Census of Antarctic Marine Life
SCAR-Marine Biodiversity Information Network

BIOGEOGRAPHIC ATLAS OF THE SOUTHERN OCEAN

CHAPTER 5.3. ANTARCTIC FREE-LIVING MARINE NEMATODES.

Ingels J., Hauquier F., Raes M., Vanreusel A., 2014.

In: De Broyer C., Koubbi P., Griffiths H.J., Raymond B., Udekem d'Acoz C. d', et al. (eds.). Biogeographic Atlas of the Southern Ocean. Scientific Committee on Antarctic Research, Cambridge, pp. 83-87.

EDITED BY:
Claude DE BROYER & Philippe KOUBBI (chief editors)

with Huw GRIFFITHS, Ben RAYMOND, Cédric d'UDEKEM d'ACOZ, Anton VAN DE PUTTE, Bruno DANIS, Bruno DAVID, Susie GRANT, Julian GUTT, Christoph HELD, Graham HOSIE, Falk HUETTMANN, Alexandra POST & Yan ROPERT-COUDERT

SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH

THE BIOGEOGRAPHIC ATLAS OF THE SOUTHERN OCEAN

The "Biogeographic Atlas of the Southern Ocean" is a legacy of the International Polar Year 2007-2009 (www.ipy.org) and of the Census of Marine Life 2000-2010 (www.coml.org), contributed by the Census of Antarctic Marine Life (www.caml.aq) and the SCAR Marine Biodiversity Information Network (www.scarmarbin.be; www.biodiversity.aq).

The "Biogeographic Atlas" is a contribution to the SCAR programmes Ant-ECO (State of the Antarctic Ecosystem) and AnT-ERA (Antarctic Thresholds- Ecosystem Resilience and Adaptation) (www.scar.org/science-themes/ecosystems).

Edited by:

Claude De Broyer (Royal Belgian Institute of Natural Sciences, Brussels)
Philippe Koubbi (Université Pierre et Marie Curie, Paris)
Huw Griffiths (British Antarctic Survey, Cambridge)
Ben Raymond (Australian Antarctic Division, Hobart)
Cédric d'Udekem d'Acoz (Royal Belgian Institute of Natural Sciences, Brussels)
Anton Van de Putte (Royal Belgian Institute of Natural Sciences, Brussels)
Bruno Danis (Université Libre de Bruxelles, Brussels)
Bruno David (Université de Bourgogne, Dijon)
Susie Grant (British Antarctic Survey, Cambridge)
Julian Gutt (Alfred Wegener Institute, Helmoltz Centre for Polar and Marine Research, Bremerhaven)
Christoph Held (Alfred Wegener Institute, Helmoltz Centre for Polar and Marine Research, Bremerhaven)
Graham Hosie (Australian Antarctic Division, Hobart)
Falk Huettmann (University of Alaska, Fairbanks)
Alix Post (Geoscience Australia, Canberra)
Yan Ropert-Coudert (Institut Pluridisciplinaire Hubert Currien, Strasbourg)

Published by:

The Scientific Committee on Antarctic Research, Scott Polar Research Institute, Lensfield Road, Cambridge, CB2 1ER, United Kingdom (www.scar.org).

Publication funded by:

- The Census of Marine Life (Albert P. Sloan Foundation, New York)
- The TOTAL Foundation, Paris.

The "Biogeographic Atlas of the Southern Ocean" shared the *Cosmos Prize* awarded to the Census of Marine Life by the International Osaka Expo'90 Commemorative Foundation, Tokyo, Japan.

Publication supported by:

- The Belgian Science Policy (Belspo), through the Belgian Scientific Research Programme on the Antarctic and the "biodiversity.aq" network (SCAR-MarBIN/ANTABIF)
- The Royal Belgian Institute of Natural Sciences (RBINS), Brussels, Belgium
- The British Antarctic Survey (BAS), Cambridge, United Kingdom
- The Université Pierre et Marie Curie (UPMC), Paris, France
- The Australian Antarctic Division, Hobart, Australia
- The Scientific Steering Committee of CAML, Michael Stoddart (CAML Administrator) and Victoria Wadley (CAML Project Manager)

Mapping coordination and design: Huw Griffiths (BAS, Cambridge) & Anton Van de Putte (RBINS, Brussels)

Editorial assistance: Henri Robert, Xavier Loréa, Charlotte Havermans, Nicole Moortgat (RBINS, Brussels)

Printed by: Altitude Design, Rue Saint Josse, 15, B-1210 Brussels, Belgium (www.altitude-design.be)

Lay out: Sigrid Camus & Amélie Blaton (Altitude Design, Brussels).

Cover design: Amélie Blaton (Altitude Design, Brussels) and the Editorial Team.

Cover pictures: amphipod crustacean (*Epimeria rubrieques* De Broyer & Klages, 1991), image © T. Riehl, University of Hamburg; krill (*Euphausia superba* Dana, 1850), image © V. Siegel, Institute of Sea Fisheries, Hamburg; fish (*Chaenocephalus* sp.), image © C. d'Udekem d'Acoz, RBINS; emperor penguin (*Aptenodytes forsteri* G.R. Gray, 1844), image © C. d'Udekem d'Acoz, RBINS; Humpback whale (*Megaptera novaeangliae* (Borowski, 1781)), image © L. Kindermann, AWI.

Online dynamic version :

A dynamic online version of the Biogeographic Atlas is available on the SCAR-MarBIN / AntaBIF portal : atlas.biodiversity.aq.

Recommended citation:

For the volume:

De Broyer C., Koubbi P., Griffiths H.J., Raymond B., Udekem d'Acoz C. d', Van de Putte A.P., Danis B., David B., Grant S., Gutt J., Held C., Hosie G., Huettmann F., Post A., Ropert-Coudert Y. (eds.), 2014. Biogeographic Atlas of the Southern Ocean. Scientific Committee on Antarctic Research, Cambridge, XII + 498 pp.

For individual chapter:

(e.g.) Crame A., 2014. Chapter 3.1. Evolutionary Setting. In: De Broyer C., Koubbi P., Griffiths H.J., Raymond B., Udekem d'Acoz C. d', *et al.* (eds.). Biogeographic Atlas of the Southern Ocean. Scientific Committee on Antarctic Research, Cambridge, pp. xx-yy.

ISBN: 978-0-948277-28-3.

5.3. Antarctic free-living marine nematodes

Jeroen Ingels[1], Freija Hauquier[2], Maarten Raes[2] & Ann Vanreusel[2]

[1]Plymouth Marine Laboratory, Plymouth, UK
[2]Marine Biology Research group, Biology Department, Ghent University, Gent, Belgium

1. Introduction

Nematodes or roundworms are the most pervasive metazoans on the planet (i.e. 80% of all living terrestrial metazoans and >90% in deep-sea ecosystems; Danovaro 2012) and have successfully exploited nearly every imaginable habitat. They can be found from high mountains down to the deepest depths in the oceans; they have even been recovered from the deep subsurface biosphere at 3.5 km depth where they are able to exploit the available resources (Borgonie *et al.* 2011); and can live as parasites in many organisms. Nematodes come in different sizes, from minute worms in sediments a few tenths of millimeters in length, to large parasitical forms which may be a few meters long. Most nematodes, however, don't exceed a few millimeters in length. About 16,000 nematode species have been described as parasites causing numerous diseases in vertebrate organisms and plants, and these have been studied intensively in the context of socio-economical and medical interests (e.g. Chan 1997, Chitwood 2003). The free-living nematodes, on the other hand, are perhaps less known despite their ubiquity and high levels of biodiversity. Free-living nematodes are amongst the most speciose marine benthic organisms in the world (Snelgrove 1999), with nearly 7000 recognised marine species and many more undescribed or undiscovered (Appeltans *et al*. 2012). Estimates for marine nematode diversity may range from 10,000 to 1,000,000, depending on the source and how 'conservative' or 'liberal' the estimate itself was (Lambshead 1993, Mokievsky & Azovsky 2002, Snelgrove 1999). More recently, Appeltans and co-authors (2012) showed that about 50,000 species is a more accurate estimate of total expected nematode diversity, meaning that nearly 90% of nematode species remains undescribed. Recent investigations indicated that there are 638 valid species that have been recovered from deep-sea samples worldwide (Miljutin *et al.* 2010), but as for some other under-explored habitats, many deep-sea samples contain numerous unknown species. A study by Xu *et al.* (2013) showed that no fewer than 155 nematode species were described in the journal Zootaxa alone in the period 2007–2012, many of which are marine, and showing that nematode taxonomy is currently a rather active field of research, although much remains to be described.

Photo 1 *Desmodora campbelli* (Allgén, 1932), South Georgia (Polarstern, ANT-XXVII/3, stn. 214-4, 255 m). Image © F. Hauquier, University of Ghent.

With 10,000s to 1,000,000s of individuals per square meter of seafloor, marine free-living nematodes are the most abundant metazoan life form in marine sediments and often represent 70–90 % of metazoan meiofaunal organisms (organisms ranging 32–1000 µm in size). Despite their ubiquity and high abundance, we are only beginning to understand the role of nematodes in benthic communities. They have been identified as key contributors to different ecosystem functions in marine environments. Nematodes are characterised by a wide range of morphological features which can be used to infer their ecological roles. The size and morphology of their buccal cavities can serve to identify their feeding strategies (Moens & Vincx 1997). They can feed on microbiota such as bacteria, cyanobacteria, and algae; they may be fungivorous or feed on small detrital particles freely available or attached to sediment grains; and even prey on small organisms, including other nematodes (Heip *et al.* 1982). The intermediate position they take in marine sediment food webs identifies them as important links, transferring energy available in sediments under the form of dissolved organic matter, detritus, microbes and other organisms to higher trophic levels (Bongers & Ferris 1999). Moreover, nematodes play an important role in decomposition processes and nutrient cycling in sediments. They are also known to interact with microbiota and other metazoan organisms (Heip *et al.* 1982), and may have an important role to play in bioturbating the sediments they live in. Moreover, nematode diversity has been linked to ecosystem functioning which may suggest an important functional role in sediments (Danovaro *et al.* 2008).

Given their small size and limited mobility, and the fact that they have a conservative reproductive method and lack an active dispersal phase in their life history, we might expect that species should have geographically limited distributions. Consequently, the species turnover between areas should be high compared to larger organisms which have a better chance of long-distance dispersal via pelagic larval phases (Lambshead 1993), leading to higher global species diversity. However, recently, Bik *et al.* (2010) provided molecular evidence of low endemism, continued shallow-deep water exchanges, and cosmopolitan species complexes within marine nematodes. Although these molecular analyses do not necessarily pertain to the species level, posing the question of the 'meiofauna paradox' is inevitable, i.e. how is it possible that meiofaunal organisms with limited active dispersal capacities are able to become cosmopolitan? The most likely answer to this question relies on the fact that it is their small size that makes them susceptible to entrainment by currents impinging the sediment surface, causing passive dispersal (Boeckner *et al.* 2009). Consequently, transport over larger distances by currents is likely to be more widespread than thought previously.

2. Methods

2.1. Data collection and geographical scope

The data used for this review on Antarctic nematode species distribution stems from different sources and was gathered and collated by the authors. Many nematode species data originated from studies conducted at the Marine Biology research group of Ghent University and data records available on the NeMys database (Deprez *et al.* 2005). In addition, historic literature was gathered based mainly on species lists in Gerlach & Riemann (1973). Subsequently, original descriptions were studied to obtain geographical locations, i.e. Antarctic and sub-Antarctic species records were extracted and added to the database. Taxonomic literature until 2012 was included in the database. For a more complete overview of the data sources used, we refer to the marked literature sources.

The species distribution maps presented in this Chapter include both true Antarctic and sub-Antarctic data, with a circum-Antarctic scope. Latitudinal range of included nematode species extends from roughly 46°S in the Kerguelen Islands region to approximately 78°S in Discovery Inlet.

2.2. Limitations of coverage and taxonomic resolution

Unfortunately, the geographical coverage of (sub-)Antarctic data on free-living nematode species is fragmental and is mostly based on taxonomical works for which the locations were recovered. This brings the limitation inherent to undersampling, and causes limited scope for biogeographical interpretation on the species level. Much more data is available on the genus level, the focus of many Antarctic nematode studies that address ecological questions. Whilst such data suffers from lack of species information, it is unlikely that information on genera occurrences in the Southern Ocean is useful to infer biogeographical patterns. Nematode genera in general are not limited to particular areas and most common genera are found all over the globe in marine environments, a phenomenon often referred to as the 'meiofauna paradox'. Nematode genera abundances are often thought to be associated with particular environmental conditions and so their occurrence is often studied in an ecological rather than a taxonomical or biogeographical context. Nevertheless, there are rare genera that seem limited in distribution, but this is often the result of limited sampling effort. To illustrate, a recent study showed that a newly described and relatively rare genus, *Dystomanema*, was recovered from both the Antarctic and North Atlantic (Bezerra *et al*. 2013).

