Mariene Biologie
Instituut voor Dierkunde
UNIVERSITEIT GENT

Faculteit der Wetenschappen
Academiejaar 1996-1997

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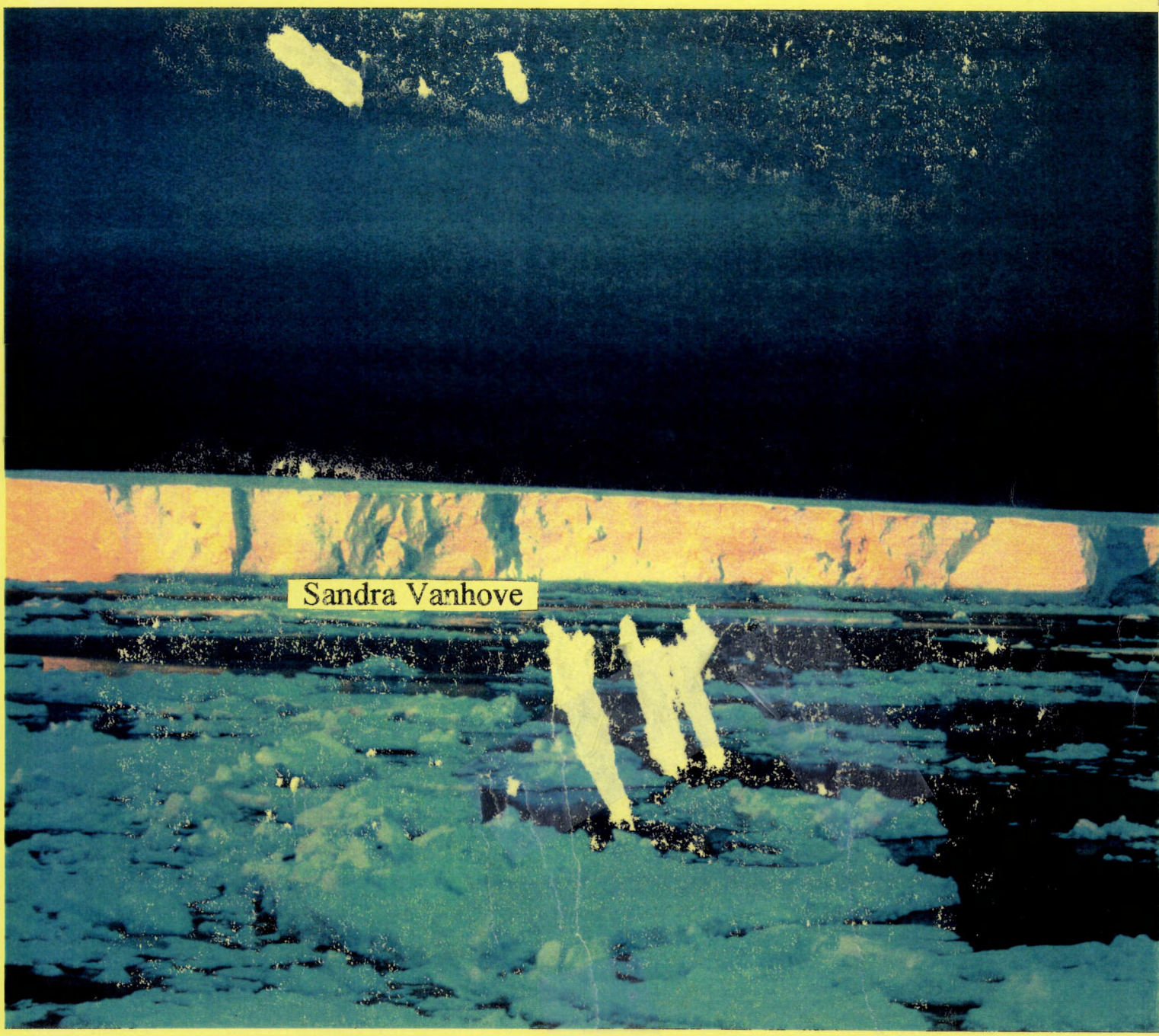
Subtidale meiofauna van Antarctica, met nadruk op de ecologie van vrijlevende mariene nematoden



