1.75
1973	1261	1.60	774	1.02	8.52	1.24
1974	1092	1.39	761	1.04	803	1.02
1975 (winter)	1129	1.43	623	0.84	757	0.97

Total density and biomass in the 3 communities are given in Table 3. However, as these are subsamples from a Van Veen grab, bias is present. The biomass calculations are based on an individual weight of $1.24 \mu\text{g}$ dwt/ind. for a nematode. Later determinations by BISSCHOP (1977) on

nematodes from the coastal area gave a much lower value of 0.59 μg , indicating that in the 1972-1975 survey the smaller nematodes are again underestimated.

Later work has been summarized in HEIP *et al.* (1979, in press) and HERMAN *et al.* (in press). HEIP *et al.* (1979) summarized data from 18 stations in the Belgian coastal zone (the *Microarthridion littorale-Halectinosoma herdmani*-community). An analysis of variance on nematode density data showed that nematode communities are stable in space and time (not in time when the data were not transformed). Highest densities were found in muddy sand (2100 ind./10 cm²). In sandy stations 20-30 species of nematodes per station were present, in muddy stations 4-12 species. Nematode communities in mud were dominated by species from the *Sabatieria pulchra*-group, *Daptonema tenuispiculum*, *Theristus* and *Monhystera* spp. In sandy stations other species become important such as *Spirinia parasitifera*, *Richtersia inaequalis*, *Ascolaimus elongatus*, *Microaimus marinus*, *Tubolaimoides tenuicaudatus* and *Enoplolaimus propinquus*.

A still more detailed analysis of the meiofauna in the Belgian waters is presented by HERMAN *et al.* (in press). 280 species of nematodes from 121 genera and 28 families were found in the grid described by GOVAERE *et al.* (1980). The nematode fauna was analyzed on a family basis. Based on the Sørensen similarity index the region can be divided in six zones, which are a very good representation of the sediment composition. Nematodes thus appear to be more sensitive to slight changes in sediment composition than either macrofauna or harpacticoids for which only three zones could be distinguished in the same grid following the same analysis.

A remarkable difference exists in the distribution of nematode feeding types according to the zones. The coastal area is characterized by a large amount of non-selective deposit-feeders, which are the only group present in very polluted stations north-east of Ostend. The open-sea zone has the four feeding types in about equal proportions, with epigrowth feeders most numerous.

In the coastal zone ten major taxonomic groups were found. In this zone only 2.9 to 3.4 taxa were present per station. Overall density of the meiofauna is 1800 ind./10 cm², with on average 96 % nematodes. Mean densities of the nematodes were :

- sand : 1190 ind./10 cm²
- silty sand : 1920 ind./10 cm²
- mud : 1830 ind./10 cm²

Individual biomass was slightly higher in sand ($0.32 \mu\text{g}/\text{ind.}$) than in muddy sand ($0.30 \mu\text{g}/\text{ind.}$) or mud ($0.25 \mu\text{g}/\text{ind.}$) and was higher in winter than in summer. Total biomass of the nematodes was :

- sand : $0.38 \text{ g dwt}/\text{m}^2$
- silty sand : $0.57 \text{ g dwt}/\text{m}^2$
- mud : $0.45 \text{ g dwt}/\text{m}^2$

The average biomass over the whole area is $0.50 \text{ g dwt}/\text{m}^2$ or approximately $0.2 \text{ g C}/\text{m}^2$.

In the coastal area the number of nematode species varied between 1 and 16. The diversity decreases significantly from south to north. In the NE-region the mean number of nematode species is only 5.4, in the SW it is 14.3. *Sabatieria* spp. (six species) predominate. Species of *Daptonema* may also be very abundant. Also the harpacticoid fauna is extremely impoverished. In the mud stations only five species were found with *Microarthridion littorale* extremely dominant. Sandy stations are characterized by the transition community described by GOVAERE *et al.* (1980).

The meiofauna of a sandbank in the transition zone has been studied by WILLEMS *et al.* (1982a). Among the nematodes three species groups could be distinguished with high diversity and low density ($384 \text{ ind.}/10 \text{ cm}^2$). Harpacticoids are more diverse and more numerous in the coarser sands at the northern end of the sandbank than in the finer sands at the southern end. 65 species were identified with an average diversity of 2.3 bits/ind. and an average density of $162 \text{ ind.}/10 \text{ cm}^2$. WILLEMS *et al.* (1982b) demonstrated that meiofauna abundance was not correlated with sediment mean grain size. This holds for nematodes and copepods in particular; ostracods and halacarids were more numerous in coarser sediments.

PRODUCTIVITY OF MARINE MEIOBENTHOS IN THE SOUTHERN BIGHT

A first attempt to calculate energy flow through meiobenthic populations has been attempted for nematodes and harpacticoids in the Southern Bight by VAN DAMME & HEIP (1977), HEIP *et al.* (in press), HERMAN *et al.* (in press) and HEIP *et al.* (1982). These estimates were based on sampling data for density and biomass and on literature data for production and respiration. Using a mean P/B-value of 9, VAN DAMME & HEIP (1977) estimated meiobenthic production in the coastal zone at $5 \text{ g C}\cdot\text{m}^{-2}$, meiobenthic respiration at $5.7 \text{ g C}\cdot\text{m}^{-2}$ for an average biomass of $0.6 \text{ g C}\cdot\text{m}^{-2}$. In the open sea zone, with a standing stock of $0.7 \text{ g C}\cdot\text{m}^{-2}$, production would be 4.2, respiration $4.3 \text{ g C}\cdot\text{m}^2\cdot\text{y}^{-1}$. These figures should

be considered as very crude approximations. In later years direct production estimations have been obtained for the ostracod *Cyprideis torosa* and for several harpacticoids (see HEIP *et al.*, 1983 for a review). Respiration rates were determined for many harpacticoids (see HERMAN & HEIP, 1983) and much better estimates were available for nematodes (WARWICK & PRICE, 1979). In the Belgian coastal waters nematodes are extremely dominant and average densities are high. On the Kwintebank meiofauna in general is less abundant and nematodes less dominant. Based on the average temperatures in the Southern Bight, 6° C in winter and 16° C in summer, individual respiration can be calculated based on the knowledge of individual weight. Yearly respiration of nematodes amounts to 5.75 l O₂.m⁻² in the coastal waters and 2.71 l O₂.m⁻² on the Kwintebank. These data are based on respiration measures of WARWICK & PRICE (1979). Production can be calculated from total respiration data using the regression equation of HUMPHREYS (1979) for non-insect invertebrates : $\log P = 1.069 \log R - 0.601$ with P (production) and R (respiration) in calories. Using the conversions 1 l O₂ = 0.402 g C and 1 g C = 13 kcal, yearly productions can be estimated at 2.92 g dwt.m⁻² for the coastal area and 1.31 g dwt.m⁻² for the Kwintebank. These values are very low, especially when compared with the estimations obtained by using a value of 9 for the P/B-ratio as proposed by GERLACH (1971). However, it has become clear that the proposed P/B = 9 has no real value in determining the production of meiobenthos. Data obtained from culture experiments clearly indicate that the productivity of the smaller nematode species is much larger and a P/B-ratio of 30-40 might not be unrealistic.

These estimations thus remain subject to considerable uncertainty. The figure of 8.6 g C.m⁻².y⁻¹ in the coastal zone and 5.5 g C.m⁻².y⁻¹ on the Kwintebank has been derived from total carbon requirements of the meiofauna in these zones (HERMAN *et al.*, in press).

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ADDENDUM I

Preliminary list of harpacticoid copepods from the North Sea
(ICES-area ; prepared by R. HERMAN)

Fam. LONGIPEDIIDAE Sars, Lang

- Longipedia coronata* Claus, 1863
" *helgolandica* Klie, 1949
" *minor* T. & A. Scott, 1893
" *rosea* Sars, 1903
" *scotti* Sars, 1903
" *weberi* A. Scott, 1909

Fam. CANUELLIDAE Lang

- Brianola stebleri* Monard, 1926
Canuella furcigera Sars, 1903
" *perplexa* T. & A. Scott, 1893
Canuellopsis swedmarki Por, 1964
Sunaristes paguri Hesse, 1867

Fam. CERVINIIDAE Sars, Lang

- Cervinia bradyi* Norman, 1878
Cerviniopsis clavicornis Sars, 1903
" *longicaudata* Sars, 1903
Eucanuella spinifera T. Scott, 1900
Hemicervinia stylifera (I. C. Thompson, 1893)

Fam. ECTINOSOMATIDAE Sars, Olofsson

- Arenosetella germanica* Kunz, 1937
" *tenuissima* (Klie, 1929)
Bradya Bradya congenera Sars, 1920
" " *furcata* Sars, 1920
" " *macrochaeta* Sars, 1920
" " *proxima* T. Scott, 1912
" " *simulans* Sars, 1920
" " *scotti* Sars, 1920
" " *typica* Boeck, 1872
Bradya Parabradya dilatata Sars, 1904
Ectinosoma compressum (Sars, 1920)
" *melaniceps* Boeck, 1864
" *normani* T. & A. Scott, 1894
" *obtusum* Sars, 1920
" *reductum* Bozic, 1954
" *tenuipes* T. & A. Scott, 1894