3. Biodiversity

Nematodes are widespread in the Antarctic. On land, they are the most diverse and abundant invertebrate phylum (43 species; Wharton 2003). Antarctic nematode species numbers in the marine environment are much higher than for their terrestrial counterparts, and until recently limited at nearly 400 accepted marine species. In the framework of the present Atlas, a taxonomic revision was performed of all nematode species records, historical and recent

(until 2012) from marine Antarctic sediments (Appendix 1, at the end of volume). According to the latest literature sources and data records in our dataset 524 species are considered valid (see Map 1 for an overview of number of species per sector; see data reference list for literature sources). Nematode systematics has been shrouded in uncertainty because of their minute size (making identification more labor-intensive), taxonomic difficulties, and the relatively slow advent of molecular studies on nematodes. In addition, a huge number of nematode species were described in the first half of the 20th century following early Antarctic expeditions which yielded a large number of new taxa. The first descriptions of marine nematodes from (sub-) Antarctic regions date back to 1891, when von Linstow (1891) described a number of nematode species from South Georgia. Since then and with much disagreement between authors, many poor descriptions of Antarctic marine nematode species have appeared, resulting in confused taxonomy and contradicting descriptions. Some descriptive efforts following the Antarctic expeditions resulted in large numbers of species being described in a short space of time, leading to several synonymies. Scientists such as Cobb, De Man, von Linstow, and Ditlevsen, amongst others, described tens of species from the marine Antarctic and sub-Antarctic regions. Undoubtedly one of the most prolific nematode taxonomists working on Antarctic samples was Carl Allgén; in his report on free-living marine nematodes from the Swedish Antarctic Expedition in 1901–1903 (Allgén 1959), no less than 343 species were described, 200 of which were new to science. His work strongly influenced later developments in nematode taxonomy, not merely because he contributed significantly to our knowledge on the diversity of Antarctic marine nematodes, but also because the limited descriptive and illustrative material and sometimes doubtful diagnoses that he provided, causing species to be synonymised or considered “species inquirendae” or “incertae sedis” in many later instances — the result of inadequate descriptions. After several other collations of species lists, “The Bremerhaven Checklist of Aquatic Nematodes” provided an exhaustive list of all hitherto known nematodes worldwide (Gerlach & Riemann 1973). Since then, several studies have added new species to the list and several genera and family reviews have been conducted. The dataset presented here is an updated account of valid Antarctic and sub-Antarctic marine free-living nematodes (“sp. inq.” and “sp. inc. sedis”. are excluded from this list). This data is partially based on the NeMys database (Deprez *et al.* 2005) and has been updated with geographical location data (coordinates and water depth, when available) and taxonomical information contained within the original descriptive and ecological literature. The data is available through SCAR-MarBIN (http://www.scarmarbin.be) and further details on the methods can be found in the previous section “Methods”.

4. Biogeography of Antarctic and sub-Antarctic nematodes

Because most observations of nematode species have been conducted as part of taxonomic works, geographical information on Antarctic marine nematodes is limited to the occurrences reported in species descriptions. In addition, studies focusing on the ecology of nematodes reported many valuable distribution data, but are generally restricted to the genus level – species are often not considered. Notwithstanding the over 2200 records of nematode species in the (sub-)Antarctic, there are only a handful of studies which have reported on the biogeography of selected groups of marine free-living nematodes.

Vermeeren *et al.* (2004) discussed the distribution of species belonging to the genus *Dichromadora*, a genus that occurs regularly in the Southern Ocean over a wide range of water depths. The authors compared samples from the Indian, Pacific, Arctic and Atlantic continental margins for *Dichromadora* occurrences and noted the absence of this genus in the Indian and Pacific Oceans. A number of *Dichromadora* species were present in the Arctic and Atlantic (two and three species, respectively), but the Southern Ocean samples contained eight species in addition to one previously described by Timm (1978) (Maps 2–6). A high degree of endemism was observed, with seven of the eight species only occurring in the Southern Ocean. To be noted, however, is the fact that seven of the eight Southern Ocean species discovered in the study, as well as all Arctic and Atlantic species, were new to science. This suggests that the deep-sea nematode fauna in the Southern Ocean and possibly all other oceans are undersampled. The *Dichromadora* species exhibited either a very limited distribution (e.g. *D. antarctica, D. quadripapillata*; Maps 2–3) or they appeared across various locations in the Southern Ocean (e.g. *D. weddellensis, D. southernis, D. parva, D. polarsternis, D. polaris*; Maps 2–6), the latter indicating that nematode species may have wide ranges over regional scales in the deep sea. The species studied did not show any bathymetric limitations, at least for the depth range studied (1000–2000 m water depth). The results of Vermeeren *et al.* (2004) were complemented with results from Ingels *et al.* (2006) in that two *Dichromadora* species were recognised from the Scotia Arc at about 300 m water depth (*D. polaris*; Map 6), reinforcing the hypothesis that bathymetry per se does not seem to limit nematode distributions in the Southern Ocean, at least for the genus *Dichromadora*. This is perhaps not surprising considering the genus is also common in coastal areas, but species comparisons are needed with shallow-water samples to confirm this. A study conducted by De Mesel *et al.* (2006), on the other hand, showed a considerable degree of species turnover for the 55 putative *Acantholaimus* species identified in different parts of the Southern Ocean. In addition to high species turnover as a result of the restricted species distributions and their rarity, the number of congeneric species in assemblages was high, leading to high local and regional biodiversity levels for this genus. Fourteen species had a distribution extending from the shelf to the lower slope, pointing to a strong degree of eurybathy too. The occurrence of the otherwise typical deep-sea genus *Acantholaimus* in high densities and diversity on the continental shelf is a unique feature of the Southern Ocean. (De Mesel *et al.* 2006).

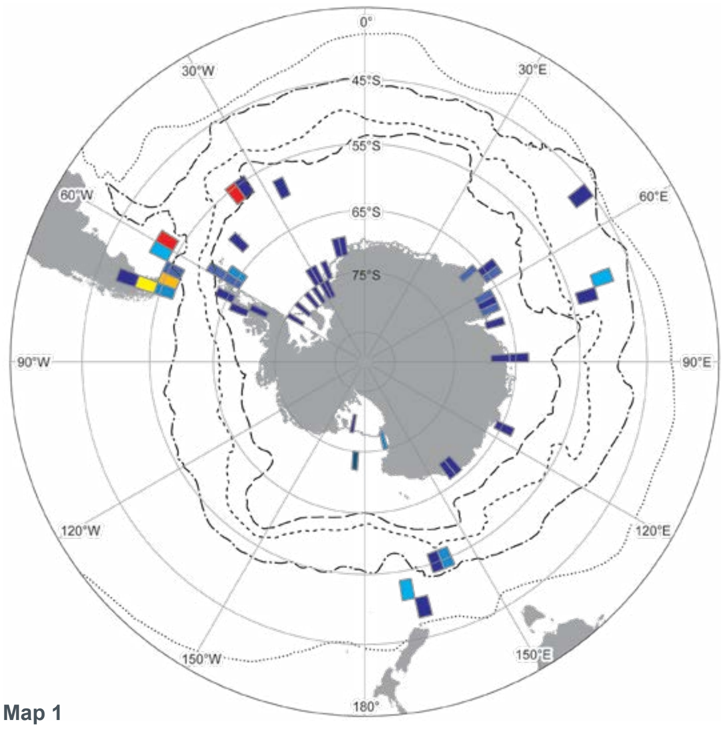
Ingels *et al.* (2006), in a biodiversity and biogeographical nematode study, focussed mainly on the genera *Desmodora* and *Desmodorella*. They found that two species, *Desmodora campbelli* and *Desmodorella* aff. *balteata* had wide geographical distributions in the Southern Ocean, while the other eight species had very limited distributions (see Maps 7–8). In contrast to Vermeeren *et al.* (2004), however, Ingels *et al.* (2006) found bathymetric restrictions for several species, indicating that shallow-water island chains such as the Scotia Arc may provide the means for species that are depth-restricted to disperse over larger geographical areas. Although the Scotia Arc islands are surrounded by deep ocean, this does not necessarily prevent strong water column currents to transport small animals between similar depth ranges of the islands’ margins. Preliminary molecular results reported in the same study suggest that certain nematode species exhibit extremely slow evolution with conservation of certain species-specific genes or that hydrodynamic processes and sediment disturbance may be behind the high rates of genetic exchange observed between species populations of distant geographic locations (Ingels *et al.* 2006). Whatever the case, some species seem geographically or bathymetrically restricted, whilst others have circum-Antarctic or eurybathic distributions. If we appreciate genus-level differences along bathymetric gradients in the Antarctic, there are indications of distinct communities at different depth zones but genera are not restricted bathymetrically (Vanhove *et al.* 2004). This means that perceived bathymetric gradients are caused by changes in relative abundance of genera rather than genus composition. Noteworthy in this context is the fact of sampling intensity; while presence observations can confirm biogeographical distributions we have to be cautious on how to interpret the absence of species — absence in a sample does not mean that the species is not present, it may merely mean that the area is undersampled.

Fonseca *et al.* (2006) studied the occurrence of species of the deep-sea genus *Molgolaimus* (Map 9) — a particularly species-rich genus in the deep sea — in different oceans and concluded that geographical rather than environmental clustering of morphologically similar species does not support the idea of a common origin of deep-sea species. In addition, the genus *Molgolaimus* seems to have many species with restricted distributions in the Southern Ocean (compared to the western Indian Ocean for instance), making *Molgolaimus* species suitable for distinguishing between biogeographical provinces in the Southern Ocean (Fonseca *et al.* 2007). Here, the authors propose that evolutionary history may have shaped nematode species composition at the ocean scale, while at local and regional scales ecological processes are promoting species co-existence and speciation (e.g. higher number of *Molgolaimus* species co-occurring at Peninsula tip and eastern Weddell Sea; see Map 9). Whether this is also the case for other nematode genera needs to be verified. Moreover, definite conclusions can’t be drawn because of the lack of insight into the true presence or absence of species in the limited quantity of samples that are available.

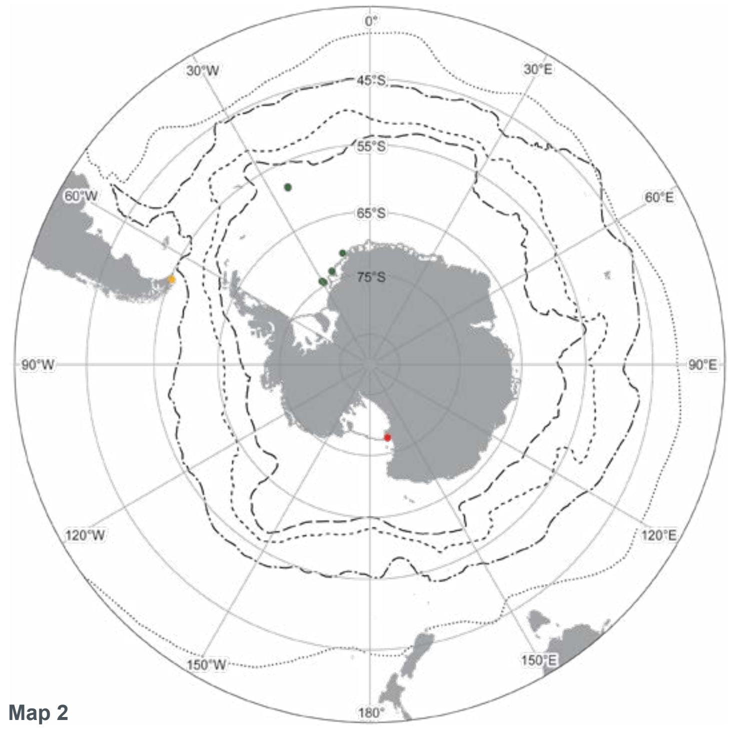
Undoubtedly, the abiotic environment has a significant impact on the community structure of shallow and deep-sea nematode communities. Various environmental factors have been shown to influence benthic nematode community structure although studies rarely involve species level information. Disturbance by physical, biological or biogeochemical processes, sediment grain size, food quantity and quality, and other trophic conditions have been evoked as regulating community structure by creating conditions that are more favourable for some nematode genera whilst unfavourable for others. Food input seems to be a major determinant in the Antarctic along with the seasonality of its availability (Sebastian *et al.* 2007, Vanhove *et al.* 1998, Vanhove *et al.* 1999, Vanhove *et al.* 2000). However, despite several ecological studies positing the link between environment and nematode community structure, the role of ecology in biogeographical ranges remains unresolved.

