

Gunneria

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Torleif Holthe

*IDENTIFICATION OF ANNELIDA
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FROM NORTHERN EUROPEAN
AND ADJACENT
ARCTIC WATERS*

TRONDHEIM 1992

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**Universitetet i Trondheim
Vitenskapsmuseet**

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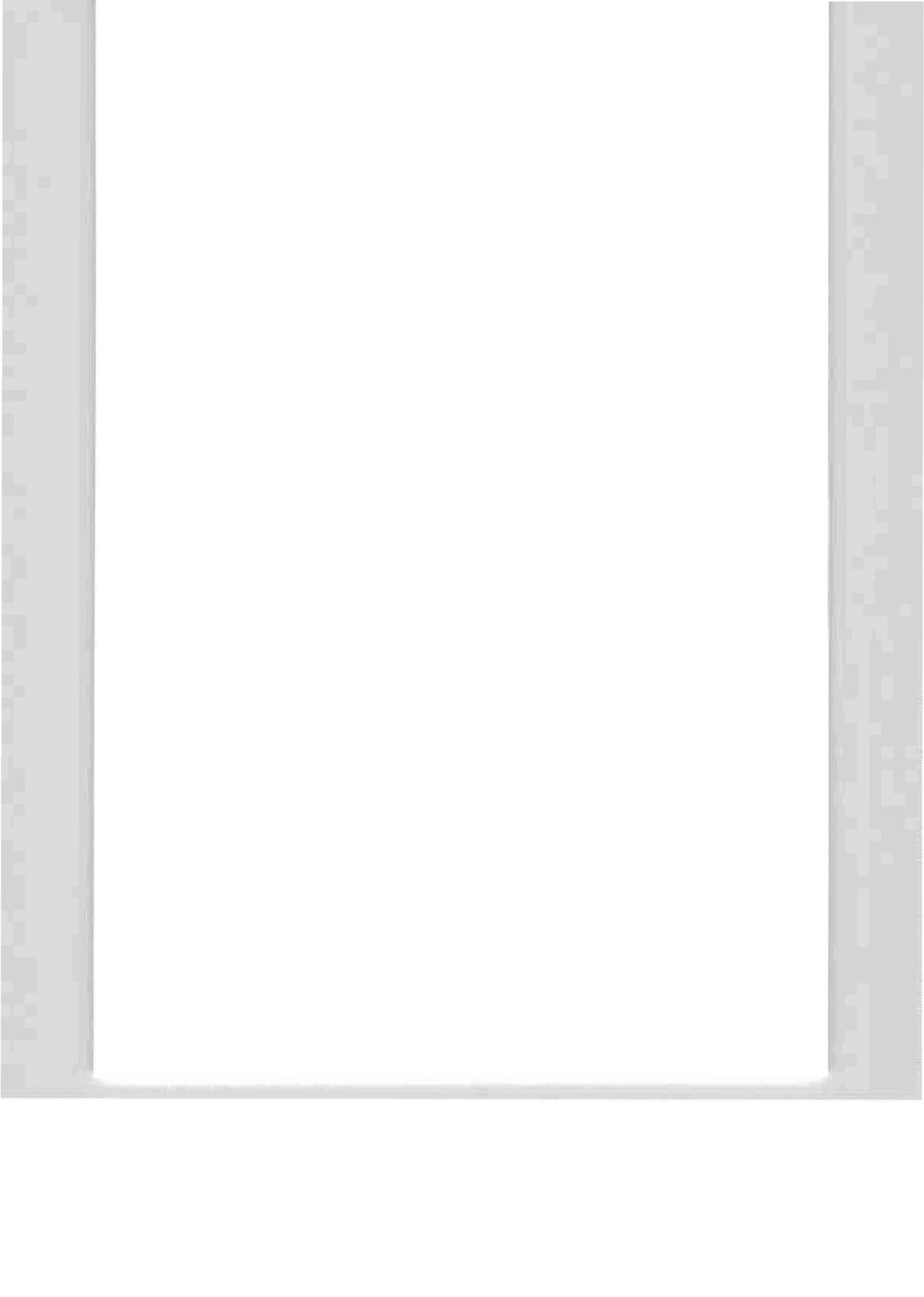
ISBN 82-7126-476-1
ISSN 0332-8554

ABSTRACT

Holthe, T. 1991. Identification of Annelida Polychaeta from northern European and adjacent Arctic waters. *Gunneria* 66: 1-30.