- Ectinosomella nitidula* Sars, 1910
- Halectinosoma* *angulifrons* (Sars, 1899)
- " *armiferum* (T. & A. Scott, 1894)
- " *brevirostre* (Sars, 1904)
- " *brunneum* (Brady, 1905)
- " *curticorne* (Boeck, 1872)
- " *distinctum* (Sars, 1920)
- " *elongatum* (Sars, 1904)
- " *erythroptus* (Brady & Robertson, 1875)
- " *finmarchum* (T. Scott, 1903)
- " *gothiceps* (Giesbrecht, 1881)
- " *gracile* (T. & A. Scott, 1894)
- " *herdmani* (T. & A. Scott, 1894)
- " *longicorne* (T. & A. Scott, 1894)
- " *mixtum* (Sars, 1904)
- " *neglectum* (Sars, 1904)
- " *oblongum* (Kunz, 1949)
- " *propinquum* (T. & A. Scott, 1894)
- " *proximum* (Sars, 1919)
- " *sarsi* (Boeck, 1872)
- " *tenerum* (Sars, 1920)
- " *tenuireme* (T. & A. Scott, 1894)
- Hastigerella* *bozici* Soyer, 1974 (+)
- " *leptoderma* (Klie, 1929)
- " *scheibeli* Mielke, 1975
- " *unisetosa* (Wells, 1965)
- Lineosoma* *iscensis* Wells, 1965
- Microsetella* *norvegica* (Boeck, 1864)
- " *rosea* (Dana, 1848)
- Noodtiella* *gracile* Mielke, 1975
- Pseudectinosoma* *minor* Kunz, 1935
- Pseudobradya* *ambigua* Sars, 1920
- " *attenuata* Sars, 1920
- " *beduina* Monard, 1935
- " *elegans* (T. & A. Scott, 1894)
- " *fusca* (T. & A. Scott, 1894)
- " *hirsuta* (T. & A. Scott, 1894)
- " *leptognata* Sars, 1920
- " *minor* (T. & A. Scott, 1894)
- " *parvula* Sars, 1920
- " *pulchella* Sars, 1920
- " *pygmaea* Sars, 1920
- " *quoddensis* (Willey, 1930)

- " *robusta* Sars, 1920
- " *scabriuscula* Sars, 1920
- " *similis* (T. & A. Scott, 1894)
- " *tenella* Sars, 1920

Sigmatidium difficile Giesbrecht, 1881

Fam. NEOBRADYIDAE Olofsson

Neobradya pectinifera T. Scott, 1892

Fam. D'ARCYTHOMPSONIIDAE Lang

D'Arcythompsonia fairliensis (T. Scott, 1899)

Leptocaris brevicornis (van Douwe, 1904)

" *ignavus* (Noodt, 1953)

" *minutus* T. Scott, 1899

" *trisetosus* (Kunz, 1935)

Fam. TACHIDIIDAE Sars, Lang

Danielssenia intermedia Wells, 1965

" *robusta* Sars, 1921

" *typica* Boeck, 1872

Euterpina acutifrons (Dana, 1848)

Microarthridion fallax Perkins, 1956

" *littorale* (Poppe, 1881)

Micropsammis noodti Mielke, 1975

" *secunda* Mielke, 1975

Psammis longisetosa Sars, 1910

Tachidius discipes Giesbrecht, 1881

" *incipes* Klie, 1913

Thompsonula hyaenae (I. C. Thompson, 1889)

Fam. HARPACTICIDAE Sars

Harpacticus chelifer (O. F. Müller, 1776)

" *flexus* Brady & Robertson, 1873

" *gracilis* Claus, 1863

" *littoralis* Sars, 1910

" *obscurus* T. Scott, 1895

" *pulvinatus* Brady, 1910

" *tenellus* Sars, 1920

" *uniremis* Kröyer, 1842

Tigriopus brevicornis (O. F. Müller, 1765)

" *fulvus* (Fischer, 1860)

Zaus abbreviatus Sars, 1904

" *spinatus spinatus* Goodsir, 1845

Fam. TISBIDAE Stebbing, Lang

Cholidya polypi Farran, 1914

Idyella exigua Sars, 1905

- " *major* Sars, 1920
 " *pallidula* Sars, 1905
Sacodiscus fasciatus (Norman, 1868)
 " *littoralis* (Sars, 1904)
Scutellidum hippolytes (Kröyer, 1863)
 " *longicauda* (Philippi, 1840)
Tachidiella minuta Sars, 1911
Tachidiopsis cyclopoides Sars, 1911
 " *similis* (Drzycimski, 1968)
 " *typica* (Drzycimski, 1968)
Tisbe bulbisetosa Volkmann-Rocco, 1972
 " *elegantula* (Sars, 1905)
 " *ensifer* (Fischer, 1860)
 " *furcata* (Baird, 1837)
 " *gracilipes* (T. Scott, 1912)
 " *gracilis* (T. Scott, 1895)
 " *graciloides* (Sars, 1920)
 " *longicornis*, (T. & A. Scott, 1895)
 " *minor*(T. & A. Scott, 1896)
 " *tenella* (Sars, 1910)
 " *tenera* (Sars, 1905)
Zosime bergensis Drzycimski, 1968
 " *incrassata* Sars, 1910
 " *valida* Sars, 1919

Fam. PORCELLIDIIDAE Sars

- Porcellidium tenuicauda* Claus, 1860
 " *viride* (Philippi, 1840)

Fam. PELTIDIIDAE Sars

- Alteutha austrina* T. Scott, 1912
 " *depressa* (Baird, 1845)
 " *dubia* T. Scott, 1912
 " *interrupta* (Goodsir, 1945)
 " *oblonga* (Goodsir, 1945)
Peltidium purpureum Philippi, 1839

Fam. PSEUDOPELTIDIIDAE Poppe

- Clytemmestra rostrata* (Brady, 1883)

Fam. TEGASTIDAE Sars

- Parategastes sphaericus* (Claus, 1863)
Tegastes calcaratus Sars, 1910
 " *clausi* Sars, 1904
 " *falcatus* (Norman, 1868)
 " *longimanus* (Claus, 1863)
 " *nanus* Sars, 1904

Fam. THALESTRIDAE Sars, Lang

- Amenophia peltata* Boeck, 1864
" *pulchella* Sars., 1906
Dactylopodella clypeata Sars, 1911
" *flava* (Claus, 1866)
Dactylopodia frigida (T. Scott, 1912)
" *micronyx* (Sars, 1905)
" *neglecta* (Sars, 1905)
" *tisboides* (Claus, 1863)
" *vulgaris* (Sars, 1911)
Dactylopodopsis dilatata Sars, 1911
Diarthodes assimilis (Sars, 1906)
" *intermedius* (T. Scott, 1912)
" *major* (T. & A. Scott, 1895)
" *minutus* (Claus, 1863)
" *nobilis* (Baird, 1845)
" *pygmaeus* (T. & A. Scott, 1895)
Idomene ferrieri (T. Scott, 1912)
" *forficata* Philippi, 1843
" *pectinata* (T. & A. Scott, 1898)
" *scotti* Lang, 1948
Paradactylopodia brevicornis (Claus, 1866)
" *latipes* (Boeck, 1864)
Parathalestris affinis T. Scott, 1912
" *cambriensis* Wells, 1964
" *clausi* (Norman, 1868)
" *coatsi* T. Scott, 1912
" *harpactoides* (Claus, 1863)
" *hibernetica* (Brady & Robertson, 1873)
" *incerta* Lang, 1936
" *intermedia* Gurney, 1930
Phyllothalestris mysis (Claus, 1863)
Pseudotachidius coronatus T. Scott, 1897
" *vikings* Drzycimski, 1968
Rhynchothalestris helgolandica (Claus, 1863)
" *rufocincta* (Brady, 1880)
Thalestris longimana Claus, 1863

Fam. BALAENOPHILIDAE Sars

- Balaenophilus unisetosus* P. O. Aurivillius, 1879

Fam. PARASTENHELIIDAE Lang

- Parastenhelia anglica* Norman & T. Scott, 1905
" *gracilis* Brady, 1910
" *spinosa* (Fisher, 1860)