5. Conclusion

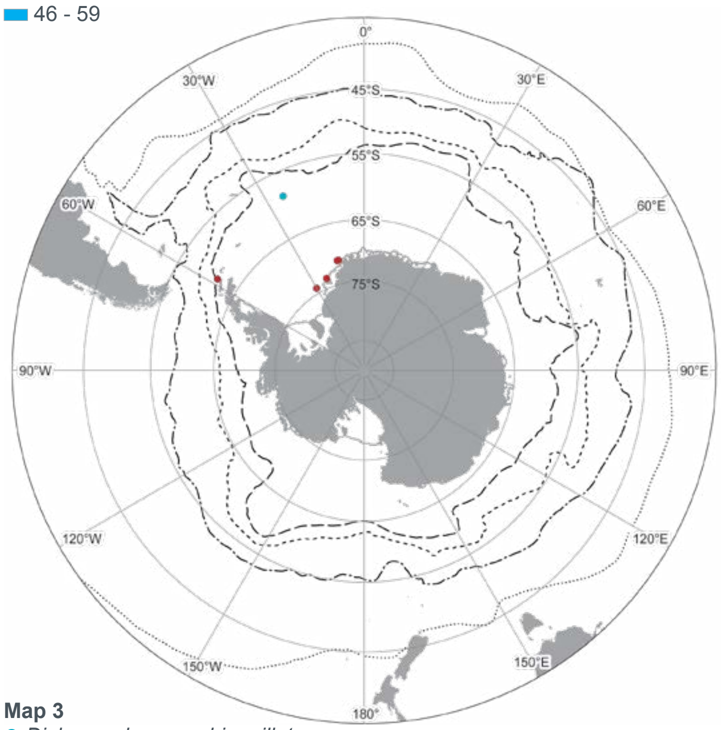
In this review, we give an overview of the scarce information available on nematode species distributions in the Southern Ocean. Due to taxonomic difficulties and the general lack of species information, biogeography of Antarctic and sub-Antarctic nematodes remains rather elusive. Based on the information we could find and verify, it seems that, indeed, some species might be limited to certain regions or depths in the Southern Ocean, while others may have circum-Antarctic and eurybathic distributions. Faunal connections between the southernmost South America and the Antarctic Peninsula are present for some taxa but remain to be verified for others. More taxonomic studies with distribution data at species level may help to overcome the problems of lack of knowledge and undersampling. The advent of molecular techniques is definitely something to welcome in the search of biogeographic patterns in Southern Ocean nematode diversity.



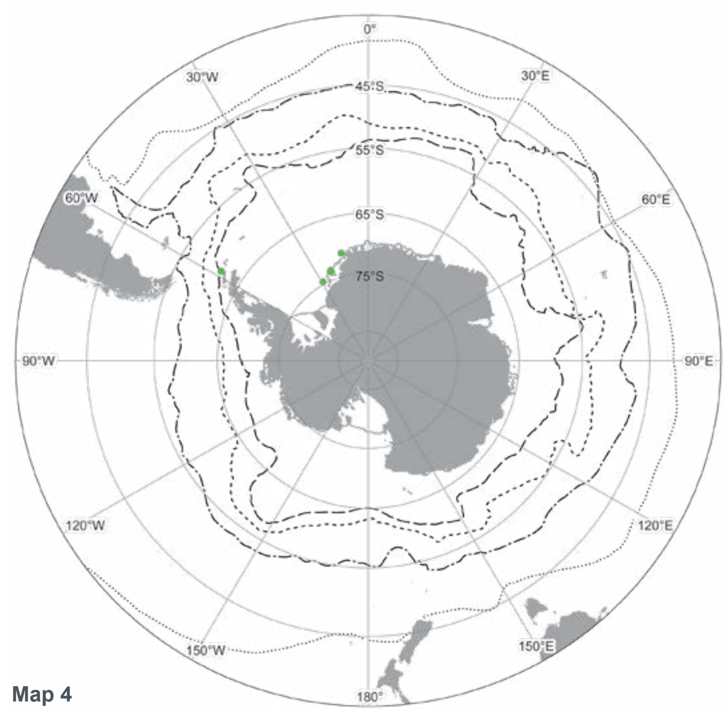
Map 1
Nematode species count per sector
- 1 - 16
- 17 - 30
- 31 - 45
- 46 - 59
- 60 - 74
- 75 - 89
- 90 - 103
- 104 - 118
- 119 - 132
- 133 - 147



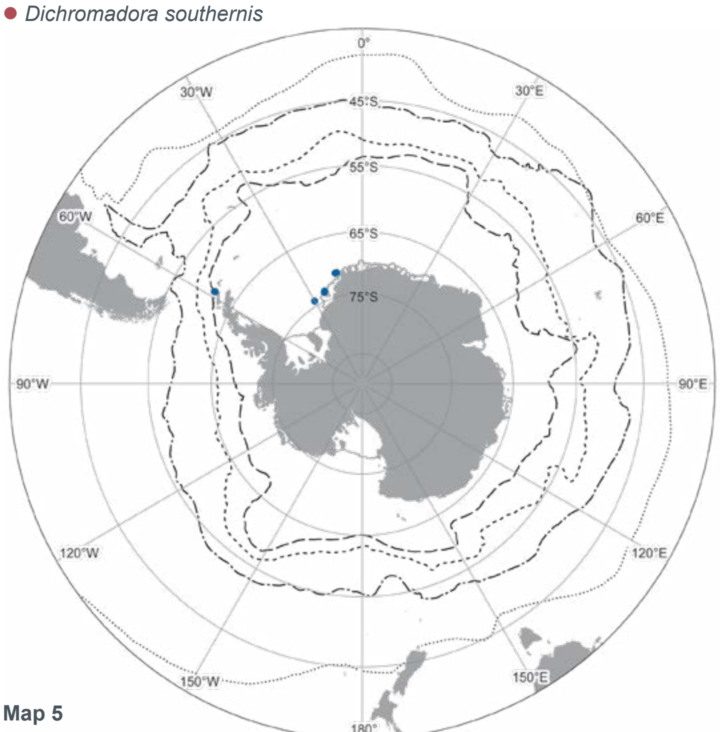
Map 2
- *Dichromadora antarctica*
- *Dichromadora dissipata*
- *Dichromadora weddellensis*



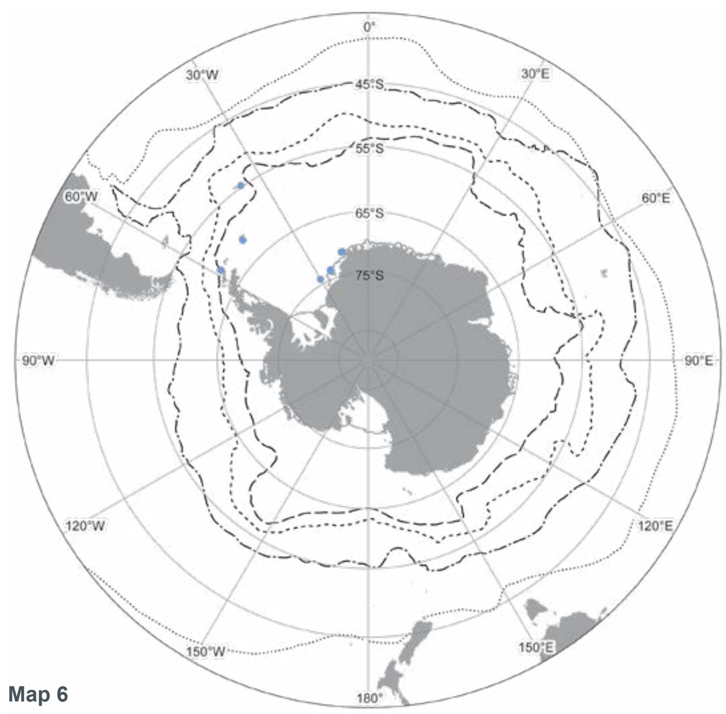
Map 3
- *Dichromadora quadripapillata*
- *Dichromadora southernis*



Map 4
- *Dichromadora parva*

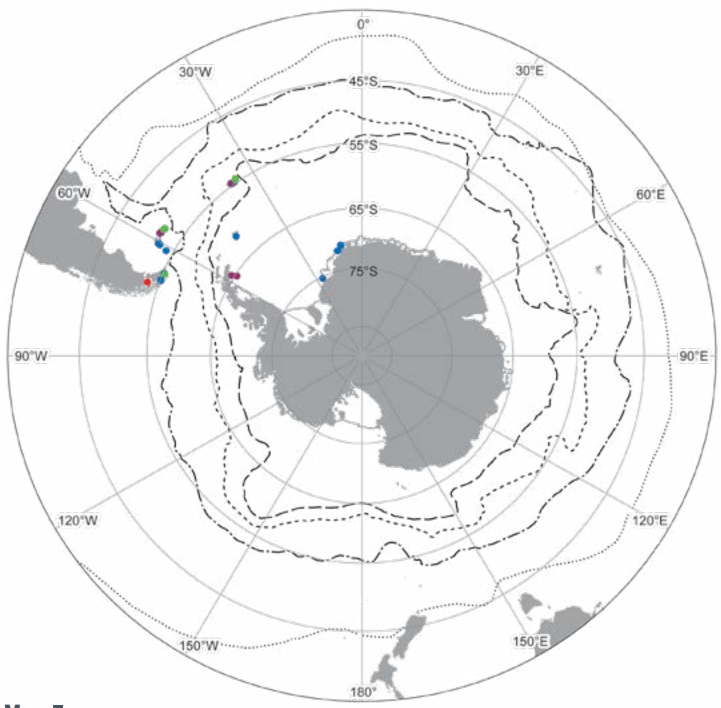


Map 5
- *Dichromadora polarsternis*

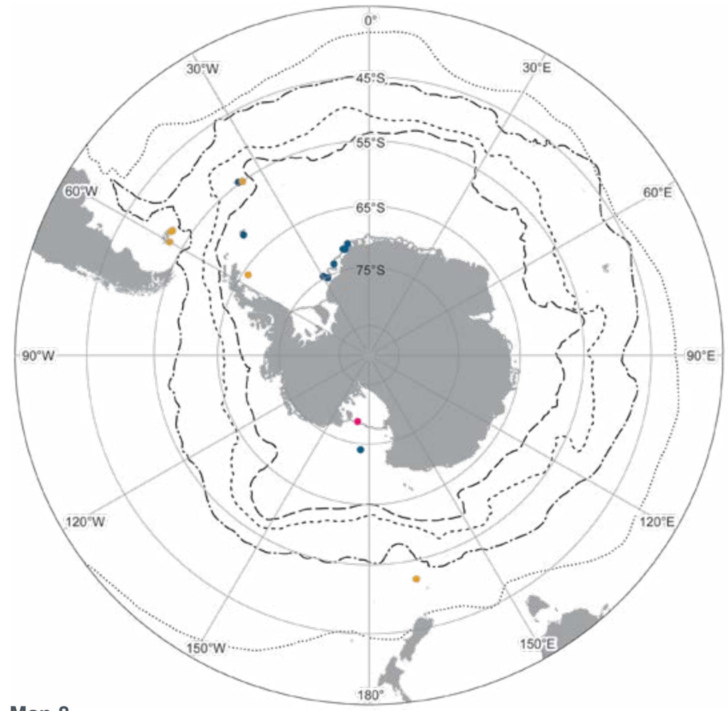


Map 6
- *Dichromadora polaris*

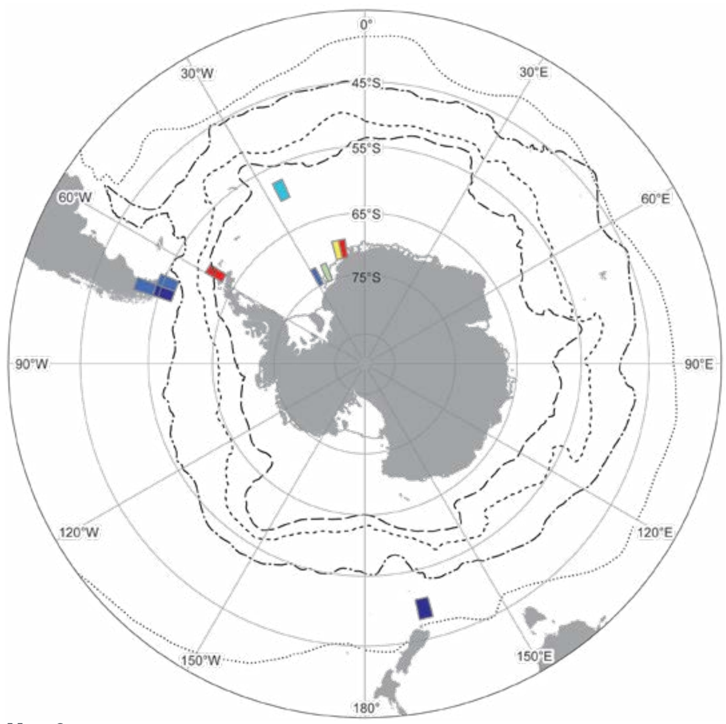
Meiobenthos: Nematoda Map 1 Antarctic and sub-Antarctic nematode species counts per sector, based on latest valid taxonomy (until 2012); all depth ranges are included (0–4000 m) and the latitudinal range extends from roughly 46°S (Crozet Islands) to 78°S (Discovery Inlet). **Maps 3–5.** Species distribution of the genus *Dichromadora* (bathymetric range 0–2285 m). Map 2. *D. antarctica* Timm, 1978 (data: Cobb 1914), *D. dissipata* Wieser, 1954 (data: Guotong 1999) and *D. weddellensis* Vermeeren *et al*., 2004 (data: Vermeeren *et al*. 2004). Map 3. *D. southernis* Vermeeren *et al*., 2004 and *D. quadripapillata* Vermeeren *et al*., 2004 (data: Vermeeren *et al*. 2004). Map 4. *D. parva* Vermeeren *et al*., 2004 (data: Vermeeren *et al*. 2004). Map 5. *D. polarsternis* Vermeeren *et al*., 2004 (data: Vermeeren *et al*. 2004). Map 6. *D. polaris* Vermeeren *et al*., 2004 (data: Vermeeren *et al*. 2004; Ingels *et al*. 2006).