166 papers necessary for the identification of polychaetous annelids from the North Sea and Scandinavian, Icelandic and the adjacent Arctic waters are listed. References are given for each of the 71 families that are known from European waters, and for each family brief comments are given regarding the approximate number of species present in the area, special problems with identification, and whether the taxa can be identified by means of the current literature.

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1 INTRODUCTION

The Annelida Polychaeta is one of the major groups among marine benthic animals. During this century the polychaetes have increasingly been sampled (quantitatively) for the evaluation of environmental quality. The group also contains pelagic species, parasites, some fresh-water species, and even a few terrestrial species. About 8.000 of the described species are considered valid by modern authors, and the number of known species is steadily increasing especially in the less investigated marine regions. Presently, about 600 species are known to occur in the northern European and adjacent arctic waters.

Along with southern European waters, the area in question was investigated earlier than most other marine regions. However, new species are still turning up, especially in the deep sea, but also on continental shelves and in inshore waters. Some families as well as some habitat types are still sparingly investigated within the area. Thus, one cannot expect that the specimen one is trying to identify always belongs to a species described in the literature, and far less to the species included in the faunal works.

This class is often considered a taxonomically difficult group, which may be correct. For natural as well as historical reasons, polychaete taxonomy tends to be less developed than those of the other major marine invertebrate groups, most of which have hard external skeletons.

The aim of this work has been to list the literature relevant for identification of polychaetes from northern European waters. The area covered includes the Scandinavian and Icelandic coasts and fjords, the Baltic, Kattegat, Skagerrak, the North Sea, the Barents Sea, and Spitsbergen. The shelves of this area lie within two marine biogeographic regions: the Arctic Region and the Eastern Atlantic Boreal Region, and the deep sea part lies mainly within the Norwegian Sea. Hitherto, only a few faunal works on polychaetes explicitly treating this area have been printed; e.g. Arwidson 1906, Holthe 1986 a. Thus one has to use mainly faunal works intended for other geographical areas, such as France, Germany, Great Britain, the Soviet Union, and even the North American east coast, as well as a number of papers concerning various families, genera, and species.

Our present knowledge of polychaete taxonomy relies on 200 years of descriptive work. Publications on polychaete taxonomy cover about 15 languages, and commensurable descriptions can be expected only when major revisions are undertaken.

2 CLASSIFICATION OF THE POLYCHAETA

The Polychaeta is by all modern authors considered as a class of the phylum Annelida. The other generally accepted classes are the Oligochaeta and the Hirudinea. Among the Annelida there are certain taxa with uncertain affinities. These are the Branchiobdellida, which whatever they may be are not polychaetes, the 'Archiannelida' which is broken up into independent families and included in the Polychaeta by most modern authors, and the Myzostomida which is included by some and excluded by others. In addition to the Annelida there are two taxa that may be related to the Polychaeta, viz. the Pogonophora and the Vestimentifera, but I shall here follow the customary view of considering these as separate phyla.

A modern classification of the polychaetes should be expected to be natural, i.e. expressing the evolution of the taxa and the relationship between them. Presently, such a classification of the polychaeta has hardly emerged. Most polychaete taxonomists even to-day seem to be stressing the descriptive part of taxonomy, rendering the systematics in a Linnean state. Recently some authors have discussed the systematics of the Polychaeta in terms of evolutionary taxonomy, and a few taxonomic works following the principles of phylogenetic taxonomy have appeared.

When the old orders Errantia and Sedentaria prevailed, it was customary to list the families in 'systematic order', an order suggesting a sequence from the primitive to the advanced forms, a kind of *scala naturae*. As modern theory of classification rejects the existence of a *scala naturae* among the recent species of any large and old taxon, this order of families has lost its scientific logic and become pure tradition. Once learnt, this traditional sequence was practical for looking up any specific family in any work on polychaetes. Some of the authors who tried to introduce new taxa on the order and suborder level (e.g. Fauchald 1977), have changed the sequence of families by reshuffling the orders. For practical reasons I shall follow none of these sequences, but list the families alphabetically.

As in most animal groups, the number of genera has been steadily increasing since the 18th century, due of course to the discovery of new forms, but also to the splitting of the old genera. These processes are still in progress. Indisputably the most stable part of polychaete taxonomy is the **family level**. Even with an increasing number of families, the old families still can be recognized, and there are presently about 85 generally accepted families, of which 71 are listed below as occurring within the area.