Fam. DIOSACCIDAE Sars

- Amonardia arctica* (T. Scott, 1898)
 " *normani* (Brady, 1872)
Amphiascoides debilis (Giesbrecht, 1881)
 " *limicola* (Brady, 1900)
 " *nanoides* (Sars, 1911)
Amphiascopsis cinctus (Claus, 1866)
 " *thalestroides* (Sars, 1911)
Amphiascus graciloides Klie, 1950
 " *longarticulatus* Marcus, 1974 (+)
 " *minutus* (Claus, 1863)
 " *paracaudaespinosus* Roe, 1958
 " *parvus* Sars, 1906
 " *propinquus* Sars, 1906
 " *sinuatus* Sars, 1906
 " *tenellus* Sars, 1906
 " *tenuiremis* (Brady & Robertson, 1880)
 " *varians* (Norman & T. Scott, 1905)
Bulbamphiascus angustifolius Klie, 1950
 " *denticulatus* (Thompson, 1893)
 " *imus* (Brady, 1872)
Diosaccus tenuicornis (Claus, 1863)
Eoschizopera syltensis (Mielke, 1975)
Haloschizopera bulbifera (Sars, 1911)
 " *exigua* (Sars, 1906)
 " *junodi* (Monard, 1935)
 " *pygmaea* (Norman & T. Scott, 1905)
Paramphiascella hispida (Brady, 1880)
 " *intermedia* (T. Scott, 1896)
 " *vararensis* (T. Scott, 1903)
Paramphiascopsis giesbrechti (Sars, 1906)
 " *longirostris* (Claus, 1863)
Pararobertsonia abyssi (Boeck, 1872)
Protopsammotopa norvegica Geddes, 1968 (+)
Psammotopa phyllosetosa (Noodt, 1952)
Pseudamphiascopsis attenuatus (Sars, 1906)
 " *herdmani* (A. Scott, 1896)
Pseudodiosaccus propinquus (T. & A. Scott, 1893)
Pseudomesochra brucei (T. & A. Scott, 1901)
 " *latifurcata* (Sars, 1911)
 " *longifurcata* T. Scott, 1912
 " *similis* Lang, 1935
 " *tatinae* Drzycimski, 1968

- Rhyncholagena lagenirostris* (Sars, 1911)
Robertgurneya dictydiophora (Monard, 1924)
 " *erythaeus* (A. Scott, 1902)
 " *ilievecensis* (Monard, 1935)
 " *similis* (A. Scott, 1896)
 " *simulans* (Norman & T. Scott, 1905)
 " *spinulosa* (Sars, 1911)
 " *remanei* Klie, 1950
Robertsonia tenuis (Brady & Robertson, 1880)
Schizopera compacta De Lint, 1922
 " *meridionalis listensis* Mielke, 1975
Stenhelia Stenhelia aemula (T. Scott, 1893)
 " " *gibba* Boeck, 1864
Stenhelia Delavalia confluens Lang, 1948
 " " *giesbrechti* T. & A. Scott, 1896
 " " *longicaudata longicaudata* Boeck, 1872
 " " " *finmarchica* T. Scott, 1903
 " " *mastigochaeta* Wells, 1965
 " " *normani* T. Scott, 1905
 " " *palustris palustris* Boeck, 1868
 " " *reflexa* Brady & Robertson, 1875
Typhlamphiascus confusus (T. Scott, 1902)
 " *lamellifer* (Sars, 1911)
 " *thyphloides* (Sars, 1911)
 " *thyphlops* (Sars, 1906)

Fam. METIDAE Sars

Metis ignea Philippi, 1843

Fam. AMEIRIDAE Monard, Lang

- Ameira brevipes* Kunz, 1954
 " *hyalina* (Noodt, 1952)
 " *listensis* Mielke, 1973
 " *longipes* Boeck, 1864
 " *minuta* Boeck, 1864
 " *parvula* (Claus, 1866)
 " *pusilla* T. Scott, 1903
 " *scotti* Sars, 1911
 " *speciosa* Monard, 1935
 " *tenella* Sars, 1907
 " *tenuicornis* T. Scott, 1903
 " *usitata* Klie, 1950
Ameiropsis abbreviata Sars, 1911
 " *angulifera* Sars, 1911
 " *brevicornis* Sars, 1907

- " *longicornis* Sars, 1907
 " *minor* (Sars, 1920)
 " *mixta* Sars, 1907
 " *nobilis* Sars, 1907
Anoplosoma sordidum Sars, 1911
Interleptomesochra attenuata (A. Scott, 1896)
 " *eulitoralis* (Noodt, 1952)
 " *tenuicornis* (Sars, 1911)
Leptomesochra confluens Sars, 1911
 " *macintoshi* (T. & A. Scott, 1895)
Malacopsyllus fragilis Sars, 1911
Nitocra elegans (T. Scott, 1904)
 " *hibernica* (Brady, 1880)
 " *lacustris* (Schmankevitsch, 1875)
 " *reducta* (Schäfer, 1936)
 " *sewelli husmanni* Kunz, 1976
 " *spinipes* Boeck, 1864
 " *typica* Boeck, 1864
Parapseudoleptomesochra polychaeta (Noodt, 1952)
Parevansula mediterranea Guille & Soyer, 1966 (+)
Proameira arenicola (Lang, 1935)
 " *dubia* (Sars, 1920)
 " *hiddensöensis* (Schäfer, 1936)
 " *simplex* (Norman & T. Scott, 1905)
Pseudameira breviseta Klie, 1950
 " *crassicornis* Sars, 1911
 " *furcata* Sars, 1911
 " *gracilis* Sars, 1920
 " *reflexa* (T. Scott, 1894)
Pseudoleptomesochrella halophila (Noodt, 1952)
Psyllocamptus minutus Sars, 1911
 " " *gelatinosus* (Kunz, 1951)
 " *propinquus* (T. Scott, 1895)
Sarsameira exilis (T. & A. Scott, 1894)
 " *longiremis* (T. Scott, 1894)
 " *major* (Sars, 1907)
 " *parva* (Boeck, 1872)
 " *peresi* Bodin, 1970
 " *propinqua* (T. Scott, 1902)
 " *sarsi* Lang, 1948
Sicameira leptoderma Klie, 1950
Stenocopia longicaudata (T. Scott, 1892)
 " *setosa* Sars, 1907
 " *spinosa* (T. Scott, 1897)

Fam. PARAMESOCHRIDAE Lang

- Apodopsyllus africanus* Kunz, 1962
 " " *listensis* Mielke, 1975
- Diarthrodella orbiculata* Klie, 1949
 " *parorbiculata* Wells, 1963
 " *secunda* s. str. Kunz, 1954
- Kliopsyllus coelebs* (Monard, 1935)
 " *constrictus* s. str. (Nicholls, 1935)
 " *holsaticus* s. str. (Klie, 1929)
 " *paraholsaticus* Mielke, 1975
- Leptosyllus Leptosyllus elongatus* Drzycimski, 1967
 " " *harveyi* Wells, 1963
 " " *reductus* Lang, 1948
 " " *typicus* T. Scott, 1894
- Paramesochra acutata acutata* Klie, 1934
 " *dubia* T. Scott, 1892
 " *helgolandica* Kunz, 1936
 " *pteroaudata* Kunz, 1936
 " *similis* Kunz, 1936
- Remanea arenicola* Klie, 1929
- Scottopsyllus Scottopsyllus herdmani* (Thompson & A. Scott, 1899)
 " " *minor* (T. & A. Scott, 1895)
 " " *robertsonia* (T. & A. Scott, 1895)
 " *Intermedopsyllus intermedius* (T. & A. Scott, 1895)
 " " *minuta* (Nicholls, 1939)
 " *Wellsopsyllus gigas* (Wells, 1965)

Fam. TETRAGONICIPITIDAE Lang

- Diagoniceps bocki* Land, 1948
 " *menaiensis* Geddes, 1968
- Phyllopodopsyllus bradyi* (T. Scott, 1892)
- Pteropsyllus consimilis* (T. Scott, 1894)
 " *plebeius furcatus* Kunz, 1938
- Tetragoniceps bergensis* Por, 1965
 " *bookhouti* Coull, 1971 (+)
 " *brevicauda* T. Scott, 1899
 " *malleolatus* Brady, 1880
 " *scotti* Sars, 1911

Fam. CANTHOCAMPTIDAE Sars, Monard, Lang

- Epactophanes richardi* Mrázek, 1893
- Itunella muelleri* (Gagern, 1922)
 " *tenuiremis* (T. Scott, 1893)
- Mesochra aestuarii* Gurney, 1921
 " *anomala* Klie, 1950

- " *inconspicua* (T. Scott, 1899)
- " *lilljeborgi* Boeck, 1864
- " *pygmaea* (Claus, 1863)
- " *rapiens* (Schmeil, 1894)
- " *xenopoda* Monard, 1935

Nannomesochra arupinensis (Brian, 1925)

Orthopsyllus linearis s. str. (Claus, 1866)

" *sarsi* Klie, 1941

Psammocamptus axi Mielke, 1975

Fam. CYLINDROPSYLLIDAE Sars, Lang

Arenocaris bifida Nicholls, 1935

Arenopontia Arenopontia subterranea Kunz, 1937

" *Neoleptastacus breviarticulata* Mielke, 1975

Boreopontia heipi Willems, 1981 (+)

Cylindropsyllus laevis Brady, 1880

" *remanei* Kunz, 1949

Evansula incerta (T. Scott, 1892)

" *pygmaea* (T. Scott, 1903)

Leptastacus laticaudatus intermedius Kunz, 1938

" " *laticaudatus* Nicholls, 1935

" *macronyx* (T. Scott, 1892)

" *minutus* Chappuis, 1954

" *rostratus taurica* Marinov, 1974 (+)

Leptopontia curvicauda T. Scott, 1902

Paraleptastacus espinulatus Nicholls, 1935

" *holsaticus* Kunz, 1937

" *spinicauda* (T. & A. Scott, 1895)

" *supralittoralis* Mielke, 1975

Psammastacus brevicaudatus Nicholls, 1935

" *confluens* Nicholls, 1935

" *perplexus* Wells, 1965

" *remanei* Noodt, 1964

Stenocaris kliei Kunz, 1936

" *minor* (T. Scott, 1892)