Map 7
- *Desmodora campbelli*
- *Desmodora microchaeta*
- *Desmodora minuta*
- *Desmodora scaldensis*



Map 8
- *Desmodorella abyssorum*
- *Desmodorella* aff. *balteata*
- *Desmodorella tenuispiculum*



Map 9
Number of *Molgolaimus* species per sector

1	4	7
2	5	8
3	6	9

Meiobenthos: Nematoda Maps 7–9 Map 7. Species distribution of the genus *Desmodora* (data: Allgén 1959; Ingels *et al.* 2006; bathymetric range: 0–502 m). Map 8. Species distribution of the genus *Desmodorella* (data: Allgén 1959; Ingels *et al.* 2006; bathymetric range: 0–681 m). Map 4. Species distribution, expressed as number of species per sector, of the genus *Molgolaimus* (data: Ditlevsen 1921; Guotong 1999; Fonseca *et al.* 2006; bathymetric range 79–4000 m).

Acknowledgments

Dr. Huw Griffiths (BAS, Cambridge) and Dr. Anton Van de Putte (RBINS, Brussels) prepared the maps. This is CAML contribution # 101.

References

*Data source references; ** Text and data sources references.

*Allen, M.W., Noffsinger, E.M., 1978. A revision of the marine nematodes of the superfamily Draconematoidea Filipjev, 1918 (Nematoda: Draconematina). *University of California Publications in Zoology*, **109**, 1–133.

*Allgén, C.A., 1928. Neue oder wenig bekannte freilebende marine Nematoden von der schwedischen Westküste. *Zoologischer Anzeiger*, **77(11/12)**, 281–307.

*Allgén, C.A., 1928. Freilebende Nematoden von den Campbell- und Staten- inseln. *Nyt Magazin for Naturvidenskaberne*, **66**, 249–309.

*Allgén, C.A., 1929. *Einige Bemerkungen zu meiner Arbeit: Freilebende marine Nematoden von den Campbell- und Staten-Inseln*. Jönköping (Privatdruck), 2 pp.

*Allgén, C.A., 1929. Über einige antarktische freilebende marine Nematoden, *Zoologischer Anzeiger*, **84**, 126–140.

*Allgén, C.A., 1929. Über einige freilebende marine Nematoden von der Macquarieinsel. *Zoologischer Anzeiger*, **84(5/6)**, 119–126.

*Allgén, C.A., 1930. Freilebende marine Nematoden von der Stateninsel (Feuerland-Archipel). I, *Zoologischer Anzeiger*, **89(7/10)**, 246–258.

*Allgén, C.A., 1930. Freilebende marine Nematoden von der Stateninsel (Feuerland-Archipel). II, *Zoologischer Anzeiger*, **90**, 27–38.

*Allgén, C.A., 1930, Über eine neue Art des Genus *Enoplolaimus* de Man. *Enoplolaimus gracilisetosus* von der Macquarieinsel. *Zoologischer Anzeiger*, **92(7/8)**, 189–191.

*Allgén, C.A., 1932. Weitere Beiträge zur Kenntnis der marinen Nematodenfauna der Campbellinsel. *Nyt Magazin for Naturvidenskaberne*, **70**, 97–198.

*Allgén, C.A., 1946. Kleinere Notizen über freilebende Nematoden, *Kungliga Fysiografiska Sällskapets i Lund Förhandlingar*, **16(15)**, 1–13.

*Allgén, C.A., 1950. Letzter Bericht über freilebende marine Nematoden von der Campbellinsel. *Zoologischer Anzeiger*, **145**, 309–316.

*Allgén, C.A., 1952. Über einige Desmoscoleciden aus den schwedischen Südpolar-Expedition 1901 bis 1903. *Zoologischer Anzeiger*, **148(3/4)**, 94–98.

*Allgén, C.A., 1953. Die Pelagonemen der Schwedischen Südpolar-Expedition (1901–1903). *Zoologischer Anzeiger*, **151(11/12)**, 316–322.

*Allgén, C.A., 1953. Über einen Fall von Hermaphroditismus in der Gattung *Desmodora* de Man (Chromadoroidea, Nematodes). *Zoologischer Anzeiger*, **151(5/6)**, 95–98.

Allgén, C.A., 1959. Freeliving marine nematodes. In: Odhner, N.H. (ed.), *Further Zoological Results of the Swedish Antarctic Expedition 1901–1903 under the Direction of Dr. Otto Nordenskjöld, Stockholm*, **5(2), 1–293.