On the order and suborder levels of the class there is presently no stability. The old 'orders' Errantia and Sedentaria are definitely discarded as unnatural entities, but there are several proposals as to the content and nomenclature of modern polychaete orders and suborders. Some families (e.g. Sabellariidae and Bogueidae) seem to be wandering restlessly from order to order. Thus the order

level should be left to the taxonomists for the time being, and for practical taxonomy the family level should constitute the main category within the class.

In recent taxonomic work an important change is taking place, from the study of regional faunas to the study of smaller taxonomic groups on a world-wide basis. This shift has so far resulted in the splitting up of certain 'cosmopolitic' species, and a general suspicion concerning the very existence of such species (see e.g. Hartley 1984 and Williams 1984). However, most groups remain to be revised on a world-wide basis.

The nomenclature of the Polychaeta may currently seem somewhat unstable. This impression is due to the accumulating knowledge acquired through revisions, and the strict application of the rules of nomenclature. Many of the changes of generic and specific names cannot be avoided (e.g. the rejection of junior homonyms), but in some cases taxonomists have formally requested that the International Commission of Zoological Nomenclature might use its plenary powers to suppress newly discovered senior synonyms in favour of well-known junior synonyms (see e.g. Nilsen & Holthe 1989). On the other hand, there are many cases where the nomenclature only reflects the subjective judgement of the taxonomist, e.g. whether a taxon should be considered a genus or a subgenus. Thus there are two kinds of nomenclatural changes, those made on formal grounds - which must be accepted, and those resulting from evolutionary or phylogenetic considerations - which can be treated as a matter of opinion. For the non-taxonomist user of taxonomy, it is usually most practical to follow the nomenclature of modern revisions in both these cases.

The classification table below follows that of Fauchald (1977) except for the omission of the superfamily level; the inclusion of the families Myzostomidae, Diurodrilidae, Hartmanniellidae, Helmetophoridae, and Alvinellidae; and the position of the families Bogueidae, Sabellariidae, Nerillidae, Dinophilidae, Polygordiidae, Protodrilidae, and Saccocirridae.

Table 1. A classification of the Polychaeta.

Order ORBINIIDA

Orbiniidae, Paraonidae, Questidae

Order CTENODRILIDA

Ctenodrilidae, Parergodrilidae

Order PSAMMODRILIDA

Psammodrilidae

Order COSSURIDA

Cossuridae

Order SPIONIDA**Suborder SPIONIFORMIA**

Apistobranchidae, Spionidae, Magelonidae, Trochochaetidae, Poecilochaetidae, Heterospionidae

Suborder CHAETOPTERIFORMIA

Chaetopteridae

Suborder CIRRATULIFORMIA

Cirratulidae, Acrocirridae

Order CAPITELLIDA

Capitellidae, Arenicolidae, Maldanidae (including the 'Bogueidae')

Order OPHELIIDA

Opheliidae, Scalibregmatidae

Order PHYLLODOCIDA**Suborder PHYLLODOCIFORMIA**

Phyllodocidae, Alciopidae, Lopadorhynchidae, Pontodoridae

Suborder APHRODITIFORMIA

Aphroditidae, Polynoidae, Polyodontidae, Pholoididae, Eulepethidae, Sigalionidae, Chrysopetalidae, Palmyridae, Pisionidae

Suborder NEREIDIFORMIA

Hesionidae, Helmetophoridae, Pilargidae, Syllidae, Calamyzidae, Nereidae, Antonbruunidae

Suborder GLYCERIFORMIA

Glyceridae, Goniadidae, Lacydoniidae

Suborder not recognized:

Iospiliidae, Nephtyidae, Sphaerodoridae, Tomopteridae, Typhloscolecidae, Yndolaciidae

Order AMPHINOMIDA

Amphinomidae, Euphrosinidae

Order SPINTHERIDA

Spintheridae

Order EUNICIDA

Onuphidae, Eunicidae, Hartmaniellidae, Lumrineridae, Iphitimidae, Arabellidae, Lysaretidae, Dorvilleidae, Histriobdellidae, Ichthytomidae