" *minuta* Nicholls, 1935

" *pristina* Wells, 1968

Syrticola flandricus Willems & Claeys, 1982 (+)

" *trispinosus* (A. Scott, 1896)

Fam. CLETODIDAE T. Scott

Argestes mollis Sars, 1910

Argestigenes untremis Willey, 1935

Cletodes latirostris Drzycimski, 1967

" *limicola* Brady, 1872

- " *longicaudatus* (Boeck, 1872)
 " *longifurca* Lang, 1948
 " *pusillus* Sars, 1920
 " *tenuipes* T. Scott, 1896
Enhydrosoma buchholtzi (Boeck, 1872)
 " *curticauda* Boeck, 1872
 " *curvirostre* (T. Scott, 1894)
 " *gariene* Gurney, 1930
 " *longifurcatum* Sars, 1909
 " *propinquum* (Brady, 1880)
 " *sarsi* (T. Scott, 1904)
 " *sordidum* Monard, 1926
Eurycletodes Eurycletodes laticauda (Boeck, 1872)
 " " *serratus* Sars, 1920
Eurycletodes Oligocletodes aculeatus Sars, 1920
 " " *latus* (T. Scott, 1895)
 " " *major* Sars, 1909
 " " *minutus* Sars, 1920
 " " *oblongus* Sars, 1920
 " " *similis* (T. Scott, 1895)
Fultonia hirsuta T. Scott, 1902
Hemimesochra secunda Wells, 1965
Heteropsyllus curticaudatus T. Scott, 1894
 " *major* (Sars, 1920)
 " *masculus* Kunz, 1971
 " *nanus* (Sars, 1920)
 " *rostratus* (Sars, 1920)
Huntemannia jadensis Poppe, 1884
Leptocletodes debilis Sars, 1920
Mesocletodes abyssicola (T. & A. Scott, 1901)
 " *arenicola* Noodt, 1952
 " *fladensis* Wells, 1965
 " *glabor* Por, 1964
 " *irrasus* (T. & A. Scott, 1940)
 " *monensis* (I. C. Thompson, 1893)
 " *robustus* Por, 1965
Metahuntemannia crassa (Por, 1965)
 " *drzycimski* Soyer, 1970
 " *spinosa* (Klie, 1941)
Monocletodes varians (T. Scott, 1903)
Nannopus palustris Brady, 1880
Neoargestes variabilis Drzycimski, 1967
Paranannopus abyssi (Sars, 1920)

- " *langi* Wells, 1965
 " *triarticulatus* Wells, 1965
Paragestes tenuis Sars, 1921
Pontopolites typicus T. Scott, 1894
Pseudocletodes vararensis T. & A. Scott, 1893
Rhizothrix curvata Brady & Robertson, 1875
 " *gracilis* (T. Scott, 1903)
 " *minuta* (T. Scott, 1903)
 " *reducta* Noodt, 1952
Stylicletodes longicaudatus (Brady & Robertson, 1880)
 " *reductus* Wells, 1965
Tryphoema bocqueti (Bozic, 1953)
- Fam. LAOPHONTIDAE T. Scott
- Asellopsis hispida* Brady & Robertson, 1873
 " *intermedia* (T. Scott, 1895)
Donsiella limnoriae Stephensen, 1936
Echinolaophonte horrida (Norman, 1876)
 " *brevispinosa* (Sars, 1908)
Esola longiremis (T. Scott, 1904)
 " *typhlops* (Sars, 1920)
Harrietella simulans (T. Scott, 1894)
Hemilaophonte janinae Jakubisiak, 1932
Heterolaophonte bisetosa Mielke, 1975
 " *littoralis* T. & A. Scott, 1893
 " *longisetigera* Klie, 1950
 " *mendax* (Klie, 1939)
 " *minuta* (Boeck, 1872)
 " *norvegica* Drzycimski, 1968
 " *strömi* (Baird, 1834)
- Laophonte balthica* Klie, 1929
 " *brevifurca* Sars, 1920
 " *cornuta* Philippi, 1840
 " *denticornis* T. Scott, 1894
 " *elongata* Boeck, 1872
 " *inopinata* T. Scott, 1892
 " *inornata* A. Scott, 1902
 " *longicaudata* Boeck, 1864
 " *nordgaardi* Sars, 1908
 " *parvula* Sars, 1908
 " *serrata* (Claus, 1863)
 " *setosa* Boeck, 1864
 " *sima* Gurney, 1927
 " *thoracica* Boeck, 1864
 " *trilobata* Willey, 1929

Laophontopsis lamellifera (Claus, 1863)
Normanella minuta (Boeck, 1872)
 " *mucronata* Sars, 1909
Onychocamptus mohammed (Blanchard & Richard, 1891)
Paralaophonte brevisrostris (Claus, 1863)
 " *congenera* (Sars, 1908)
 " *macera* (Sars, 1908)
 " *tenera* (Sars, 1920)
Paronychocamptus curticaudatus (Boeck, 1864)
 " *nanus* (Sars, 1908)
Pilifera gracilis (T. Scott, 1903)
Platychelipus laophontoides Sars, 1908
 " *littoralis* Brady, 1880
Pseudolaophonte proteus Klie, 1950
 " *spinosa* (I. C. Thompson, 1893)
Pseudonychocamptus abbreviatus (Sars, 1920)
 " *koreni* (Boeck, 1872)
 " *proximus* (Sars, 1908)
Sarsocletodes typicus (Sars, 1920)

Fam. ANCORABOLIDAE Sars, Lang

Ancorabolis mirabilis Norman, 1903
Arthrotyllus serratus Sars, 1909
Ceratonotus pectinatus Sars, 1909
Dorsiceratus normani Sars, 1909
Echinocletodes armatus (T. Scott, 1902)
Echinopsyllus normani Sars, 1909
Laophontodes biocornis A. Scott, 1896
 " *expansus* Sars, 1908
 " *gracilipes* Lang, 1936
 " *typicus* T. Scott, 1894
 " *whitsoni* T. Scott, 1894

(+): species new for the North Sea.

ADDENDUM 2

Preliminary list of free-living nematodes from the North Sea
(prepared by M. VINCKX)

CHROMADORIA Pearse, 1942

O. CHROMADORIDA Filipjev, 1929

S.O. Chromadorina Filipjev, 1929

Sup. Fam. Chromadoroidea Filipjev, 1917

Fam. CHROMADORIDAE Filipjev, 1917

Acantholaimus longisetosus Allgen, 1933

Actinonema celtica Boucher, 1976 (+)

" *pachydermatum* Cobb, 1920

Atrochromadora microlaima (de Man, 1889)

Chromadora axi Gerlach, 1951

" *buesumensis* Kreis, 1924

" *kreisi* Stekhoven & Adam, 1931

" *macrolaima* de Man, 1889

" *nudicapitata* Bastian, 1865

Chromadorella filiformis (Bastian, 1865)

" *salicaniensis* Boucher, 1976 (+)

Chromadorina armata (Allgen, 1933)

" *bergensis* (Allgen, 1932)

" *cervix* (Wieser, 1951)

" *germanica* (Bütschli, 1874)

" *longisetosa* (De Coninck & Stekhoven, 1933)

" *supralitoralis* Lorenzen, 1969

Chromadorita abnormis (Kreis, 1928)

" *brachypharynx* (Allgen, 1932)

" *guidoschneideri* (Filipjev, 1929)

" *heterophya* (Steiner, 1916)

" *leuckarti* (de Man, 1876)

" *mucrodonta* (Steiner, 1916)

" *nana* Lorenzen, 1973

" *norvegica* (Allgen, 1946)

" *obliqua* (Gerlach, 1953)

" *pachydema* (Schneider, 1926)

" *tenuis* (Schneider, 1906)

Denticulella stygia (Gerlach, 1952)

Dichromadora cephalata (Steiner, 1916)

" *cucullata* Lorenzen, 1976

- " *geophila* (de Man, 1876)
 " *hyalocheile* (De Coninck & Stekhoven, 1933)
 " *scandula* Lorenzen, 1966
Endeolophos subterraneus Blome, 1982
Euchromadora vulgaris (Bastian, 1865)
Graphonema conicauda Gerlach, 1953
 " *rapax* (Ssaweljev, 1912)
Hypodontolaimus balticus (Schneider, 1906)
 " *inaequalis* (Bastian, 1865)
 " *longiseta* (Allgen, 1933)
 " *schuurmansstekhoveni* Gerlach, 1951
 " *setosus* (Bütschli, 1874)
 " *sivertseni* Allgen, 1951
 " *setosoides* Blome, 1982
Innocuonema norwegicum (Allgen, 1932)
 " *tentabundum* (de Man, 1890)
Karkinochromadora lorenzini (Jensen, 1980)
Neohromadora angelica Riemann, 1976
 " *craspedota* (Steiner, 1916)
 " *izhorica* (Filipjev, 1929)
 " *munita* Lorenzen, 1972
 " *paramunita* Boucher, 1976
 " *paratecta* Blome, 1974
 " *poecilosoma* (de Man, 1893)
 " *tecta* Gerlach, 1951
 " *trichophora* (Steiner, 1921)
Parachromadorita stygia (Gerlach, 1952)
Prochromadora orleji (de Man, 1880)
Prochromadorella attenuata (Gerlach, 1952)
 " *ditlevseni* (de Man, 1922)
 " *longicaudata* (Kreiss, 1929)
 " *norwegica* (Allgen, 1932)
 " *obtusidens* (Stekhoven & Adam, 1931)
 " *paramucrodonta* (Allgen, 1929)
 " *quinquepapillata* (Stekhoven, 1935)
Ptycholaimellus ponticus (Filipjev, 1922)
Rhips ornata Cobb, 1920
 " *paraornata* Platt & Zhan, 1982
Spiliphera dolichura de Man, 1893 (+)
 " *hirsuta* Gerlach, 1956
Spilophorella candida Gerlach, 1951
 " *papillata* Kreis, 1929
 " *paradoxa* (de Man, 1888)
Trochamus carinatus Boucher & de Bovée, 1972