*Allgén, C.A., 1959. Über einige, meistens neue, freilebende marine Nematoden aus dem Feuerland-Archipel (Schwedische Südpolar-Expedition 1901–1903). *Zoologischer Anzeiger*, **163(7/8)**, 222–243.
*Allgén, C.A., 1960. Antarktische meistens neue freilebende marine Nematoden aus dem Graham-Land. *Zoologischer Anzeiger*, **164(11/12)**, 474–488.
Appeltans, W., Ahyong, S.T., Anderson, G., Angel, M.V., Artois, T., *et al.* 2012. The Magnitude of Global Marine Species Diversity. *Current Biology*, **22(23)**, 2189–2202.
Appeltans, W., Bouchet, P., Boxshall, G.A., De Broyer, C., de Voogd, N.J., Gordon, D.P., Hoeksema, B.W., Horton, T., Kennedy, M., Mees, J., Poore, G.C.B., Read, G., Stöhr, S., Walter, T.C., Costello, M.J., (eds.), 2012. World Register of Marine Species. http://www.marinespecies.org [accessed on 2013-08-07].
*Baylis, H.A., 1916. Some Nemertinea, free-living Nematoda and *Oligochaeta* from the Falklands. *Annals and Magazine of Natural History*, Ser. 8, **17**, 288–298.
Bezerra, T.N., Pape, E., Hauquier, F., Vanreusel, A., Ingels, J., 2013. New genus and two new species of the family Ethmolaimidae (Nematoda: Chromadorida), found in two different cold-seep environments. *Zootaxa*, **3692(1)**, 7–27. http://dx.doi.org/10.11646/zootaxa.3692.1.4.
Bik, H., Thomas, W.K., Lunt, D., Lambshead, P.J., 2010. Low endemism, continued deep-shallow interchanges, and evidence for cosmopolitan distributions in free-living marine nematodes (order Enoplida). *BMC Evolutionary Biology*, **10(1)**, 389.
*Blome, D., Schrage, M., 1985. Freilebende Nematodes aus der Antarktis. *Veröffentlichungen des Instituts für Meeresforschung in Bremerhaven*, **21**, 71–96.
Boeckner, M., Sharma, J., Proctor, H., 2009. Revisiting the meiofauna paradox: dispersal and colonization of nematodes and other meiofaunal organisms in low- and high-energy environments. *Hydrobiologia*, **624(1)**, 91–106.
Bongers, T., Ferris, H., 1999. Nematode community structure as a bioindicator in environmental monitoring. *Trends in Ecology and Evolution*, **14(6)**, 224–228.
Borgonie, G., Garcia-Moyano, A., Litthauer, D., Bert, W., Bester, A., van Heerden, E., Moller, C., Erasmus, M., Onstott, T.C., 2011. Nematoda from the terrestrial deep subsurface of South Africa. *Nature*, **474(7349)**, 79–82.
Chan, M.S., 1997. The global burden of intestinal nematode infections - fifty years on. *Parasitology Today*, **13(11)**, 438–443.
Chitwood, D.J., 2003. Research on plant-parasitic nematode biology conducted by the United States Department of Agriculture - *Agricultural Research Service*. *Pest Management Science*, **59**, 748–753.
*Cobb, N.A., 1914. Antarctic marine free-living nematodes of the Shackleton expedition. *Contributions to a Science of Nematology*, **1**, 1–33.
*Cobb, N.A., 1930. Marine free-living nemas. *Scientific Reports Australasian Antarctic Expedition (1911–1914), Serie C: Zoology and Botany*, **6(7)**, 1–28.
*Coomans, A.V., Raski, D.J., 1991. Observations on *Paraplectonema* Strand, 1934 and description of *Leptoplectonema fuegoensei* n.g., n.sp. (Nematoda: Leptolaimidae). *Revue de Nématologie*, **14(2)**, 197–205.
Danovaro, R., 2012. Extending the approaches of biodiversity and ecosystem functioning to the deep ocean. In: Solan, M., Aspden, R.J., Paterson, D.M. (eds.), *Marine Biodiversity and Ecosystem Functioning: Frameworks, methodologies, and integration.* Oxford: Oxford University Press, pp. 115–126.
Danovaro, R., Gambi, C., Dell'Anno, A., Corinaidesi, C., Fraschetti, S., Vanreusel, A., Vincx, M., Gooday, A.J., 2008. Exponential decline of deep-sea ecosystem functioning linked to benthic biodiversity loss. *Current Biology*, **18(1)**, 1–8.
*de Bovée, F., 1977. Nématodes interstitiels des îles Kerguelen (Terres Australes et Antarctiques Françaises). *CNFRA*, **42**, 295–303.
*Decraemer, W., 1976. The cuticular structure in *Desmoscolex* with description of *D. spinosus* sp.n. and redescription of *D. michaelseni* Steiner, 1916 (Nematoda: Desmoscolecida), *Biologisch Jaarboek Dodonaea*, **44**, 123–134.
*Decraemer, W., 1991. Revision of *Epsilonema* species from Antarctica described by Steiner (1931) (Nemata). *Nematologica*, **37**, 20–37
*Decraemer, W., Noffsinger E.M., 1992. Revision of *Bathyepsilonema* species from Antarctica described by Steiner (1931) (Nemata: Epsilonematidae). *Bulletin van het Koninklijk Belgisch Instituut voor Natuurwetenschappen / Bulletin de l'Institut Royal des Sciences Naturelles de Belgique, Biologie*, **62**, 35–52.
*De Ley, P., Decraemer, W., Eyualem, A., 2006. Introduction: summary of present knowledge and research addressing the ecology and taxonomy of freshwater nematodes. In: Eyualem A., Andrassy, I. & Traunspurger (Editors). Freshwater Nematodes: Taxonomy and ecology. CABI, U.K., pp. 3–30.
*de Man, J. G., 1904. Nématodes libres, (Expédition Antarctique Belge). *Résultats du Voyage S. Y. Belgica*, 1–51.
De Mesel, I., Lee, H.J., Vanhove, S., Vincx, M., Vanreusel, A., 2006. Species diversity and distribution within the deep-sea nematode genus *Acantholaimus* on the continental shelf and slope in Antarctica. *Polar Biology,* **29(10)**, 860–871.
Deprez, T., Steyaert, M., Vanaverbeke, J., Speybroeck, J., Raes, M., Derycke, S., De Smet, G., Ingels, J., Vanreusel, A., Van Gaever, S., Vincx, M., 2005. NeMys. World Wide Web electronic publication. nemys.ugent.be. Department of Marine Biology, Ghent University.
*Ditlevsen, H., 1921. Papers from Dr. Th. Mortensen's Pacific Expedition 1914–16. III. Marine free-living Nematodes from the Auckland and Campbell Islands. *Videnskabelige Meddelelser fra Dansk Naturhistorisk Forening i Kjøbenhavn*, **73**, 1–32.
Fonseca, G., Vanreusel, A., Decraemer, W., 2006. Taxonomy and biogeography of *Molgolaimus* Ditlevsen, 1921 (Nematoda : Chromadoria) with reference to the origins of deep sea nematodes. *Antarctic Science*, **18(1), 23–50.
Fonseca, G., Muthumbi, A.W., Vanreusel, A., 2007. Species richness of the genus *Molgolaimus* (Nematoda) from local to ocean scale along continental slopes. *Marine Ecology,* **28(4)**, 446–459. doi:10.1111/j.1439-0485.2007.00202.x.
Fonseca, V.G., Carvalho, G.R., Sung, W., Johnson, H.F., Power, D.M., Neill, S.P., Packer, M., Blaxter, M.L., Lambshead, P.J.D., Thomas, W.K., Creer, S., 2010. Second-generation environmental sequencing unmasks marine metazoan biodiversity. *Nature Communication*, **1(7)**, 98.
*Gerlach, S.A., 1950. Die Diplopeltiden, eine Gruppe freilebender Nematoden, *Kieler Meeresforschungen*, **7**, 138–156.
Gerlach, S.A., Riemann, F., 1973. The Bremerhaven Checklist of Aquatic Nematodes. A Catalogue of Nematoda Adenophorea excluding the Dorylaimida. *Veröffentlichungen des Instituts für Meeresforschung in Bremerhaven,* Supplement **4(1 & 2), 1–736.
*Guotong, C. 1999. Ecology and systematics of the meiofauna and nematode communities in the Strait of Magellan and the Beagle Channel (Chile). PhD thesis, Department of Marine Biology, Ghent University, 315 pp.
Heip, C., Vincx, M., Smol, N., Vranken, G., 1982. The systematics and ecology of free-living marine nematodes. *Helminthological Abstracts Series B, Plant Nematology*, **51(1)**, 1–31.
*Hope, W. D., 1974. *Deontostoma timmerchioi* n. sp., a new marine nematode (Leptosomatidae) from Antarctica, with a note on the structure and possible function of the ventromedian supplement. *Transactions of the American Microscopical Society*, **93(3)**, 314–324.
*Hopper, B.E., 1969. Marine nematodes of Canada. II. Marine nematodes from the Minas Basin – Scots Bay area of the Bay of Fundy, Nova Scotia. *Canadian Journal of Zoology*, **47(4)**, 671–690.
Ingels, J., Vanhove, S., De Mesel, I., Vanreusel, A., 2006. The biodiversity and biogeography of the free-living nematode genera *Desmodora* and *Desmodorella* (family Desmodoridae) at both sides of the Scotia Arc, *Polar Biology*, **29, 936–949.
*Inglis, W.G., 1958. A new species of the nematode genus *Thoracostoma* from the Antarctic. *Annals and Magazine of Natural History*, Ser. 13, **1**, 45–48.
Lambshead, P.J.D., 1993. Recent developments in marine benthic biodiversity research. *Oceanis,* **19(6)**, 5–24.
*Lorenzen, S., 1986. *Chromadorita ceratoserolis* sp. n. (Chromadoridae), a free-living marine nematode epibiotically on the Isopod *Ceratoserolis trilobitoides* from Antarctica. *Polar Biology*, **6**, 247–250.
*Mawson, P.M., 1956. Free-living nematodes. Section I: Enoploidea from Antarctic stations. *B.A.N.Z. Antarctic Research Expedition Reports*, Ser. B, **6(3)**, 37–74.
*Mawson, P.M., 1958. Free-living nematodes. Section 2: additional Enoploidea from Antarctic stations. *B.A.N.Z. Antarctic Research Expedition Reports*, Ser. B, **6(13)**, 291–306.
*Mawson, P.M., 1958. Free-living nematodes. Section 3: Enoploidea from subantarctic stations. *B.A.N.Z. Antarctic Research Expedition Reports*, Ser. B, **6(14)**, 307–358.
Miljutin, D., Gad, G., Miljutina, M., Mokievsky, V., Fonseca-Genevois, V., Esteves, A., 2010. The state of knowledge on deep-sea nematode taxonomy: how many valid species are known down there? *Marine Biodiversity*, **40(3)**, 143–159.
Moens, T., Vincx, M., 1997. Observations on the feeding ecology of estuarine nematodes. *Journal of the Marine Biological Association of the United Kingdom*, **77(1)**, 211–227.
Mokievsky, V., Azovsky, A., 2002. Re-evaluation of species diversity patterns of free-living marine nematodes. *Marine Ecology-Progress Series*, **238**, 101–108.
*Platonova, T.A., 1958. The nematode fauna of the family Leptosomatidae from the region of Kerguelen Island. *Information Bulletin of the Soviet Antarctic Expedition 1955–58*, (English Translation Elsevier, Amsterdam, 1964), **1**, 131–133**.**
*Platonova, T.A., 1968. Marine freeliving Nematodes of the family Leptosomatidae from Kerguelen Island, Resultaty biologitscheskich issledovanij sowjetskoj antarktitscheskoj expeditzii 1955–1958. *Issledowanija fauny morej*, **6(14)**, 5–24.
*Platonova, T.A., Belogurov, O.I., Sheenko, P.S., 1979. The nematodes *Anticoma pushkini* n. sp. and *A. columba* Wieser from the inshore waters of Kerguelen Island (Translated from Russian). *Biologiya Morya, Vladivostok*, **2**, 34–40.
*Platt, H.M., 1983. The freeliving marine nematode genus *Sabatieria* (Nematoda: Comesomatidae). I. Two new species from Stonington Island, Antarctica. *Bulletin of the British Museum (Natural History)*, *Zoology*, **45(5)**, 239–252.
*Raes, M., Vanreusel, A., Decraemer, W., 2003. Epsilonematidae (Nematoda) from a cold-water coral environment in the Porcupine Seabight, with a discussion on the status of the genus *Metaglochinema* Gourbault & Decraemer, 1986. *Hydrobiologia*, **505**, 49–72.
*Schuurmans Stekhoven, J.H., Mawson, P.M., 1955. On some free-living marine nematodes from Kerguelen Island. *Journal of Helminthology*, **29(1–2)**, 87–104.
Sebastian, S., Raes, M., De Mesel, I., Vanreusel, A., 2007. Comparison of the nematode fauna from the Weddell Sea Abyssal Plain with two North Atlantic abyssal sites. *Deep-Sea Research Part II: Topical Studies in Oceanography*, **54(16–17)***,* 1727–1736.
Snelgrove, P.V.R., 1999. Getting to the bottom of marine biodiversity: Sedimentary habitats - Ocean bottoms are the most widespread habitat on Earth and support high biodiversity and key ecosystem services. *Bioscience*, **49(2)**, 129–138.
*Steiner, G., 1921. Beiträge zur Kenntnis mariner Nematoden. *Zoologische Jahrbücher. Abteilung für Systematik, Geographie und Biologie der Tiere*, **44(1–2)**, 1–68.
*Steiner, G., 1931. Die Nematoden der Deutschen Südpolar-Expedition 1901–1903. *I. Teil. Deutsche Südpolar-Expedition*, **20**, 167–216.
*Steiner, G., 1931. Die Nematoden der Deutschen Südpolar-Expedition 1901–1903. *II. Teil. Deutsche Südpolar-Expedition*, **20**, 305–433.
*Timm, R.W., 1978. Marine nematodes of the order Desmoscolecida from McMurdo Sound, Antarctica. *Biology of the Antarctic Seas VI - Antarctic Research Series*, **26**, 225–236.
*Timm, R.W., 1978. Redescription of the marine nematodes of Shackleton's British Antarctic Expedition of 1907–1909. American Geophysical Union. *Antarctic Research Series*, **26(6)**, 237–255.
Timm, R.W., 1978. Redescription of the marine nematodes of Shackleton's British Antarctic expedition of 1907–1909. American Geophysical Union. *Antarctic Research Series,* **26(6)**, 237–255.
Timm, R.W., Viglierchio, D.R., 1970. Studies of Antarctic Nematodes. *Antarctic Journal of the United States*, **5(4), 135.
Vanhove, S., Arntz, W., Vincx, M., 1999. Comparative study of the nematode communities on the southeastern Weddell Sea shelf and slope (Antarctica). *Marine Ecology - Progress Series*, **181**, 237–256.
Vanhove, S., Beghyn, M., Van Gansbeke, D., Bullough, L.W., Vincx, M., 2000. A seasonally varying biotope at Signy Island, Antarctic: implications for meiofaunal structure. *Marine Ecology - Progress Series*, **202**, 13–25.
Vanhove, S., Lee, H.J., Beghyn, M., Van Gansbeke, D., Brockington, S., Vincx, M., 1998. The metazoan meiofauna in its biogeochemical environment: The case of an Antarctic coastal sediment. *Journal of the Marine Biological Association of the United Kingdom*, **78(2)**, 411–434.
Vanhove, S., Vermeeren, H., Vanreusel, A., 2004. Meiofauna towards the South Sandwich Trench (750–6300m), focus on nematodes. *Deep-Sea Research Part II: Topical Studies in Oceanography*, **51(14–16)**, 1665–1687.
Vermeeren, H., Vanreusel, A., Vanhove, S., 2004. Species distribution within the free-living marine nematode genus *Dichromadora* in the Weddell Sea and adjacent areas. *Deep-Sea Research Part II: Topical Studies in Oceanography*, **51(14–16), 1643–1664.
von Linstow, O., 1891. Helminthen aus Süd-Georgien. Nach der Ausbeute der Deutschen Station von 1882–1883. *Jahrbuch der Hamburgischen Wissenschaftlichen Anstalten*, **9(2)**, 59–77.
Wharton, D.A., 2003. The environmental physiology of Antarctic terrestrial nematodes: a review. *Journal of Comparative Physiology B: Biochemical, Systemic, and Environmental Physiology*, **173(8)**, 621–628.
*Wieser, W., 1953. Free-living marine nematodes I. Enoploidea. *Lunds Universitets Arsskrift*., N. F.*,* **2**, **49**, 6.
*Wieser, W., 1954. Free-living marine nematodes II. Chromadoroidea. *Acta Universitates Lundensis*, N. F., **2**, **50(16)**,148.
*Wieser, W., 1956. Free-living marine nematodes III. Axonolaimoidea and Monhysteroidea. *Acta Universitates Lundensis*, N. F., **2**, **52(13)**, 1–115.
*WoRMS Editorial Board (2013). World Register of Marine Species. Available from http://www.marinespecies.org at VLIZ. Accessed 2013-11-22. *WoRMS Editorial Board (2013). World Register of Marine Species. Available from http://www.marinespecies.org at VLIZ. Accessed 2013-11-22.
Xu, Y.M., Zhao, Z.Q., Wang, J.M., 2013. An index to new genera and species of Nematoda in Zootaxa from 2007 to 2012. *Zootaxa*, **3646(2)**, 160–170.

► Appendix 1 at the end of volume

Appendix 1: Nematoda (Chap. 5.3)

Table 1 Phylogenetic species list of (sub-)Antarctic marine free-living Nematoda

PHYLUM NEMATODA Potts, 1932
Class ENOPLEA Inglis, 1983
Subclass ENOPLIA Pearse, 1942
Order Enoplida Filipjev, 1929
Suborder Enoplina Chitwood & Chitwood, 1937
Family Enoplidae Dujardin, 1845
Enoplus heardensis Mawson, 1958
Enoplus michaelseni Linstow, 1896
Enoplus micrognathus Allgén, 1947
Enoplus paralittoralis Wieser, 1953

Family Thoracostomopsidae Filipjev, 1927
Enoplolaimus acanthospiculum Allgén, 1959
Enoplolaimus arcospiculum Allgén, 1959
Enoplolaimus falklandiae Allgén, 1959
Enoplolaimus filiformis (Allgén, 1935)
Enoplolaimus niger Allgén, 1959
Enoplolaimus notopropinquus Allgén, 1959
Enoplolaimus opacus Allgén, 1959
Enoplolaimus propinquus de Man, 1922
Enoplolaimus vulgaris (de Man, 1893)
Epacanthion brevispiculosum Mawson, 1958
Epacanthion brevispiculum Mawson, 1956
Epacanthion filicaudatum Mawson, 1956
Fenestrolaimus antarcticus Mawson, 1956
Mesacanthion brachycolle Allgén, 1959
Mesacanthion infantile (Ditlevsen, 1930)
Mesacanthion kerguelense Mawson, 1958
Mesacanthion pacificum Allgén, 1947
Mesacanthion virile (Ditlevsen, 1930)
Mesacanthoides caputmedusae (Ditlevsen, 1918)
Mesacanthoides latignathus (Ditlevsen, 1918)
Metenoploides alatus Wieser, 1953
Oxyonchus australis (de Man, 1904) Mawson, 1956
Oxyonchus brachysetosus Allgén, 1959
Oxyonchus crassicollis Allgén, 1959
Oxyonchus dentatus (Ditlevsen, 1918) Filipjev, 1927
Oxyonchus macrodon Allgén, 1959
Oxyonchus notodentatus Allgén, 1959
Oxyonchus parastateni Allgén, 1959
Oxyonchus stateni (Allgén, 1930)
Oxyonchus subantarcticus Mawson, 1958
Paramesacanthion allgeni Mawson, 1958
Paramesacanthion estridium Wieser, 1953
Paramesacanthion oxycephalum (Ditlevsen, 1926)
Paramesacanthion tricuspis (Schuurmans Stekhoven, 1950)