Order STERNASPIDA

Sternaspidae

Order OWENIIDA

Oweniidae

Order FLABELLIGERIDA

Flabelligeridae, Poeobidae

Order FAUVELIOPSIDA

Fauveliopsidae

Order TERESELLIDA

Pectinariidae, Ampharetidae, Alvinellidae, Trichobranchidae, Terebellidae

Order SABELLIDA

Sabellariidae, Sabellidae, Sabellongidae, Caobangidae, Serpulidae, Spirorbidae

Order MYZOSTOMIDA

Myzostomidae

Order DINOPHILIDA

Dinophilidae, Diurodrilidae

Order NERILLIDA

Nerillidae

Order POLYGORDIIDA

Polygordiidae

Order PROTODRILIDA

Protodrilidae, Saccocirridae

3 IDENTIFICATION OF THE POLYCHAETA

The works listed below under 'polychaetes in general' contain keys to the families. Some of these keys are good, but in my experience fresh students of polychaete taxonomy tend to end up in a state of frustration if left alone with these keys. For most of us it is more efficient to try to learn the often strikingly common habitus of the larger families, like Ampharetidae, Capitellidae, Cirratulidae, Eunicidae, Flabelligeridae, Glyceridae, Hesionidae, Lumbrineridae, Maldanidae, Nephtyidae, Nereidae, Onuphidae, Phyllodoceidae, Polynoidae, Sabellidae, Serpulidae, Spionidae, Spirorbidae, Syllidae, and Terebellidae. Once this is achieved, the exceptions to the rule of a common family habitus, and the other families, which are smaller and often strikingly characteristic, can be learned when they are needed.

In the practical study of polychaete taxonomy, most biologists experience that the families are well defined. Therefore, I have listed the families alphabetically, with references to the pertinent literature. Most polychaete families are cosmopolitan, and hence are represented in the northern European and Arctic faunas. The relatively few and small families that are endemic to certain tropical regions have been omitted from the alphabetical list.

For practical reasons I have listed the translations of Ushakov's works rather than the original publications. Regarding other Russian papers on polychaetes, some of these have been translated by the Multilingual Services Division of the Canadian Secretary of State by request of Ms. Judith Fournier, National Museum of Natural Sciences, Ottawa, Canada.

The crucial characters for species identification vary from family to family, but certain characters are important in most groups. These are: the division of the body into distinct parts, the number of segments of the respective parts, the shape of the parapodia and their appendages, prostomial and peristomial appendages, the type of pharynx, the structure of jaws (if present), and the types of chaetae present in the different parapodia. In larger animals most of these characters can be identified by using a stereomicroscope, but the characters of small polychaetes and the shape of the chaetae usually demand light microscopy. Scanning electron microscopy can be very useful when describing new species, but is too laborious for routine identification.

Good identification keys don't pay too much attention to natural classification, and they often key out to the same taxon using different paths. Usually good keys use the more easily established characters first, but sometimes it is necessary to start the key to a large family with microscopic chaetal characters. Some species carry 'identification cards' like special structures or shapes, and unfortunately systematically constructed keys tend to hide these characters at the end of a long sequence of difficult choices. Thus it might be useful to construct one's own keys.

Keying out does not mean safe identification; especially when unfamiliar species are encountered, the results of the key must be checked against diagnosis, description or figures. Diagnoses, by the way, may be very terse, like some twenty Latin words, but still be defining a valid species. In some polychaete groups there is a sad lack of good figures, and an astonishingly large proportion of valid species have never been depicted.

Under each family the size and taxonomical difficulty of the family are mentioned, and references are given to papers that should be consulted in addition to the larger faunal works (which are referred to under the heading 'polychaetes in general'). If I might earnestly offer an advice, it would be that some taxa are better left unidentified on the specific level until revision of the taxon has been completed, and that it is generally preferable to be content with a 'sp. indet.' whenever in doubt.

In practical work, when samples are first sorted by technical staff, several other groups of animals with a more or less worm-like body tend to be sorted as polychaetes. Such animals may be marine oligochaetes, but in my experience the following groups are far more frequent in 'polychaete' samples: Pennatulacea, Nemertini, Nematoda, Sipunculida, Phoronida, Caudofoveata, and Scaphopoda. Some Solenogastres and Hemichordata may also occur, and of course a lot of the broken off arms of brittle-stars (Ophiurida).