- Fam. ETHMOLAIMIDAE Filipjev & Stekhoven, 1941
Filtonchus filiformis (Warwick, 1971)
Neotonchoides interruptus (Warwick, 1971)
" *vitius* (Warwick, 1971)
Neotonchus corcundus (Gerlach, 1956)
" *meekei* Warwick, 1971
" *votadinii* Warwick, 1971
- Fam. CYATHOLAIMIDAE Filipjev, 1918
Acanthonchus gracilis (Ditlevsen, 1918)
Cyatholaimus gracilis (Erbert, 1863)
" *prinzi* (Marion, 1870)
" *simulatus* Kreis, 1924
Longicyatholaimus longicaudatus (de Man, 1876)
Marylynna complexa (Warwick, 1971)
Nannolaimoides decoratus Ott, 1972
Paracanthonchus caecus (Bastian, 1865)
" *elongatus* (de Man, 1907)
" *heterodontus* (Schulz, 1932)
" *inglisi* Coles, 1965
" *longicaudatus* Warwick, 1971
" *longus* Allgen, 1934
" *macrodon* (Ditlevsen, 1918)
" *platti* Jayasree, 1980
" *spectabilis* Allgen, 1931
" *thausiasius* (Schulz, 1932)
Paracyatholaimoides asymmetricus Boucher, 1975 (+)
" *labiosetosus* Riemann, 1966
Paracyatholaimus dubiosus (Bütschli, 1874)
" *intermedius* (de Man, 1880)
" *occultus* Gerlach, 1956
" *pentodon* Riemann, 1966
" *proximus* (Bütschli, 1874)
Paralongicyatholaimus macramphis Lorenzen, 1972
" *minutus* Warwick, 1971
" *zosteriae* (Allgen, 1933)
Pomponema ammophilum Lorenzen, 1972
" *astrodes* Lorenzen, 1972
" *carinatum* Riemann, 1976
" *clavicaudatum* (Stekhoven, 1935)
" *compactum* Lorenzen, 1972
" *coomansi* Vincx, 1981
" *debile* Lorenzen, 1972
" *elegans* Lorenzen, 1972

- .. *loticum* Lorenzen, 1972
- .. *multipapillatum* (Filipjev, 1922)
- .. *sedecima* Platt, 1973 (+)
- .. *syltense* Blome, 1974
- .. *tautraense* (Allgen, 1933)
- Praeacanthonchus kreisi* (Allgen, 1929)
- .. *punctatus* (Bastian, 1865)

Fam. SELACHINEMATIDAE Cobb, 1915

- Choanolaimus psammophilus* de Man, 1880
- Choniolaimus panicus* Gerlach, 1956
- .. *papillatus* Ditlevsen, 1918
- Gammanema conicauda* Gerlach, 1953
- .. *rapax* (Ssaweljev, 1912)
- Halichoanolaimus consimilis* Allgen, 1933
- .. *dolichurus* Ssaweljev, 1912
- .. *norvegicus* Allgen, 1940 (+)
- .. *robustus* (Bastian, 1865)
- Latronema orcinum* (Gerlach, 1952)
- Richtersia collaris* Steiner, 1916
- .. *deconincki* Vincx, 1981
- .. *demani* Stekhoven, 1935
- .. *inaequalis* Riemann, 1966
- .. *norvegica* Allgen, 1940
- Synonchiella riemanni* Warwick, 1970

Sup. Fam. Desmodoroidea Filipjev, 1922

Fam. DESMODORIDAE Filipjev, 1922

- Catanema smo* Platt & Zhang, 1982 (+)
- Chromaspirina ambilis* (de Man, 1922)
- .. *chabaudi* Boucher, 1975 (+)
- .. *gerlachi* Blome, 1982
- .. *inglisi* Warwick, 1970 (+)
- .. *multipapillata* Jayasree & Warwick, 1977
- .. *parapontica* Luc & De Coninck, 1959
- .. *pellita* Gerlach, 1954
- .. *pontica* Filipjev, 1918
- .. *thieryi* De Coninck, 1943
- Desmodora cincta* (Cobb, 1920)
- .. *communis* (Bütschli, 1874)
- .. *intermedia* Allgen, 1940
- .. *microchaeta* Allgen, 1929
- .. *microchaetoides* Allgen, 1933
- .. *polychaeta* Allgen, 1929 (+)
- .. *pontica* Filipjev, 1922

- " *sanguinea* Southern, 1914 (+)
 " *schulzi* Gerlach, 1950
 " *scaldensis* de Man, 1889
 " *tenuispiculum* Allgen, 1928
Echinodesmodora axi Blome, 1982
Eubostrichus filiformis Greeff, 1869
Leptonemella aphanothecae Gerlach, 1950
 " *froeyensis* (Allgen, 1946)
 " *gorgo* Gerlach, 1950
Metachromadora quadribulba Gerlach, 1955
 " *remanei* Gerlach, 1951
 " *scotlandica* Warwick & Platt, 1973
 " *suecica* (Allgen, 1929)
 " *vivipara* (de Man, 1907)
Molgolaimus citrus (Gerlach, 1959)
 " *turgofrons* (Lorenzen, 1972)
Onyx perfectus Cobb, 1891
 " *sagittarius* Gerlach, 1950
Polysigma fuscum Gerlach, 1956
Pseudonchus deconincki Warwick, 1969 (+)
 " *northumbriensis* Warwick, 1969
 " *pachysetosus* Blome, 1982
Sigmophoranema litorale (Schulz, 1938)
 " *rufum* (Cobb, 1933)
Spirinia laevis (Bastian, 1865)
 " *parasitifera* (Bastian, 1865)
Stygodesmodora epixantha Blome, 1982
 Fam. EPSILONEMATIDAE Steiner, 1927
Epsilonema pustulatum (Gerlach, 1952)
Metepsilonema emersum Lorenzen, 1973
 " *hagmeieri* (Stauffer, 1925)
Perepsilonema crassum Lorenzen, 1973
 Fam. DRACONEMATIDAE Filipjev, 1918
Dracognomus tinae Jensen, 1981
Prochaetosoma mediterranicum Allen & Noffsinger, 1978 (+)
 Sup. Fam. MICROLAIMOIDEA Micoletzky, 1922
 Fam. MICROLAIMIDAE Micoletzky, 1922
Bolbolaimus dentatus (Allgen, 1935)
 " *riemanni* (Riemann, 1966)
 " *teutonicus* (Riemann, 1966)
Calomicrolaimus acanthus (Jaysasree & Warwick, 1977)
 " *arenarius* Blome, 1982
 " *honestus* (de Man, 1922)

- " *marinus* (Schulz, 1932)
- " *monstrosus* (Gerlach, 1953)
- " *parahonestus* (Gerlach, 1950)
- " *rugatus* Lorenzen, 1976 (+)
- " *tenuicollis* (Gerlach, 1952)

Ixonema sordidum Lorenzen, 1971

- Microlaimus acinaces* Warwick & Platt, 1973 (+)
- " *acuticaudatus* Stekhoven & De Coninck, 1933
- " *aequisetosus* Blome, 1982
- " *annelisae* Jensen, 1976
- " *arenicola* Schulz, 1938
- " *conothelis* (Lorenzen, 1973)
- " *cyatholaimoides* de Man, 1922
- " *globiceps* de Man, 1880
- " *macrocirculus* Gerlach, 1950 (+)
- " *nanus* Blome, 1982
- " *ostracion* Stekhoven, 1935
- " *paraborealis* Allgen, 1940
- " *robustidens* Stekhoven & De Coninck, 1933
- " *tenuispiculum* de Man, 1922
- " *torosus* Lorenzen, 1973

Fam. MONOPOSTHIIDAE Filipjev, 1934

- Monoposthia costata* (Bastian, 1865)
- " *mielcki* Steiner, 1916
- " *mirabilis* Schulz, 1932

S.O. Leptolaimina Lorenzen, 1981

Fam. LEPTOLAIMIDAE Örley, 1880

- Alaimella truncata* Cobb, 1920
- Anomonema deconincki* Jensen, 1976
- Antomicron elegans* (de Man, 1922)
- " *pellucidum* Cobb, 1920
- " *pratense* Lorenzen, 1966
- Camacolaimoides praedator* (de Man, 1922)
- Camacolaimus brachyuris* Allgen, 1933
- " *exilis* (Cobb, 1920)
- " *longicauda* de Man, 1922
- " *norwegicus* Allgen, 1933
- " *tardus* de Man, 1889
- " *tenuicaudatus* Allgen, 1933
- " *trituberculatus* Blome, 1982
- Cricolaimus elongatus* Southern, 1914
- Dagda bipapillata* Southern, 1914