Family Anoplostomatidae Gerlach & Riemann, 1974
Anoplostoma campbelli Allgén, 1932
Anoplostoma tenuisetum Allgén, 1959
Chaetonema amphora Wieser, 1953
Chaetonema steineri (Filipjev, 1927)

Family Phanodermatidae Filipjev, 1927
Klugea longiseta Mawson, 1956
Klugea truncata Mawson, 1956
Micoletzkyia anomala Wieser, 1953
Micoletzkyia austrogeorgiae Allgén, 1954
Micoletzkyia falklandiae Allgén, 1954
Micoletzkyia nudicapitata Allgén, 1959
Phanoderma banzare Mawson, 1956
Phanoderma campbelli Allgén, 1927
Phanoderma cocksi Bastian, 1865
Phanoderma laticolle (Marion, 1870)
Phanoderma paracampbelli Allgén, 1958
Phanoderma parasiticum Ditlevsen, 1926
Phanoderma speculum Schuurmans Stekhoven & Mawson, 1955
Phanoderma tuberculatum (Eberth, 1863) Bastian, 1865
Phanoderma wieseri Mawson, 1956
Phanodermopsis ingrami Mawson, 1958

Family Anticomidae Filipjev, 1918
Anticoma acuminata (Eberth, 1863) Stekhoven, 1950
Anticoma allgeni Platonova, 1968
Anticoma campbelli Allgén, 1932
Anticoma columba Wieser, 1953
Anticoma curticauda Platonova, 1968
Anticoma filicauda Mawson, 1956
Anticoma graciliceps Platonova, 1968
Anticoma kerguelensis Mawson, 1958
Anticoma longissima Allgén, 1958
Anticoma major Mawson, 1956
Anticoma pellucida Bastian, 1865
Anticoma pushkini Platonova, Belogurov & Sheenko, 1979
Anticoma subsimilis Cobb, 1914
Anticoma tenuis Allgén, 1930
Anticoma trichura Cobb, 1898
Anticoma wieseri Mawson, 1958
Anticomopsis typica Micoletzky, 1930
Antopus serialis (Baylis, 1916)
Paranticoma antarctica Mawson, 1956
Paranticoma odhneri Allgén, 1959
Paranticoma tubuliphora Wieser, 1953

Suborder Trefusiina Siddiqi, 1983
Family Simpliconematidae Blome & Schrage, 1985
Simpliconema aenigmatodes Blome & Schrage, 1985

Family Trefusiidae Gerlach, 1966
Trefusia axonolaimoides Allgén, 1953

Family Xenellidae De Coninck, 1965
Xennella filicaudata (Allgén, 1954)

Suborder Oncholaimina De Coninck, 1965
Family Oncholaimidae Filipjev, 1916
Adoncholaimus austrogeorgiae Allgén, 1959
Adoncholaimus crassicaudus Wieser, 1953
Adoncholaimus falklandiae Allgén, 1959
Adoncholaimus thalassophygas (de Man, 1876)
Curvolaimus decipiens Wieser, 1953
Metaparoncholaimus macrouraios Mawson, 1958
Metoncholaimoides squalus Wieser, 1953
Metoncholaimus antarcticus (Linstow, 1896)
Oncholaimellus carlbergi Allgén, 1947
Oncholaimus dujardinii de Man, 1876
Oncholaimus leptos Mawson, 1958
Oncholaimus longissimus Allgén, 1959
Oncholaimus notolangrunensis Allgén, 1959
Oncholaimus notoviridis Allgén, 1958
Oncholaimus notoxyuris Allgén, 1959
Oncholaimus paradujardini Allgén, 1959
Oncholaimus paraegypticus Mawson, 1956
Oncholaimus paralangrunensis (Allgén, 1947)
Oncholaimus paredron Mawson, 1958
Oncholaimus rotundicaudatus Allgén, 1959
Oncholaimus thysanouraios (Mawson, 1958)
Oncholaimus viridis (Bastian, 1865)
Pelagonema longicaudum (Allgén, 1953)
Pelagonema obtusicauda Filipjev, 1918
Pelagonema tenue (Kreis, 1928)
Pontonema cobbi Mawson, 1956
Pontonema leidyi Mawson, 1956
Pontonema propinquum (Allgén, 1930)
Pontonema serratodentatum Mawson, 1956
Viscosia antarctica Allgén, 1959
Viscosia brachydonta Allgén, 1959
Viscosia brevicaudata Mawson, 1958
Viscosia brevilaima Allgén, 1959
Viscosia carnleyensis (Ditlevsen, 1921)
Viscosia cryptodentata Allgén, 1959
Viscosia falklandiae Allgén, 1959
Viscosia glabra (Bastian, 1865) de Man, 1890
Viscosia graham Allgén, 1959
Viscosia langrunensis (de Man, 1890)
Viscosia parafalklandiae Allgén, 1959
Viscosia parapellucida (Cobb, 1898)
Viscosia propinqua Allgén, 1959
Viscosia similis Allgén, 1959
Viscosia subantarctica Allgén, 1959
Viscosia tenuilaima Allgén, 1959
Viscosia tenuissima Allgén, 1959
Viscosia viscosa (Bastian, 1865) de Man, 1890
Viscosia wieseri Mawson, 1958

Family Enchelidiidae Filipjev, 1918
Calyptronema axonolaimoides Allgén, 1959
Calyptronema mawsoni Mawson, 1958
Calyptronema retrocellatum (Wieser, 1953)
Catalaimus maxweberi (de Man, 1922)
Ditlevsenella tertia Wieser, 1953
Enchelidium filicolle Allgén, 1959
Eurystomina fenestella Wieser, 1953
Eurystomina filicaudatum (Allgén, 1959)
Eurystomina ornata (Eberth, 1863)
Eurystomina stenolaima (Ditlevsen, 1930)
Eurystomina tenuicaudata Allgén, 1932
Ledovitia fallae Mawson, 1958
Polygastrophora hexabulba (Filipjev, 1918)
Polygastrophora octobulba Micoletzky, 1930
Symplocostoma tenuicolle (Eberth, 1863)

Suborder Ironina Siddiqi, 1983
Family Ironidae de Man, 1876
Dolicholaimus marioni (de Man, 1888)
Syringolaimus striatocaudatus de Man, 1888
Thalassironus bipartitus Wieser, 1953

Family Leptosomatidae Filipjev, 1916
Deontostoma antarcticum (Linstow, 1892)
Deontostoma arcticum (Ssaweljev, 1912)
Deontostoma aucklandiae (Ditlevsen, 1921)
Deontostoma demani (Mawson, 1956)
Deontostoma timmerchioi Hope, 1974
Leptosomatides antarcticus Mawson, 1956
Leptosomatides conisetosus Schuurmans Stekhoven & Mawson, 1955
Leptosomatum arcticum Filipjev, 1916
Leptosomatum clavatum Platonova, 1958
Leptosomatum crassicutis Platonova, 1958
Leptosomatum gracile Bastian, 1865
Leptosomatum kerguelense Platonova, 1958
Leptosomatum sabangense Steiner, 1915
Paraleptosomatides elongatus Mawson, 1956
Paraleptosomatides spiralis Mawson, 1956
Platycomopsis dimorphica Mawson, 1956
Platycomopsis paracobbi Mawson, 1956
Pseudocella brachychaites Mawson, 1958
Pseudocella elegans (Ditlevsen, 1926)
Pseudocella panamaensis (Allgén, 1947)
Pseudocella polychaites (Mawson, 1958)
Pseudocella tabarini (Inglis, 1958)
Pseudocella trichodes (Leuckart, 1849)
Synonchus fasciculatus Cobb, 1893
Thoracostoma angustifissulatum Mawson, 1956
Thoracostoma anocellatum Schuurmans Stekhoven & Mawson, 1954
Thoracostoma arcticum Ssaveljev, 1912
Thoracostoma campbelli Ditlevsen, 1921
Thoracostoma chilense (Steiner, 1921)
Thoracostoma coronatum (Eberth, 1863) Marion, 1870
Thoracostoma falklandiae Allgén, 1959
Thoracostoma microfenestratum Allgén, 1959
Thoracostoma papillosum Ditlevsen, 1921
Thoracostoma parasetosum Mawson, 1958
Thoracostoma schizoepistylium Mawson, 1958
Thoracostoma setosum (Linstow, 1896)
Thoracostoma unifenestratum Allgén, 1959

Family Oxystominidae Chitwood, 1935
Halalaimus brachyaulax Mawson, 1958
Halalaimus ciliocaudatus Allgén, 1932
Halalaimus comatus Wieser, 1953
Halalaimus diacros Mawson, 1958
Halalaimus filicaudatus Allgén, 1959
Halalaimus fletcheri Mawson, 1958
Halalaimus gracilis de Man, 1888
Halalaimus longicollis Allgén, 1932
Halalaimus macquariensis Mawson, 1958
Halalaimus marri Mawson, 1958
Nemanema brachyure Allgén, 1959
Nemanema campbelli Allgén, 1932
Nemanema cylindraticaudatum de Man, 1922
Nemanema obtusicauda (Allgén, 1959)
Oxystomina antarctica Mawson, 1956
Oxystomina elongata Bütschli, 1874
Oxystomina filicaudata Allgén, 1959
Oxystomina greenpatchi Allgén, 1959
Oxystomina mirabilis Allgén, 1959
Oxystomina oxycaudata (Ditlevsen, 1926)
Oxystomina pulchella Vitiello, 1970
Oxystomina tenuicollis Allgén, 1959
Oxystomina vespertilio Wieser, 1953
Thalassoalaimus spissus (Allgén, 1932)

Suborder Tripyloidina De Coninck, 1965
Family Tripyloididae Filipjev, 1918
Bathylaimus australis Cobb, 1894
Bathylaimus austrogeorgiae Allgén, 1959
Paratripyloides viviparus (Cobb, 1930) Wieser, 1956

Order Triplonchida Cobb, 1920
Suborder Tobrilina Tsalolikhin, 1976
Family Rhabdodemaniidae Filipjev, 1934
Rhabdodemania calycolaimus Schuurmans Stekhoven & Mawson, 1955
Rhabdodemania minor (Southern, 1914)

Family Pandolaimidae Belogurov, 1980
Pandolaimus latilaimus (Allgén, 1929)

Subclass DORYLAIMIA Inglis, 1983
Order Mononchida Jairajpuri, 1969
Suborder Mononchina Kirjanova & Krall, 1969
Family Mononchidae Chitwood, 1937
Mononchus gerlachei (de Man, 1904)

Class CHROMADOREA
Subclass CHROMADORIA
Order Chromadorida Chitwood, 1933
Suborder Chromadorina Filipjev, 1929
Family Chromadoridae Filipjev, 1917
Acantholaimus quintus Gerlach, Schrage & Riemann, 1979
Actinonema longicaudatum (Steiner, 1918)
Actinonema pachydermatum Cobb, 1920
Atrochromadora microlaima (de Man, 1889)
Atrochromadora parva (de Man, 1893) Wieser, 1954
Chromadora nudicapitata (Bastian, 1865)
Chromadorella cobbiana Johnston, 1938
Chromadorella filiformis (Bastian, 1865)
Chromadorita brachypharynx (Allgén, 1932)
Chromadorita ceratoserolis Lorenzen, 1986
Chromadorita gracilis (Filipjev, 1922)
Chromadorita minor (Allgén, 1927) Wieser, 1954
Chromadorita mucrodonta (Steiner, 1916)
Chromadorita pharetra Ott, 1972
Dichromadora antarctica (Cobb, 1914) Timm, 1978
Dichromadora dissipata Wieser, 1954
Dichromadora parva Vermeeren, Vanreusel & Vanhove, 2004
Dichromadora polaris Vermeeren, Vanreusel & Vanhove, 2004
Dichromadora polarsternis Vermeeren, Vanreusel & Vanhove, 2004
Dichromadora quadripapillata Muthumbi & Vincx, 1998
Dichromadora southernis Vermeeren, Vanreusel & Vanhove, 2004
Dichromadora weddellensis Vermeeren, Vanreusel & Vanhove, 2004
Euchromadora amokurae (Ditlevsen, 1921)
Euchromadora denticulata (sp incertae sedis) Cobb, 1914
Euchromadora meridiana (sp incertae sedis) Cobb, 1914
Euchromadora vulgaris (Bastian, 1865)
Graphonema amokurae (Ditlevsen, 1921) Inglis, 1971
Neochromadora aberrans Cobb, 1930
Neochromadora complexa Gerlach, 1953
Neochromadora craspedota (Steiner, 1916)
Neochromadora edentata (Cobb, 1914)
Neochromadora notocraspedota Allgén, 1958
Neochromadora poecilosoma (de Man, 1893) Micoletzky, 1926
Prochromadorella antarctica (Cobb, 1914)
Prochromadorella conicaudata (Allgén, 1927) Wieser, 1954
Prochromadorella paramucrodonta (Allgén, 1929) Wieser, 1951
Spiliphera dolichura de Man, 1893
Spiliphera edentata (Cobb, 1914)
Spiliphera gracilicauda (de Man, 1893) Wieser, 1954
Spilophorella campbelli Allgén, 1928
Spilophorella paradoxa (de Man, 1888)