A student of polychaete taxonomy can update his literature lists by scanning those printed in the newsletter 'Polychaeta', published by the Ira C. Darling Center, Walpole, Maine, 04573 USA, and upon request sent to any student of polychaetes free of charge.

POLYCHAETES IN GENERAL

A synopsis of the morphology and anatomy of the Polychaeta: Grassé 1959. Good keys to the families: Fauchald 1977, George & Hartmann-Schröder 1985, Kirkegaard 1992, Oug 1980. Catalogue of the Polychaeta: Hartman 1959, 1965. Bibliography of the Polychaeta: Hartman 1951. Techniques for the practical work with polychaete taxonomy: Fauchald 1977, George & Hartmann-Schröder 1985, Winsnes 1986. Checklists of Scandinavian Polychaeta: Jägerskiöld 1971, Petersen 1986. Regional faunal works: Cetlin 1980, Clark 1960, Fauvel 1923, 1927, Hartmann-Schröder 1971, Kirkegaard 1992, McIntosh 1900-1923, Pettibone 1963, Ushakov 1965.

THE POLYCHAETE FAMILIES

Unless otherwise stated, the families comprise only free-living benthic species.

Works of primary literature (original descriptions) have been included in the

list only if they have appeared after the publication of major revisions or faunal works treating the taxon or area in question, or otherwise cannot be overlooked. Those listed are necessary supplements to the faunal works. The list comprises catalogues as well as works with descriptions and keys.

ACROCIRRIDAE

Three species of the genus *Macrochaeta* have been found within the area.

ALCIOPIDAE

Pelagic polychaetes. A few species occur in southern European Waters, one species is known from the North Sea. Kirkegaard 1992, Muus 1953a, Ushakov 1974.

AMPHARETIDAE

About 40 species can be expected to occur within the area. Mainly small polychaetes, which can be safely identified by the current literature only if complete and well preserved. Desbruyeres & Laubier 1977, Hartley 1985, Holthe 1986 a, b, c, in prep., Russell 1987, Žirkov 1985, 1986.

AMPHINOMIDAE

Only four species have been found within the area. Identification should rely on George & Hartmann-Schröder 1985, O'Connor 1984.

APHRODITIDAE

Only four species have been found within the area. All these grow to a considerable size, and adults are not difficult to identify. Chambers 1985, Loshamn 1980, Muus 1953a.

APISTOBRANCHIDAE

Only two species of the very characteristic genus *Apistobranchnus* are known to occur within the area. Orrhage 1962.

ARABELLIDAE

Comprising endoparasitic species as well as benthic species. About seven species must be considered. The animals are small, and have to be dissected for safe identification. George & Hartmann-Schröder 1985.

ARENICOLIDAE

Two species are known to occur within the area. Both grow to a large size, and are easily identified as adults. Juveniles do not look like the adults, and may be mistaken for capitellids. Hartmann-Schröder 1971, Fournier & Barrie 1987.

CALAMYZIDAE

Only one species, *Calamyzas amphictenicola* Arwidson, 1932, is known, it is a parasite on the ampharetid polychaete *Amphicteis gunneri* (Sars, 1835), and is found within the area. By most earlier authors classified within the family Syllidae. Hartmann-Schröder 1971, Kirkegaard 1992.

CAPITELLIDAE

At least ten species occur within the area. At least one of these, the famous *Capitella capitata* (Fabricius, 1780), may represent a species complex. Character states are not easily seen, well-preserved material with several specimens is required for safe identification. Dinneen 1982, Fauchald 1972, 1977, Grassle & Grassle 1976, Warren 1979.

CHAETOPTERIDAE

Four genera occur within the area. One of the genera (*Spiochaetopterus*) has been revised, and the species can be identified. Two of the genera (*Phyllochaetopterus* and *Telepsavus*) are represented with one species each. The genus *Chaetopterus* is presently under revision, and cannot be identified by means of the faunal works. The often reported species *C. variopedatus* is a Mediterranean species that probably does not occur in Scandinavian waters. Fauchald 1972, Gitay 1969, Petersen 1984.

CHRYSOPETALIDAE

One species, *Chrysopetalum caecum* Langerhans, 1880, is known from Danish waters. Kirkegaard 1992.