- Deontolaimus papillatus* de Man, 1880
Donsinemella camacolaimoides Allgen, 1949
Halaphanolaimus norvegicus Allgen, 1946
 " *pellucidus* Southern, 1914
Leptolaimoides thermastris (Lorenzen, 1966)
Leptolaimus acicula Lorenzen, 1966
 " *ampullaceus* Warwick, 1970
 " *ditlevseni* (Steiner, 1916)
 " *elegans* (Stekhoven & De Coninck, 1933)
 " *leptaleus* Lorenzen, 1972
 " *limicolus* Lorenzen, 1972
 " *luridus* Timm, 1963
 " *macer* Lorenzen, 1972
 " *membranatus* (Wieser, 1951)
 " *mixtus* Lorenzen, 1972
 " *papilliger* de Man, 1876
 " *puccinelliae* Gerlach, 1959
 " *setiger* Stekhoven & De Coninck, 1933
 " *venustus* Lorenzen, 1972
Listia variopapillata Blome, 1982
Onchium metocellatum Wieser, 1956
 " *ocellatum* Cobb, 1920
 " *parocellatum* (Allgen, 1940)
Procamacolaimus acer Gerlach, 1954
Stephanolaimus bicornatus Boucher & Helléouët, 1977 (+)
 " *elegans* Ditlevsen, 1918
 " *flevensis* Stekhoven, 1935
 " *gandavensis* Jensen, 1976
 " *spartinae* Lorenzen, 1969
Fam. PLECTIDAE Örley, 1880
Anaplectus magnus Brzeski, 1963
Fam. PERESIANIDAE Vitiello & De Coninck, 1968
Manunema annulatum (Vitiello & De Coninck, 1968)
 " *proboscides* Gerlach, 1957
Fam. HALIPECTIDAE Chitwood, 1951
Haliplectus bibulbosus (Schulz, 1935)
 " *bickneri* Chitwood, 1956
 " *dorsalis* Chitwood, 1956
 " *schulzi* (De Coninck, 1943)
 " *tripapillatus* Blome, 1982
 " *wheeleri* Coles, 1965
Fam. RHADINEMATIDAE Lorenzen, 1981
Rhadinema flexile Cobb, 1920

- Fam. TARVAIIDAE Lorenzen, 1981
Tarvaia angusta Gerlach, 1953
 " *donsi* Allgen, 1934
- Fam. AEGIALOALAIMIDAE Lorenzen, 1981
Aegialoalaimus cylindrica Allgen, 1933
 " *elegans* de Man, 1907
 " *sabulicola* Allgen, 1933
 " *setosa* Bouwman, 1981
 " *tenuicaudatus* Allgen, 1932
Cyrationema elegans Jayasree & Warwick, 1977
 " *flexile* Cobb, 1920
 " *germanicum* Juario, 1973
 " *tenuicauda* Allgen, 1933
 " *zosteriae* Allgen, 1929
Paraterschellingia brevicaudata (Kreis, 1924)
- Fam. CERAMONEMATIDAE Cobb, 1913
Ceramonema yunfengi Platt & Zhang, 1982 (+)
Dasynemoides albaensis (Warwick & Platt, 1973)
 " *conicus* (Gerlach, 1956) (+)
 " *riemanni* (Haspeslagh, 1973)
 " *setosum* Chitwood, 1936 (+)
Metadasynemoides longicollis (Gerlach, 1952)
Pselionema annulatum (Filipjev, 1922)
 " *longissimum* Gerlach, 1953 (+)
Pterygonema cambriensis Ward, 1973 (+)
- Fam. TUBOLAIMOIDIDAE Lorenzen, 1981
Tubolaimoides tenuicaudatus (Allgen, 1934)

O. MONHYSTERIDA Filipjev, 1929

Sup. Fam. Monhysteroidea de Man, 1876

Fam. MONHYSTERIDAE de Man, 1876

- Diplolaimella ocellata* (Bütschli, 1874)
 " *punicea* Timm, 1952
 " *stagnosa* Lorenzen, 1966
Diplolaimelloides altherri Meyl, 1954
 " *islandicus* (De Coninck, 1943)
 " *oschei* Meyl, 1954
Gammarinema ligiae Gerlach, 1967
Monhystera anophthalma Lorenzen, 1969
 " *disjuncta* Bastian, 1865
 " *elegantula* Stehoven, 1935
 " *filicaudata* Allgen, 1929

- " *filiformis* Bastian, 1865
- " *islandica* De Coninck, 1943
- " *longicapitata* Filipjev, 1922
- " *luisae* Bresslau & Stekhoven, 1935
- " *macquariensis* Allgen, 1929
- " *microphthalma* de Man, 1880
- " *multisetosa* Meyl, 1955
- " *parambigua* Allgen, 1933
- " *parasimplex* De Coninck, 1943
- " *parva* (Bastian, 1865)
- " *pusilla* Boucher & Helléouët, 1977 (+)
- " *refringens* Bresslau & Stekhoven, 1935
- " *socialis* Bütschli, 1874

Fam. XYALIDAE Chitwood, 1951

- Amphimonhystera* *anechma* (Southern, 1914)
- " *helgolandica* Riemann, 1967
- " *subtilis* Lorenzen, 1972
- Cobbia* *maior* (Gerlach, 1956)
- " *trefusiaeformis* de Man, 1907
- Daptonema* *acrilabiatum* (De Coninck & Stekhoven, 1933)
- " *articulatum* Lorenzen, 1977
- " *biggi* (Gerlach, 1965)
- " *calceolatum* (De Coninck & Stekhoven, 1933)
- " *donsi* (Allgen, 1948)
- " *elegans* (Kreis, 1929)
- " *fallax* (Lorenzen, 1972)
- " *fistulatum* (Wieser & Hopper, 1967)
- " *flagellicauda* (Lorenzen, 1973)
- " *furcatum* (Juario, 1974)
- " *groenlandicum* (Ditlevsen, 1918)
- " *hirsutum* (Vitiello, 1967) (+)
- " *invagiferoum* (Platt, 1973)
- " *kornoeense* (Allgen, 1929)
- " *longissimecaudatum* (Kreis, 1935)
- " *nanum* (Lorenzen, 1972)
- " *normandicum* (de Man, 1890)
- " *oxycerca* (de Man, 1888)
- " *paratortum* (Vitiello, 1971)
- " *procerum* (Lorenzen, 1972)
- " *setosum* (Bütschli, 1874)
- " *spirum* (Gerlach, 1965)
- " *tenuispiculum* (Ditlevsen, 1918)
- " *trabeculosum* (Schneider, 1906)

- " *vicinum* (Riemann, 1966)
 " *xyaliforme* (Wieser & Hopper, 1967)
Echinotheristus cimbricus Thun & Riemann, 1967
 " *teutonicus* Thun & Riemann, 1967
Gonionchus cumbraensis Benwell, 1981
 " *longicaudatus* (Ward, 1972)
 " *paravillosus* Blome, 1982
 " *sensibilis* Lorenzen, 1972
 " *villosus* Cobb, 1920
linhystera problematica Juario, 1974
Metadesmolaimus aduncus Lorenzen, 1974
 " *hamatus* (Gerlach, 1956)
 " *heteroclitus* Lorenzen, 1972
 " *labiosetosus* Stekhoven, 1935
 " *pandus* Lorenzen, 1972
 " *varians* Lorenzen, 1972
Omicronema nidrosiense Allgen, 1933
Paramonohystera breviseta Juario, 1974
 " *concinna* Lorenzen, 1977
 " *elliptica* Filipjev, 1918
 " *levicula* (Lorenzen, 1973)
 " *megacephala* (Steiner, 1916)
 " *mutila* Lorenzen, 1973
 " *pellucida* (Cobb, 1920) (+)
Rhynchonema ceramotos Boucher, 1974 (+)
 " *falciferum* Boucher, 1974 (+)
 " *lyngei* (Allgen, 1940)
 " *megamphida* Boucher, 1974
 " *moorea* Boucher, 1974 (+)
 " *quemer* Boucher, 1974
 " *scutatatum* Lorenzen, 1972
Steineria polychaetoides Gerlach, 1951
Theristus acer Bastian, 1865
 " *acriformis* (de Man, 1922)
 " *aculeatus* Schulz, 1935
 " *ambronensis* Schulz, 1936
 " *anisocirculus* Blome, 1982
 " *anisotrichus* Lorenzen, 1972
 " *bastiani* Wieser, 1956
 " *biarospiculoides* Blome, 1982
 " *blandicor* Rachor, 1971
 " *curvatus* Gerlach, 1956
 " *denticulatus* Warwick, 1970
 " *ensifer* Gerlach, 1951