Family Neotonchidae Wieser & Hopper, 1966
Neotonchus chamberlaini Wieser & Hopper, 1966

Family Cyatholaimidae Filipjev, 1918
Cyatholaimus gracilis (Eberth, 1863)
Longicyatholaimus longicaudatus (de Man, 1876)
Marylynnia macrodentata (Wieser, 1959)
Marylynnia quadriseta Hopper, 1972
Metacyatholaimus spatiosus Wieser, 1954
Paracanthonchus arcospiculum Allgén, 1959
Paracanthonchus axonolaimoides Allgén, 1960
Paracanthonchus caecus (Bastian, 1865)
Paracanthonchus elongatus (de Man, 1906)
Paracanthonchus falklandiae Allgén, 1959
Paracanthonchus macrospiralis Allgén, 1959
Paracanthonchus paralongus Allgén, 1959
Paracanthonchus paramacrodon (Allgén, 1951)
Paracanthonchus spectabilis Allgén, 1931
Paracanthonchus stateni Allgén, 1930
Pomponema multipapillatum Filipjev, 1922
Praeacanthonchus kreisi (Allgén, 1929)
Praeacanthonchus punctatus (Bastian, 1865)

Family Selachnematidae Cobb, 1915
Cheironchus conicaudatus Allgén, 1959
Halichoanolaimus chordiurus Gerlach, 1955
Halichoanolaimus dolichurus Ssaweljev, 1912
Halichoanolaimus minor Ssaweljev, 1912
Halichoanolaimus ovalis (Ditlevsen, 1921)
Halichoanolaimus robustus (Bastian, 1865)

Order Desmodorida De Coninck, 1965
Suborder Desmodorina De Coninck, 1965
Family Desmodoridae Filipjev, 1922
Acanthopharynx merostomacha (Steiner, 1921)
Chromaspirina crinita Gerlach, 1952
Croconema stateni Allgén, 1928
Desmodora campbelli (Allgén, 1932)
Desmodora microchaeta (Allgén, 1929)
Desmodora minuta Wieser, 1954
Desmodora scaldensis de Man, 1889
Desmodorella abyssorum (Allgén, 1929)
Desmodorella aff. *balteata* Verschelde, Gourbault & Vincx, 1998
Desmodorella tenuispiculum (Allgén, 1928)
Laxus septentrionalis Cobb, 1914
Molgolaimus allgeni Allgén, 1935
Molgolaimus australis Fonseca, Vanreusel & Decraemer, 2006
Molgolaimus carpediem Fonseca, Vanreusel & Decraemer, 2006
Molgolaimus drakus Fonseca, Vanreusel & Decraemer, 2006
Molgolaimus exceptionregulum Fonseca, Vanreusel & Decraemer, 2006
Molgolaimus falliturvisus Fonseca, Vanreusel & Decraemer, 2006
Molgolaimus galluccii Fonseca, Vanreusel & Decraemer, 2006
Molgolaimus gigaslongicus Fonseca, Vanreusel & Decraemer, 2006
Molgolaimus gigasproximus Fonseca, Vanreusel & Decraemer, 2006
Molgolaimus liberalis Fonseca, Vanreusel & Decraemer, 2006
Molgolaimus macilenti Fonseca, Vanreusel & Decraemer, 2006
Molgolaimus mareprofundus Fonseca, Vanreusel & Decraemer, 2006
Molgolaimus nettoensis Fonseca, Vanreusel & Decraemer, 2006
Molgolaimus sabakii Muthumbi & Vincx, 1996
Molgolaimus sapiens Fonseca, Vanreusel & Decraemer, 2006
Molgolaimus tenuispiculum Ditlevsen, 1921
Molgolaimus unicus Fonseca, Vanreusel & Decraemer, 2006
Molgolaimus walbethi Fonseca, Vanreusel & Decraemer, 2006
Molgolaimus xuxunaraensis Fonseca, Vanreusel & Decraemer, 2006
Onyx ferox (Ditlevsen, 1921) Gerlach, 1951
Paradesmodora campbelli (Allgén, 1932) Gerlach, 1963
Pseudometachromadora longilaima (Schuurmans Stekhoven, 1950)
Pseudonchus symmetricus De Coninck, 1942
Spirinia gnaigeri Ott, 1977
Spirinia parasitifera (Bastian, 1865) Gerlach, 1963
Spirinia septentrionalis (Cobb, 1914) Gerlach, 1963
Spirinia tenuicauda (Allgén, 1959) Gerlach, 1963

Family Epsilonematidae Steiner, 1927
Archepsilonema celidotum Steiner, 1931
Bathyepsilonema brachycephalum Steiner, 1931
Bathyepsilonema drygalskii Steiner, 1931
Epsilonema cyrtum Steiner, 1931
Epsilonema docidocricum (Steiner, 1931)
Glochinema trispinatum Raes, Vanreusel & Decraemer, 2003

Family Draconematidae Filipjev, 1918
Cygnonema steineri Allen & Noffsinger, 1978
Draconactus suillus (Allgén, 1932) Allen & Noffsinger, 1978
Draconema antarcticum (Allen & Noffsinger, 1978)
Draconema cephalatum (Cobb, 1913)
Paradraconema antarcticum Allen & Noffsinger, 1978
Prochaetosoma campbelli (Allgén, 1932)
Prochaetosoma longicapitata Allgén, 1932

Family Microlaimidae Micoletzky, 1922
Bolbolaimus dentatus (Allgén, 1935)
Microlaimus dimorphus Chitwood, 1937
Microlaimus falklandiae Allgén, 1959
Microlaimus honestus (de Man, 1922)
Microlaimus kaurii Wieser, 1954
Microlaimus latilaimus Allgén, 1959
Microlaimus papilliferus Allgén, 1959
Microlaimus pinguis Wieser, 1954
Microlaimus sensus Wieser, 1954
Microlaimus texianus Chitwood, 1951

Family Monoposthiidae Filipjev, 1934
Monoposthia costata (Bastian, 1865)
Monoposthia desmodoroides Allgén, 1959
Monoposthia falklandiae Allgén, 1959
Monoposthia grahami Allgén, 1959
Monoposthia mirabilis Schulz, 1932
Monoposthia paramediterranea (Allgén, 1959)
Nudora campbelli (Schulz, 1935) Wieser, 1954

Order Desmoscolecida Filipjev, 1929
Family Desmoscolecidae Shipley, 1896
Antarcticonema comicapitatum Timm, 1978
Desmoscolex amaurus Lorenzen, 1972
Desmoscolex antarcticos Timm, 1970
Desmoscolex articulatus Timm, 1978
Desmoscolex campbelli Allgén, 1946
Desmoscolex cristatus (Allgén, 1932)
Desmoscolex frigidus Timm, 1978
Desmoscolex gerlachi Timm, 1970
Desmoscolex labiosus Lorenzen, 1969
Desmoscolex max Timm, 1970
Desmoscolex parafalklandiae Allgén, 1955
Desmoscolex spinosus Decraemer, 1976
Greeffiella antarctica Timm, 1978
Quadricoma avicapitata Timm, 1978
Quadricomoides magna (Timm, 1970)
Tricoma antarctica Timm, 1970
Tricoma curvicauda (Timm, 1978)
Tricoma maxima (Schepotieff, 1907)
Tricoma nematoides (Greeff, 1869)
Tricoma pontica (Filipjev, 1922)
Tricoma septentrionalis Timm, 1978
Usarpnema auriculatum Timm, 1978

Order Monhysterida Filipjev, 1929
Suborder Monhysterina De Coninck & Schuurmans Stekhoven, 1933
Family Monhysteridae de Man, 1876
Halomonhystera disjuncta Bastian, 1865
Halomonhystera uniformis Cobb, 1914
Longitubopharynx obtusicaudatus Allgén, 1959
Monhystera macquariensis Allgén, 1929
Thalassomonhystera parva (Bastian, 1865)

Family Sphaerolaimidae Filipjev, 1918
Sphaerolaimus arcospiculum Allgén, 1959
Sphaerolaimus campbelli Allgén, 1927
Sphaerolaimus gracilis de Man, 1876
Sphaerolaimus hirsutus Bastian, 1865
Sphaerolaimus pacificus Allgén, 1947

Family Xyalidae Chitwood, 1951
Austronema (Dub) spirurum Cobb, 1914
Cobbia dentata Gerlach, 1953
Cobbia mawsoni Cobb, 1930
Daptonema acanthospiculum (Allgén, 1959)
Daptonema alternus (Wieser, 1956)
Daptonema dentatus (Wieser, 1956)
Daptonema filispiculum (Allgén, 1932)
Daptonema fistulatus (Wieser & Hopper, 1967)
Daptonema normandicus (de Man, 1890)
Daptonema resimus (Wieser, 1959)
Daptonema septentrionalis (Cobb, 1914)
Daptonema tortus (Wieser & Hopper, 1967)
Elzalia tenuis Allgén, 1959
Filipjeva crucis Blome & Schräge, 1985
Linhystera longa Pastor de Ward, 1985
Linhystera problematica Juario, 1974
Manganonema antarctica Fonseca, Vanreusel & Decraemer, 2006
Paramonhystera biforma Wieser, 1956
Paramonhystera geraerti Chen & Vincx, 2000
Paramonhystera megacephala Wieser, 1956
Paramonhystera proteus Wieser, 1956
Rhynchonema megamphida Boucher, 1974
Steineria pilosa Cobb, 1914
Steineridora loricata (Steiner, 1916)
Theristus acer Bastian, 1865
Theristus conicaudatus Allgén, 1959
Theristus filicaudatus Allgén, 1959
Theristus horridus Steiner, 1916
Theristus normandicus (de Man, 1890)
Theristus oistospiculum (Allgén, 1930)
Theristus paravelox Allgén, 1934
Theristus pellucidus Allgén, 1939
Theristus problematicus (Allgén, 1928)
Theristus velox (Bastian, 1865)

Suborder Linhomoeina Andrássy, 1974
Family Siphonolaimidae Filipjev, 1918
Siphonolaimus falklandiae Allgén, 1959
Siphonolaimus smetti Chen & Vincx, 2000

Family Linhomoeidae Filipjev, 1922
Anticyathus septentrionalis (Cobb, 1914)
Desmolaimus conicaudatus Allgén, 1959
Desmolaimus macrocirculus Allgén, 1959
Desmolaimus propinquus Allgén, 1959
Disconema falklandiae Allgén, 1959
Linhomoeus elongatus Bastian, 1865
Metalinhomoeus biformis Juario, 1974
Metalinhomoeus filiformis (de Man, 1907)
Metalinhomoeus leptosoma Allgén, 1959
Metalinhomoeus longiseta Kreis, 1929
Metalinhomoeus retrosetosus Wieser, 1956
Metalinhomoeus setosus Chitwood, 1951
Metalinhomoeus tristis (Allgén, 1933)
Notosouthernia obtusicauda Allgén, 1959
Paralinhomoeus lepturus de Man, 1907
Paralinhomoeus macquariensis Allgén, 1929
Paralinhomoeus meridionalis Cobb, 1930
Paralinhomoeus tenuicaudatus (Bütschli, 1874)
Terschellingia claviger Wieser, 1956
Terschellingia communis de Man, 1888
Terschellingia longicaudata de Man, 1907
Terschellingia longispiculata Wieser & Hopper, 1967

Order Araeolaimida De Coninck & Schuurmans Stekhoven, 1933
Family Axonolaimidae Filipjev, 1918
Axonolaimus antarcticus Cobb, 1930
Axonolaimus austrogeorgiae Allgén, 1959
Axonolaimus spinosus (Bütschli, 1874)
Axonolaimus tenuicaudatus Allgén, 1959
Odontophora angustilaimoides Chitwood, 1951
Odontophora longisetosa (Allgén, 1928)
Odontophora peritricha Wieser, 1956
Odontophora polaris (Cobb, 1914)
Parodontophora pacifica (Allgén, 1947)
Parodontophora quadristicha (Schuurmans Stekhoven, 1950)