CIRRATULIDAE

At least 15 species expected to occur within the area. Complete specimens can usually be identified to the generic level, and some genera can be identified to the specific level. The genus *Tharyx* should be left as *Tharyx* sp., as there is reason to believe that there are undescribed species within the area. The common 'species' *Cirratulus cirratus* and *Chaetozone setosa* are polymorphous within the area, and there are probably more species present than apparent from the faunal works. Revision of this family is needed. Christie 1984, Eliason 1962 b, Gibson 1978.

COSSURIDAE

Only one species, *Cossura longocirrata* Webster & Benedict, 1887, is known to occur within the area. Hartmann-Schröder 1971.

CTENODRILIDAE

Two species are known from the southern part of the area. The animals are small. Hartmann-Schröder 1971.

DINOPHILIDAE

A little family of very small worms. Two genera with a total of seven species may occur within the area. Jägersten, 1944, Jouin 1971.

DIURODRILIDAE

One genus with two species occurs within the area. Kristensen & Niilonen 1982.

DORVILLEIDAE

About 16 species are known to occur within the area. A few of the species are large, most are small or very small. Current keys use external characters, but identification can be checked through dissection of the jaw elements. George & Hartmann-Schröder 1985, Govaere 1976, Josefson 1975, Kirkegaard 1992, Oug 1978, 1990, Pettibone 1961, Westheide & Nordheim 1985, Wolf 1986.

EUNICIDAE

Only one genus, *Eunice*, is known from the area. Identification of the species is difficult. Fauchald 1974 b, 1992, Winsnes 1980, 1989.

EUPHROSINIDAE

Four species are known to occur within the area. These extremely short and broad polychaetes are usually not difficult. George & Hartmann-Schröder 1985.

FAUVELIOPSIDAE

A small family of small polychaetes. One deep sea species is found in the northeast Atlantic. Hartmann-Schröder 1983.

FLABELLIGERIDAE

Four genera with a total of ten species occur within the area. The genera *Flabelligera* and *Brada* can usually be identified to the specific level without difficulty; the genera *Diplocirrus* and *Pherusa* may be more difficult. Fauchald 1972, Laubier 1974, Støp-Bowitz 1948 a, b.

GLYCERIDAE

The genus *Glycera* is represented by at least six species within the area. Kirkegaard 1992, O'Connor 1987, Støp-Bowitz 1941, 1948 b.

GONIADIDAE

Three genera with a total of five species occur within the area. Kirkegaard 1992, Støp-Bowitz 1941, 1948 b.

HESIONIDAE

At least 16 species may occur within the area. Clausen 1986, Hilbig & Dittmer 1979, Jägerskiöld 1971, Kirkegaard 1992, O'Connor & Shin 1983, Westheide 1967.

HETEROSPIONIDAE

A small family with only one genus. Hitherto not found within the area, but are widely distributed and may well have been overlooked. Fauchald 1977.

HISTRIOBDELLIDAE

Only one species, *Histriobdella homari* van Beneden, 1858, is known from the area. It is a very small parasite of the lobster. George & Hartmann-Schröder 1985, Kirkegaard 1992.

IPHITIMIDAE

Only one species has been found within the area, but two more might be expected to occur. Small to medium sized polychaetes which usually live in the gill chambers of various crustaceans. George & Hartmann-Schröder 1985, Kirkegaard 1977, 1992.

LACYDONIDAE

One species occurs within the area. Eliason 1962 a, Ushakov 1974.

LOPADORHYNCHIDAE

A small family of pelagic polychaetes. Kim 1967.

LUMBRINERIDAE

These polychaetes have to be dissected to be identified, one cannot rely on the keys of the faunal works. Fauchald 1974 b, George & Hartmann-Schröder 1985, Winsnes 1980, 1981, 1986.

MAGELONIDAE

Four species of the genus *Magelona* have been found within the area. Contrary to what is stated in the general faunal works, *M. papillicornis* F. Müller, 1858 does not occur in European waters. Glemarec 1973, Jones 1977.

MALDANIDAE

More than two dozen species are known from the area. Entire specimens can usually be identified, but in this family entire specimens are hard to come by. The subfamilies Maldaninae and Rhodininae are not difficult, the others are. Regarding the area in question, Arwidson's old monograph is still unsurpassed. Arwidson 1906, 1911, 1922, Nolte 1912.

MYZOSTOMIDAE

A small family of small aberrant polychaetes living as commensals on crinoid echinoderms (feather stars). Jägersten 1940.