- " *flevensis* Stekhoven, 1935
- " *gelana* Warwick & Platt, 1973
- " *heterospiculoides* Gerlach, 1953
- " *inermis* Gerlach, 1953
- " *leviculus* Lorenzen, 1972
- " *longicollis* Blome, 1982
- " *longisetosus* (Stekhoven & De Coninck, 1933)
- " *longissimecaudata* Lorenzen, 1973
- " *macer* Lorenzen, 1973
- " *meyli* Riemann, 1966
- " *parasetosus* De Coninck & Stekhoven, 1933
- " *paravelox* (Allgen, 1934)
- " *pellucidus* Allgen, 1939
- " *pertenuis* Bresslau & Stekhoven, 1935
- " *pictus* Gerlach, 1951
- " *profundus* Blome, 1982
- " *roscoffieneis* Vitiello, 1967
- " *scanicus* Allgen, 1949
- " *setosus* de Man, 1922
- " *subcurvatus* Lorenzen, 1977
- " *velox* (Bastian, 1865)

Trichotheristus mirabilis (Stekhoven & De Coninck, 1933)

Valvaelaimus maior (Gerlach, 1956)

Xyala riemanni Boucher & Helléouët, 1977

" *striata* Cobb, 1920

Fam. SPHAEROLAIMIDAE Filipjev, 1918

Doliolaimus agilis Lorenzen, 1966

Sphaerolaimus abyssorum Allgen, 1933

" *balticus* Schneider, 1906

" *dispar* Filipjev, 1918

" *gracilis* de Man, 1876

" *hirsutus* Bastian, 1865

" *macrocirculus* Filipjev, 1918

" *makrolasius* Schulz, 1932

" *ostraea* Filipjev, 1918

" *paradoxa* (Ditlevsen, 1918)

" *tenuis* (Kreis, 1924)

Sup. Fam. Desmoscolecoida Shipley, 1896

Fam. DESMOSCOLECIDAE Shipley, 1896

Calligyus gertlachi Lorenzen, 1969

Desmoscolex adenotrichus Lorenzen, 1969

" *amaurus* Lorenzen, 1972

" *americanus* Chitwood, 1936

- " *chaetogaster* Greeff, 1869
- " *falcatus* Lorenzen, 1972
- " *labiosus* Lorenzen, 1969
- " *laevis* Kreis, 1928
- " *minutus* Claparède, 1863
- " *petalodes* Lorenzen, 1972
- " *proboscis* Lorenzen, 1972
- " *pusillus* Lorenzen, 1969
- " *sieverti* Freudenhammer, 1975
- " *vanoyei* De Coninck, 1943
- Greeffella beatlei* Lorenzen, 1969
- Greeffellopsis comosa* (Lorenzen, 1969)
- Hapalomus terrestris* Lorenzen, 1969
- Pareudesmoscolex lacinosus* Lorenzen, 1969
- " *papillosus* (Schulz, 1935)
- " *pratensis* Lorenzen, 1969
- Fam. MEYLIIDAE De Coninck, 1965
- Desmogerialachia papillifer* (Gerlach, 1956)
- Gerlachius lissus* (Gerlach, 1956)
- Haptotricoma spathiura* Blome, 1982
- Meylia intermedia* Blome, 1982
- Paratricoma papillifer* Gerlach, 1956
- " *pratensis* Lorenzen, 1969
- Quadricoma scanica* (Allgen, 1935)
- " *suecica* (Allgen, 1930)
- " *vitata* (Lorenzen, 1969)
- Tricoma adelpha* (Greeff, 1869)
- " *cicta* Cobb, 1894
- " *lobata* Juario, 1974
- " *nematoides* (Greeff, 1869)
- " *oblita* Blome, 1982
- " *secunda* Blome, 1982
- " *steineri* de Man, 1922
- " *strandii* (Allgen, 1939)
- " *tertia* Bome, 1982
- Sup. Fam. Siphonolaimoidea Filipjev, 1918
- Fam. SIPHONOLAIMIDAE Filipjev, 1918
- Siphonolaimus anticomoides* (Allgen, 1933)
- " *cobbi* Riemann, 1966
- " *ewensis* Warwick & Platt, 1973
- " *niger* de Man, 1893
- " *obtusicaudatus* Allgen, 1930

- Fam. LINHOMOEIDAE Filipjev, 1922
- Anticyathus primitivus* (Allgen, 1933)
- Desmolaimus americanus* Chitwood, 1936
- " *bulbulus* Lorenzen, 1969
- " *zeelandicus* de Man, 1880
- " *zosteræ* Allgen, 1933
- Disconema suecicum* Allgen, 1935
- Eleutherolaimus amasi* Bouwman, 1981
- " *iniquisetosus* Stekhoven, 1935
- " *parastenosoma* Allgen, 1933
- " *stenosoma* (de Man, 1907)
- Halinema norwegicum* Allgen, 1933
- Linhomoeus elongatus* Bastian, 1865
- " *filaris* Lorenzen, 1973
- " *gracilisetosus* (Allgen, 1946)
- " *hirsutus* Bastian, 1865
- " *paralineatus* Allgen, 1933
- Metalinhomoeus biformis* Juario, 1974
- " *filicaudatus* (Allgen, 1930)
- " *filiformis* (de Man, 1907)
- " *flagellicaudatus* Stekhoven, 1935
- " *longiseta* Kreis, 1929
- " *musaeocauda* Lorenzen, 1966
- " *setosus* Chitwood, 1951
- " *tristis* (Allgen, 1933)
- " *typicus* de Man, 1907
- Paralinhomoeus conicaudatus* (Allgen, 1930)
- " *flevensis* Bouwman, 1981
- " *ilenensis* (Allgen, 1933)
- " *lepturus* (de Man, 1907)
- " *lineatus* (Ditlevsen, 1918)
- " *tenuicaudatus* (Bütschli, 1874)
- Sarsonia leptosoma* (de Man, 1893)
- Terschellingia communis* de Man, 1888
- " *distalamphida* Juario, 1974
- " *longicaudata* de Man, 1907
- " *longispiculata* Wieser & Hopper, 1967
- " *similis* Allgen, 1933
- Sup. Fam. Axonolaimoidea Filipjev, 1918
- Fam. AXONOLAIMIDAE Filipjev, 1918
- Ascolaimus elongatus* (Bütschli, 1974)
- Axonolaimus demani* De Coninck & Stekhoven, 1933
- " *helgolandicus* Lorenzen, 1972

- " *orcombensis* Warwick, 1970 (+)
 " *paraspinosus* Stekhoven & Adam, 1931
 " *spinosus* (Bütschli, 1874)
 " *typicus* de Man, 1922
 " *villosus* Skwarra, 1922
Odontophora armata (Ditlevsen, 1918)
 " *longicaudata* Stekhoven & De Coninck, 1933
 " *longisetosa* (Allgen, 1928)
 " *marina* Bütschli, 1874
 " *octoseta* Boucher & Helléouët, 1977 (+)
 " *ornata* Lorenzen, 1972
 " *paravilloti* Blome, 1982
 " *phalarata* Lorenzen, 1972
 " *rectangula* Lorenzen, 1972
 " *setosa* (Allgen, 1929)
 " *tenuicaudata* Allgen, 1935
 " *villoti* Luc & De Coninck, 1959
 " *wieseri* Luc & De Coninck, 1959
Odontophoroides monhystera (Gerlach, 1953)
 " *paramonhystera* Lamshead, 1982
Pseudolella norvegica Allgen, 1949
 Fam. COMESOMATIDAE Filipjev, 1918
Comesoma profundi Bastian, 1865
 " *vulgare* Bastian, 1865
Dorylaimopsis punctata Ditlevsen, 1918
Laimella filipjevi Jensen, 1979
 " *longicauda* Cobb, 1920
Paramesonchium belgicum Jensen, 1976
Sabatieria breviseta Stekhoven, 1935
 " *celtica* Southern, 1914
 " *demani* Bresslau & Stekhoven, 1935
 " *elongata* Jayasree & Warwick, 1977
 " *granulosa* Vitiello & Boucher, 1971 (+)
 " *hilarula* de Man, 1922
 " *kolaensis* (Ssaweljev, 1912)
 " *longicaudata* Filipjev, 1922
 " *longispinosa* Lorenzen, 1972
 " *macramphis* Lorenzen, 1972
 " *ornata* (Ditlevsen, 1918)
 " *praedatrix* de Man, 1907
 " *pulchra* (Schneider, 1906)
 " *strigosa* Lorenzen, 1972
 " *tenuicaudata* (Bastian, 1865)
 " *vulgaris* (de Man, 1907)

Fam. DIPOPELTIDAE Filipjev, 1918

- Araeolaimus elegans* de Man, 1888
" *filipjevi* Stekhoven & Adam, 1931
" *leptopharynx* (Bresslau & Stekhoven, 1935)
" *longicauda* Allgen, 1929
" *microphthalmus* (de Man, 1893)
" *oxystomaeoides* Allgen, 1939
" *penelope* Moore, 1977
" *propinquus* Allgen, 1949
" *steineri* Filipjev, 1922
Campylaimus inaequalis Cobb, 1920
" *gerlachi* Timm, 1961
" *lefeveri* Gerlach, 1956
" *minor* Timm, 1961
" *mirus* Gerlach, 1950
Diplopeltis cirrhatus (Eberth, 1863)
" *incisa* (Southern, 1914)
Diplopeltula asetosa Juario, 1974
" *breviceps* Gerlach, 1950 (+)
" *lucanica* Boucher & Helléouët, 1977 (+)
" *ostrita* Boucher & Helléouët, 1977 (+)
Pararaeolaimus nudus (Gerlach, 1951)
Southerniella cylindricauda (Allgen, 1933)
" *zosteræ* (Allgen, 1933)
" *zostericola* (Allgen, 1929)