Family Comesomatidae Filipjev, 1918
Cervonema chilensis Chen & Vincx, 2000
Cervonema hermani Chen & Vincx, 2000
Cervonema papillatum Jensen, 1988
Cervonema shiae Chen & Vincx, 2000
Cervonema tenuicauda Schuurmans Stekhoven, 1950
Comesoma hermani Chen & Vincx, 1998
Comesoma tenuispiculum (Ditlevsen, 1921)
Dorylaimopsis magellanense Chen & Vincx, 1998
Dorylaimopsis punctatus Ditlevsen, 1918
Hopperia beaglense Chen & Vincx, 1998
Hopperia dorylaimopsoides Allgén, 1959
Laimella annae Chen & Vincx, 2000
Laimella filipjevi Jensen, 1979
Laimella longicauda Cobb, 1920
Laimella sandrae Chen & Vincx, 2000
Laimella subterminata Chen & Vincx, 2000
Metacomesoma cyatholaimoides Wieser, 1954
Sabatieria celtica Southern, 1914
Sabatieria coomansi Chen, 1999
Sabatieria curvispiculum (Allgén, 1959)
Sabatieria falcifera Wieser, 1954
Sabatieria furcillata Wieser, 1954
Sabatieria granifer Wieser, 1954
Sabatieria intermissa Wieser, 1954
Sabatieria kelletti Platt, 1983
Sabatieria lawsi Platt, 1983
Sabatieria mortenseni (Ditlevsen, 1921)
Sabatieria ornata (Ditlevsen, 1918)
Sabatieria parabyssalis Wieser, 1954
Sabatieria praedatrix de Man, 1907
Setosabatieria hilarula (de Man, 1922)
Vasostoma spiratum (Jensen, 1979)

Family Coninckiidae Lorenzen, 1981
Coninckia macrospirifera Zhang, 1983

Family Diplopeltidae Filipjev, 1918
Araeolaimus australis Allgén, 1959
Araeolaimus conicaudatus Allgén, 1959
Araeolaimus dubiosus Allgén, 1959
Araeolaimus elegans (de Man, 1888)
Araeolaimus obtusicaudatus Allgén, 1959
Araeolaimus ovalis Wieser, 1956
Araeolaimus paracylindricauda Allgén, 1959
Araeolaimus paradubiosus Allgén, 1959
Araeolaimus tenuicauda Allgén, 1959
Campylaimus inaequalis Cobb, 1920
Diplopeltis cirrhatus (Eberth, 1863)
Diplopeltula bulbosa Vitiello, 1972
Diplopeltula cylindricauda (Allgén, 1932)
Diplopeltula incisa (Southern, 1914)
Southerniella nojii Jensen, 1991.
Southerniella simplex (Allgén, 1932)

Order Plectida Malakhov, 1982
Family Leptolaimidae Örley, 1880
Camacolaimus ampullocaudatus Allgén, 1959
Camacolaimus austrogeorgiae Allgén, 1959
Camacolaimus cylindricauda Allgén, 1959
Camacolaimus falklandiae Allgén, 1959
Camacolaimus guillei de Bovée, 1977
Camacolaimus longicauda de Man, 1922
Camacolaimus macrocellatus Allgén, 1959
Camacolaimus paratardus Allgén, 1959
Camacolaimus spissus Allgén, 1959
Camacolaimus tardus de Man, 1889
Camacolaimus zostericola (Filipjev, 1918)
Ionema cobbi (Steiner, 1916)
Leptolaimus antarcticus (Cobb, 1914)
Leptoplectonema fuegoense Coomans & Raski, 1991
Necolaimus austrogeorgiae Allgén, 1959
Notocamacolaimus australis Allgén, 1959

Family Aegialoalaimidae Lorenzen, 1981
Aegialoalaimus conicaudatus Allgén, 1959
Aegialoalaimus elegans de Man, 1907
Aegialoalaimus paratenuicaudatus Allgén, 1959
Aegialoalaimus tenuicaudatus Allgén, 1932

Family Plectidae Örley, 1880
Plectus falklandiae Allgén, 1959
Plectus gisleni Allgén, 1951
Plectus grahami Allgén, 1951

Order Rhabditida Chitwood, 1933
Suborder Tylenchina Thorne, 1949
Family Cephalobidae Filipjev, 1934
Cephalobus incisocaudatus Allgén, 1951

Suborder Rhabditina Chitwood, 1933
Family Rhabditidae Örley, 1880
Rhabditis marina Bastian, 1865

THE BIOGEOGRAPHIC ATLAS OF THE SOUTHERN OCEAN

Scope

Biogeographic information is of fundamental importance for discovering marine biodiversity hotspots, detecting and understanding impacts of environmental changes, predicting future distributions, monitoring biodiversity, or supporting conservation and sustainable management strategies.

The recent extensive exploration and assessment of biodiversity by the Census of Antarctic Marine Life (CAML), and the intense compilation and validation efforts of Southern Ocean biogeographic data by the SCAR Marine Biodiversity Information Network (SCAR-MarBIN / OBIS) provided a unique opportunity to assess and synthesise the current knowledge on Southern Ocean biogeography.

The scope of the Biogeographic Atlas of the Southern Ocean is to present a concise synopsis of the present state of knowledge of the distributional patterns of the major benthic and pelagic taxa and of the key communities, in the light of biotic and abiotic factors operating within an evolutionary framework. Each chapter has been written by the most pertinent experts in their field, relying on vastly improved occurrence datasets from recent decades, as well as on new insights provided by molecular and phylogeographic approaches, and new methods of analysis, visualisation, modelling and prediction of biogeographic distributions.

A dynamic online version of the Biogeographic Atlas will be hosted on www.biodiversity.aq.

The Census of Antarctic Marine Life (CAML)

CAML (www.caml.aq) was a 5-year project that aimed at assessing the nature, distribution and abundance of all living organisms of the Southern Ocean. In this time of environmental change, CAML provided a comprehensive baseline information on the Antarctic marine biodiversity as a sound benchmark against which future change can reliably be assessed. CAML was initiated in 2005 as the regional Antarctic project of the worldwide programme Census of Marine Life (2000-2010) and was the most important biology project of the International Polar Year 2007-2009.

The SCAR Marine Biodiversity Information Network (SCAR-MarBIN)

In close connection with CAML, SCAR-MarBIN (www.scarmarbin.be, integrated into www.biodiversity.aq) compiled and managed the historic, current and new information (i.a. generated by CAML) on Antarctic marine biodiversity by establishing and supporting a distributed system of interoperable databases, forming the Antarctic regional node of the Ocean Biogeographic Information System (OBIS, www.iobis.org), under the aegis of SCAR (Scientific Committee on Antarctic Research, www.scar.org). SCAR-MarBIN established a comprehensive register of Antarctic marine species and, with biodiversity.aq provided free access to more than 2.9 million Antarctic georeferenced biodiversity data, which allowed more than 60 million downloads.

The Editorial Team

Claude DE BROYER is a marine biologist at the Royal Belgian Institute of Natural Sciences in Brussels. His research interests cover structural and ecofunctional biodiversity and biogeography of crustaceans, and polar and deep sea benthic ecology. Active promoter of CAML and ANDEEP, he is the initiator of the SCAR Marine Biodiversity Information Network (SCAR-MarBIN). He took part to 19 polar expeditions.

Huw GRIFFITHS is a marine Biogeographer at the British Antarctic Survey. He created and manages SOMBASE, the Southern Ocean Mollusc Database. His interests include large-scale biogeographic and ecological patterns in space and time. His focus has been on molluscs, bryozoans, sponges and pycnogonids as model groups to investigate trends at high southern latitudes.

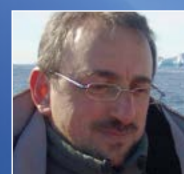
Cédric d'UDEKEM d'ACOZ is a research scientist at the Royal Belgian Institute of Natural Sciences, Brussels. His main research interests are systematics of amphipod crustaceans, especially of polar species and taxonomy of decapod crustaceans. He took part to 2 scientific expeditions to Antarctica on board of the *Polarstern* and to several sampling campaigns in Norway and Svalbard.

Bruno DANIS is an Associate Professor at the Université Libre de Bruxelles, where his research focuses on polar biodiversity. Former coordinator of the scarmarbin.be and antabif.be projects, he is a leading member of several international committees, such as OBIS or the SCAR Expert Group on Antarctic Biodiversity Informatics. He has published papers in various fields, including ecotoxicology, physiology, biodiversity informatics, polar biodiversity or information science.

Susie GRANT is a marine biogeographer at the British Antarctic Survey. Her work is focused on the design and implementation of marine protected areas, particularly through the use of biogeographic information in systematic conservation planning.

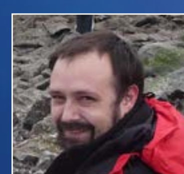
Christoph HELD is a Senior Research Scientist at the Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Bremerhaven. He is a specialist in molecular systematics and phylogeography of Antarctic crustaceans, especially isopods.

Falk HUETTMANN is a 'digital naturalist' he works on three poles (Arctic, Antarctic and Hindu-Kush Himalaya) and elsewhere (marine, terrestrial and atmosphere). He is based with the university of Alaska-Fairbank (UAF) and focuses primarily on effective conservation questions engaging predictions and open access data.



Philippe KOUBBI is professor at the University Pierre et Marie Curie (Paris, France) and a specialist in Antarctic fish ecology and biogeography. He is the Principal Investigator of projects supported by IPEV, the French Polar Institute. As a French representative to the CCAMLR Scientific Committee, his main input is on the proposal of Marine Protected Areas. His other field of research is on the ecoregionalisation of the high seas.

Ben RAYMOND is a computational ecologist and exploratory data analyst, working across a variety of Southern Ocean, Antarctic, and wider research projects. His areas of interest include ecosystem modelling, regionalisation and marine protected area selection, risk assessment, animal tracking, seabird ecology, complex systems, and remote sensed data analyses.



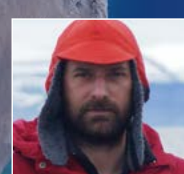
Anton VAN DE PUTTE works at the Royal Belgian Institute for Natural Sciences (Brussels, Belgium). He is an expert in the ecology and evolution of Antarctic fish and is currently the Science Officer for the Antarctic Biodiveristy Portal www.biodiversity.aq. This portal provides free and open access to Antarctic Marine and terrestrial biodiversity of the Antarctic and the Southern Ocean.

Bruno DAVID is CNRS director of research at the laboratory BIOGÉOSCIENCES, University of Burgundy. His works focus on evolution of living forms, with and more specifically on sea urchins. He authored a book and edited an extensive database on Antarctic echinoids. He is currently President of the scientific council of the Muséum National d'Histoire Naturelle (Paris), and Deputy Director at the CNRS Institute for Ecology and Environment.

Julian GUTT is a marine ecologist at the Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Bremerhaven, and professor at the Oldenburg University, Germany. He participated in 13 scientific expeditions to the Antarctic and was twice chief scientist on board Polarstern. He is member of the SCAR committees ACCE and AnT-ERA (as chief officer). Main focii of his work are: biodiversity, ecosystem functioning and services, response of marine systems to climate change, non-invasive technologies, and outreach.

Graham HOSIE is Principal Research Scientist in zooplankton ecology at the Australian Antarctic Division. He founded the SCAR Southern Ocean Continuous Plankton Recorder Survey and is the Chief Officer of the SCAR Life Sciences Standing Scientific Group. His research interests include the ecology and biogeography of plankton species and communities, notably their response to environmental changes. He has participated in 17 marine science voyages to Antarctica.

Alexandra POST is a marine geoscientist, with expertise in benthic habitat mapping, sedimentology and geomorphic characterisation of the seafloor. She has worked at Geoscience Australia since 2002, with a primary focus on understanding seafloor processes and habitats on the East Antarctic margin. Most recently she has led work to understand the biophysical environment beneath the Amery Ice Shelf, and to characterise the habitats on the George V Shelf and slope following the successful CAML voyages in that region.



Yan ROPERT COUDERT spent 10 years at the Japanese National Institute of Polar Research, where he graduated as a Doctor in Polar Sciences in 2001. Since 2007, he is a permanent researcher at the CNRS in France and the director of a polar research programme (since 2011) that examines the ecological response of Adélie penguins to environmental changes. He is also the secretary of the Expert Group on Birds and Marine Mammals and of the Life Science Group of the Scientific Committee on Antarctic Research.

THE INTERNATIONAL COUNCIL FOR SCIENCE SCAR SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH

INTERNATIONAL POLAR YEAR 2007-2008

CENSUS OF MARINE LIFE

OBIS OCEAN BIOGEOGRAPHIC INFORMATION SYSTEM

www.SCARMarBIN.be

CENSUS OF ANTARCTIC MARINE LIFE

BIODIVERSITY.AQ

AnT-ERA

Ant Eco State of the Antarctic Ecosystem

belspo

museum www.naturalsciences.be

FONDATION TOTAL

ALFRED P. SLOAN FOUNDATION