NEPHTYIDAE

Two genera, *Nephtys* and *Aglaophamus*, with a total of ten species are known from the area. Fauchald 1963, Kirkegaard 1992, Rainer 1984, Wolff 1968, Žirkov 1986.

NEREIDAE

At least 15 species occur within the area. Hartmann-Schröder 1971, 1977, Kirkegaard 1992.

NERILLIDAE

Small worms living interstitially in sand. About six species may occur within the area. Jouin 1971, Faubel 1978.

ONUPHIDAE

Five species are known to occur within the area. These worms should be preserved with their tubes, as these are more characteristic than the morphology of the worms themselves. Fauchald 1982, George & Hartmann-Schröder 1985, Winsnes 1985.

OPHELIIDAE

Four genera with a total of twelve species are known from the area. Amoureux & Dauvin 1981, Støp-Bowitz 1946 a, 1948 b, Tebble 1951.

ORBINIIDAE

At least seven species are known from the area. Mackie 1987.

OWENIIDAE

Five species are known to occur within the area. Especially the genus *Myriochele* with four species in the area has a reputation for being difficult. The animals are very slender, and difficult to get out of their tubes. Usually a light microscope must be used for identification, but once the identity of the worms of a limited geographic area is confirmed, the rest of the specimens can be identified by the structure of their tubes. Nilsen & Holthe 1985.

PARAONIDAE

About seven species occur within the area. Glemarec 1966, Hartley 1981, 1984, O'Connor et al. 1984, Strelzov 1979.

PARERGODRILIDAE

One species, *Stygocapitella subterranea* Knöllner, 1943, is known from the area, another species is terrestrial and is found in central Europe. Hartmann-Schröder 1971.

PECTINARIIDAE

Two genera, *Pectinaria* and *Petta*, with a total of six species are known to occur within the area, and all of these can be safely identified. Holthe 1986 a, b.

PHOLOIDIDAE

Recently separated from the family Sigalionidae, only one genus, *Pholoe*. The common European 'species' *P. minuta* probably represents a species complex. Kirkegaard 1992.

PHYLLODOCIDAE

A large and difficult family with many species, new species from the area are still being described. Bergström 1914, Eibye-Jacobsen 1987, Hartmann-Schröder 1983, Kirkegaard 1992, Muus 1953a, Parker 1987, Pleijel 1987 a, b, 1988, in press a, b, c, Ushakov 1974.

PILARGIIDAE

A family with a few species of small polychaetes. Three species are known from the area. Pearson 1970, Pettibone 1966, Rasmussen 1973.

PISIONIDAE

One species, *Pisione remota* (Southern, 1914), may occur within the area. Kirkegaard 1992.

POECILOCHAETIDAE

Only one very characteristic species, *Poecilochaetus serpens* Allen, 1904, occurs within the area. Hannerz 1961.

POLYGORDIIDAE

Three species of the genus *Polygordius* may occur within the area.

POLYNOIDAE

A large family with many difficult species, at least 36 can be expected to occur within the area. Fauchald 1972, Hartmann-Schröder 1974, Kirkegaard 1992, Kirkegaard & Billett 1980, Loshamn 1980, 1981, Muir 1982, Pettibone 1976, Tebble & Chambers 1982.

POLYDONTIDAE

Only one species, *Panthalis oerstedii* Kinberg, 1855, is known to occur within the area. Chambers 1985, Kirkegaard 1992, Loshamn 1980.

PROTODRILIDAE

Small polychaetes living interstitially in sand. Two genera with a total of about ten species may occur within the area. Nordheim 1983.

PSAMMODRILIDAE

A very small family of small polychaetes living interstitially in sand. One species is known from the area. Swedmark 1964.

SABELLARIIDAE

Only one species (*Phalacrostemma norvegica* Strømgren, 1971) has been found within the area, but another species (*Sabellaria spinulosa* Leuckart) is found just outside. Strømgren 1971.

SABELLIDAE

More than two dozen species are known to occur within the area, but the family is presently undergoing a long needed revision, and identification to the species level should be done with care and restraint. Banse 1970, 1972, Knight-Jones 1983, Knight-Jones & Walker 1985, Perkins 1984.

SACCOCIRRIDAE

A small family of interstitial polychaetes. Jouin 1971.

SCALIBREGMATIDAE

Four genera with one species each occur within the area. Pocklington & Fournier 1987, Støp-Bowitz 1946 b, 1948 b.