Fam. CONINCKIIDAE Lorenzen, 1981

- Coninckia circularis* Gerlach, 1956

ENOPLIA Pearse, 1942

O. ENOPLIDA Filipjev, 1929

S.O. Enoplina Chitwood & Chitwood, 1937

Sup. Fam. Enoploidea Dujardin, 1845

Fam. ENOPLIDAE Dujardin, 1845

- Enoplus brevis* Bastian, 1865

- " *communis* Bastian, 1865

Fam. THORACOSTOMOPSIDAE Filipjev, 1927

- Cryptenoplus gerlachi* Riemann, 1966

- Enoploides caspersi* Riemann, 1966

- " *cephalophorus* (Ditlevsen, 1918)

- " *cirrhatus* Filipjev, 1918

- " *labiatus* (Bütschli, 1874)

- " *labrostriatus* (Southern, 1914)
 " *spiculohamatus* Schulz, 1932
Enoplolaimus balgensis Skwarra, 1921
 " *conicollis* Gerlach, 1952
 " *denticulatus* Warwick, 1970
 " *litoralis* Schulz, 1936
 " *propinquus* de Man, 1922
 " *psammae* Gerlach, 1952
 " *subterraneus* Gerlach, 1953
 " *vulgaris* de Man, 1893
Epacanthion bütschlii (Southern, 1914)
Mesacanthion audax Ditlevsen, 1918
 " *diplechma* (Southern, 1914)
Mesacanthoides latignathus (Ditlevsen, 1918)
Oxyonchus dentatus (Ditlevsen, 1918)
Paramesacanthion hirsutum Warwick, 1970
 " *marei* Warwick, 1970
Saveljevia spissignatha (Allgen, 1940)
Thoracostomopsis barbata Ditlevsen, 1918
 " *doveae* Warwick, 1970
Trileptium parisetum Warwick & Platt, 1973
 Fam. ANOPISTOMATIDAE Gerlach & Riemann, 1974
Anoplostoma blanchardi de Man, 1888
 " *exceptum* Schulz, 1935
 " *vivparum* (Bastian, 1865)
Chaetonema canellatum Gerlach, 1956
 Fam. PHANODERMATIDAE Filipjev, 1927
Phanoderma albidum Bastian, 1865
 " *cocksii* Bastian, 1865
 " *laticolle* (Marion, 1870)
 " *longisetum* Allgen, 1939
 Fam. ANTICOMIDAE Filipjev, 1918
Anticoma acuminata (Eberth, 1863)
 " *eberthi* Bastian, 1965
 " *pellucida* Bastian, 1865
 Sup. Fam. Ironoidea de Man, 1876
 Fam. IRONIDAE de Man, 1876
Ironella prismatolaima Cobb, 1920
Syringolaimus striaticaudatus de Man, 1888
Trissonchulus benepapillosus (Schulz, 1935)
 " *obtusus* (Bresslau & Stekhoven, 1935)
 " *oceanus* Cobb, 1920

- Fam. LEPTOSOMATIDAE Filipjev, 1916
Cylicolaimus magnus (Villot, 1875)
Deontostoma arcticum (Ssaweljev, 1912)
Eusynonchus brevisetosus (Southern, 1914)
Leptosomatium elongatum Bastian, 1865
Pseudocella trichodes (Leuckart, 1849)
Synonchus intermedius Allgen, 1939
" *longisetosus* (Southern, 1914)
Thoracostoma coronatum (Eberth, 1863)

- Fam. OXYSTOMINIDAE Chitwood, 1935
Halalaimus cirrhatus Gerlach, 1953
" *curvicaudatus* Juario, 1974
" *filicollis* Timm, 1961
" *fletcheri* Mawson, 1958
" *gracilis* de Man, 1888
" *isaitshikovi* (Filipjev, 1927)
" *longicaudatus* (Filipjev, 1927)
" *longicollis* Allgen, 1932
" *papillifer* Gerlach, 1956
" *similis* Allgen, 1930
" *striatus* Gerlach, 1956
" *terrestris* Gerlach, 1959
Litinium bananum Gerlach, 1956
Nemanema cylindricaudatum (de Man, 1922)
" *sabulicola* (Allgen, 1939)
Oxystomina elongata (Bütschli, 1874)
" *tenuis* (Cobb, 1939)
" *unguiculata* Stekhoven, 1935
Thallassoalaimus egregius Steiner, 1916
" *filiformis* Allgen, 1933
" *pirum* Lorenzen, 1969
" *septentrionalis* Filipjev, 1929
" *tardus* de Man, 1893
Wieseria pica Gerlach, 1956

Sup. Fam. Oncholaimoidea Filipjev, 1916

- Fam. ONCHOLAIMIDAE Filipjev, 1916
Adoncholaimus fuscus (Bastian, 1865)
" *lepidus* (de Man, 1889)
" *panicus* Cobb, 1930
" *thalassophygas* (de Man, 1876)
Krampia acropora Ditlevsen, 1921
Metaparoncholaimus campylocercus (de Man, 1876)

- Metoncholaimus albidus* (Bastian, 1865)
 " *pristiurus* (Zur Strassen, 1894)
Oncholaimellus calvadosicus de Man, 1890
Oncholaimus aegypticus Stiner, 1921
 " *attenuatus* Dujardin, 1845
 " *brachycercus* de Man, 1889
 " *campyloceroides* De Coninck & Stekhoven, 1933
 " *dujardinii* de Man, 1876
 " *oxyuris* Ditlevsen, 1911
 " *skawensis* Ditlevsen, 1921
 " *vesicarius* (Wieser, 1959)
 " *viridis* Bastian, 1865
Pelagonema obtusicaudatum Filipjev, 1918
 " *propinquum* Allgen, 1929
Pontonema balticum (Schulz, 1932)
 " *ditlevseni* (Stekhoven, 1934)
 " *donsi* (Allgen, 1932)
 " *vulgare* (Bastian, 1865)
Viscosia abyssorum (Allgen, 1933)
 " *cobbi* Filipjev, 1918
 " *elegans* (Kreis, 1924)
 " *franzii* Boucher, 1978
 " *glabra* (Bastian, 1865)
 " *hanstroemi* Wieser, 1953
 " *langrunensis* (de Man, 1890)
 " *longidentata* (Stekhoven & Adam, 1931)
 " *rustica* (Kreis, 1929)
 " *viscosa* (Bastian, 1865)
- Fam. ENCHELIDIIDAE Filipjev, 1918
- Belbolla asupplementata* (Juario, 1974)
Calyptronema maxweberi (de Man, 1922)
Ditlevsenella danica Filipjev, 1927
 " *murmanica* Filipjev, 1927
Eurystomina assimilis (de Man, 1876)
 " *filiformis* (de Man, 1888)
 " *litoralis* Allgen, 1929
 " *terricola* (de Man, 1907)
Pareurystomina acuminata (de Man, 1889)
Polygastrophora attenuata de Man, 1922
 " *maior* Schulz, 1932
Symplocostoma tenuicolle (Eberth, 1863)

S.O. Tripyloidina De Coninck, 1965

Fam. TRIPYLOIDIDAE Filipjev, 1918

- Bathylaimus australis* Cobb, 1894
" *capacosus* Hopper, 1962
" *filicaudatus* (Stekhoven & Adam, 1931)
" *inermis* (Ditlevsen, 1918)
" *longisetosus* (Allgen, 1929)
" *macramphis* Stekhoven & De Coninck, 1933
" *parafilicaudatus* Timm, 1952
" *paralongisetosus* Stekhoven & De Coninck, 1933
" *stenolaimus* Stekhoven & De Coninck, 1933
" *zostericola* (Allgen, 1933)
Tripyloides acherusius Gerlach, 1952
" *gracilis* (Ditlevsen, 1918)
" *marinus* (Bütschli, 1874)

Fam. TRIPYLIDAE de Man, 1876

- Tripyla cornuta* Skwarra, 1921
" *filicaudata* de Man, 1880

Fam. RHABDODEMANIIDAE Filipjev, 1934

- Rhabdodemia birgittae* Jensen, 1976
" *minor* (Southern, 1914)

Fam. PANDOLAIMIDAE Lorenzen, 1981

- Pandolaimus latilaimus* (Allgen, 1929)

O. Trefusiida Lorenzen, 1981

Fam. TREFUSIIDAE Gerlach, 1966

- Halanonchus zosteriae* (Allgen, 1933)
Rhabdocoma riemanni Jayasree & Warwick, 1977
Trefusia filicauda Allgen, 1933
" *helgolandica* Riemann, 1966
" *litoralis* (Allgen, 1932)
" *longicauda* de Man, 1893
" *multipapillatum* Bouwman, 1981

(+): species new for the North Sea.