SERPULIDAE

The spirorbids (v.i.) are excluded as a separate family, leaving about a dozen serpulid species in the area. All species have chalk tubes. The larger species can readily be identified by their tubes and opercula, but one must bear in mind that the juvenile tube can be different from the adult one. One species, *Ditrupa arietina*, has a tube that is not fixed to the substratum, and can be mistaken for a scaphopod. Hove 1974, 1985, O'Connor 1982, OECD 1967, Thorp, Knight-Jones & Knight-Jones 1986, Southward 1963, Zibrowius 1969.

SIGALIONIDAE

With eight species occurring within the area this family is not as large as the neighbouring family Polynoidae. Some of the species have easily recognized characters, others are difficult. The genus *Pholoe* was recently referred to another family, Pholoididae (v.s). Chambers 1985, Kirkegaard 1992, Loshamn 1980, Muir (in press), Pettibone 1970.

SPHAERODORIDAE

Four genera with a total of nine species are known to occur within the area. Desbruyères 1980, Fauchald 1974 a, Kirkegaard 1992.

SPINTHERIDAE

Highly specialized and aberrant polychaetes living in association with sponges or hydrozoans. Four species of the genus *Spinther* may occur within the area. George & Hartmann-Schröder 1985.

SPIONIDAE

Usually considered one of the most difficult polychaete families, many genera with a total of more than 40 species occur within the area. When trying to identify sparse material, one should remember that crucial parts, like the branchiae of *Prionospio* tend to be lost in the process of fixation. The genus *Polydora* is easily recognizable, but identification of the species is very difficult. Blake 1971, Eleftheriou 1970, Eliason 1962 a, Hannerz 1961, Kirkegaard 1990, Maciolek 1985, 1987, Mackie 1984, Mackie & Duff 1986, Michaelis 1978, Mustaquim 1986, Orrhage & Sundberg 1990, Pleijel 1985, Ramberg & Schram 1983, Ramos 1976.

SPIRORBIDAE

Formerly classified as a subfamily of the Serpulidae. About ten species occur within the area. Small polychaetes with a spiralled chalk tube cemented to rocks or algae. Many difficult species are present within the area. Bergan 1953, Knight-Jones & Knight-Jones 1977, Knight-Jones et al. 1975, OECD 1967, Thorp, Knight-Jones & Knight-Jones 1986.

STERNASPIDAE

Only one species, *Sternaspis scutata* (Ranzani, 1817), is known from the area. Cannot be mistaken for anything in the world.

SYLLIDAE

A large family of small, difficult polychaetes. The fauna in question is insufficiently known, but about 40 species can be expected to occur within the area. Banse 1971, Dauvin & Lee 1983, Gidholm 1967, Gillandt 1979, Hamond 1967, 1974, Kirkegaard 1992, Schiedges 1980.

TEREBELLIDAE

More than 40 species may occur within the area. Adult worms with complete thoraces can usually be safely identified. There is one genus, *Polycirrus*, that can be very difficult. Holthe 1986 a, b, Pearson 1969.

TOMOPTERIDAE

Three species of these transparent pelagic and achaetous (!) polychaetes occur within the area. Jägerskiöld 1971, Kirkegaard 1992, Muus 1953b, Ushakov 1974, Wesenberg-Lund 1936.

TRICHOBRANCHIDAE

Three genera with a total of four species are known to occur within the area. Both *Terebellides* and *Octobranchus* are very characteristic, but can be hard to recognize when fragmented. Holthe 1986 a, b.

TROCHOCHAETIDAE

Formerly known as 'Disomidae'. Only one species, *Trochochaeta multisetosa* (Ørsted, 1843), is known from the area. Hannerz 1961, Pettibone 1963.

TYPHLOSCOLECIDAE

Two species of these pelagic polychaetes are known to occur within the area. Muus 1953b, Ushakov 1974, Wesenberg-Lund 1936.

4 ACKNOWLEDGEMENTS

The reference list is partly based on a list prepared by Eivind Oug for a special Nordic course in marine biology, Bergen 1988. Further I wish to thank Fredrik Pleijel for information on recent literature, Judith Fournier for organizing the translation of Russian papers, my wife Toril Røstad for correcting the language, and the Biological Station, University of Trondheim for practical support. This work was completed by means of a grant from Akvaplan ltd, Tromsø, Norway.

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