Promotor: Prof. Dr. M. Vincx

Verhandeling voorgelegd tot het behalen van de graad van Doctor in de Wetenschappen groep Biologie

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Oostende - Belgium

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Sandra Vanhove

Promotor: Prof. Dr. M. Vincx

Verhandeling voorgelegd tot het behalen van de graad van Doctor in de Wetenschappen, groep Biologie

Met de financiële en logistieke steun van:

-De Vakgroep Morfologie, Systematiek en Ecologie, en in het bijzonder de Sectie Mariene Biologie van het Instituut voor Dierkunde in Gent

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Vooral mijn promotor, Prof. Dr M Vincx, ben ik erkentelijk voor de inzet, de steun en vooral het vertrouwen dat zij mij inboezemde. Haar blijvend enthousiasme voor die nietige beestjes heeft mij geïnspireerd tot op het allerlaatste moment van dit doktoraat.

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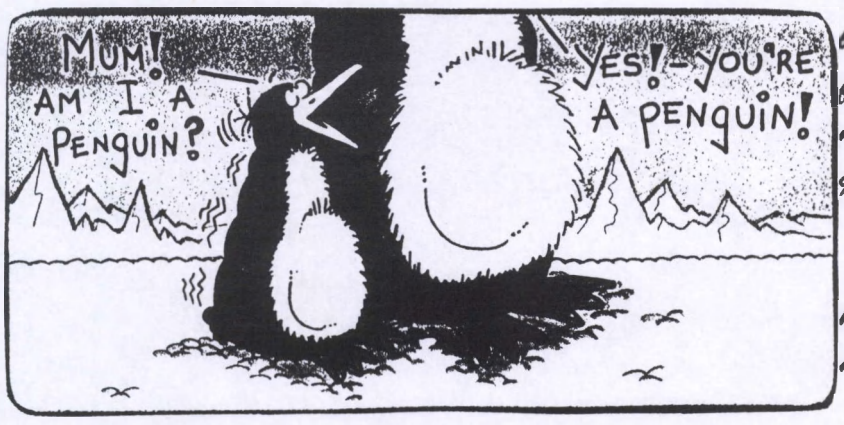
En wat had ik gedaan zonder de niet aflatende ijver van Myriam Beghyn, Dirk Van Gansbeke, Guy Desmet, Marcel Bruyneel, Kris Hostens, Jan Wittoeck, Ine Seys, Annick Van Kenhove, Yves Israel, Danielle Schram, Andy Vierstraete, Wies Gijselinck, Rosemarie Servaes...?

Al deze mensen, samen met Ann Dewicke, Nancy Fockedey, Jan Mees, Jan Seys, Dre Cattrijsse, Olivier Hamerlynck, Marleen De Troch, Isabelle Van den Bossche, Regine Coolen, Maaike Steyaert, Bregje Beyts, Johan Vandevelde, Steven Degraer, Hee-Joong Lee, Chen Guotong, en zovele anderen... hebben bovendien gezorgd voor de toch niet te onder schatten aangename en leuke werksfeer.



Naast de daadwerkelijke bijstand van vele mensen waren familieleden en naaste vrienden natuurlijk een onmiskenbare steun geweest.

Mijn ouders en grootouders hebben duidelijk ingespeeld op mijn leergierigheid. Van mijn

eerste klasuurtjes tot mijn laatste zittijd aan 't unief. Zelfs tot nu op dit moment hebben zij mij aangemoedigd in alles waar ik mee bezig was en ben. Pa, aan jou heb ik de koppigheid te danken (jawel te danken). Ik zou en kon een doktoraat halen! Mama, jij hebt me de kracht gegeven om er overal een positieve kijk op na te houden. Er is altijd wel een sprankeltje hoop! Boma, parrain, en marraine, bedankt voor het intense medeleven, jullie liggen me nauw aan het hart.

Myriam en Patty, de gedeelde ervaringen in Antarctica hebben ons heel dicht bij elkaar gebracht. Lief en leed hebben we daar gedeeld. Het was de start van een deugddoende vriendschap. Laten we vlug de schade van de laatste maanden inhalen.

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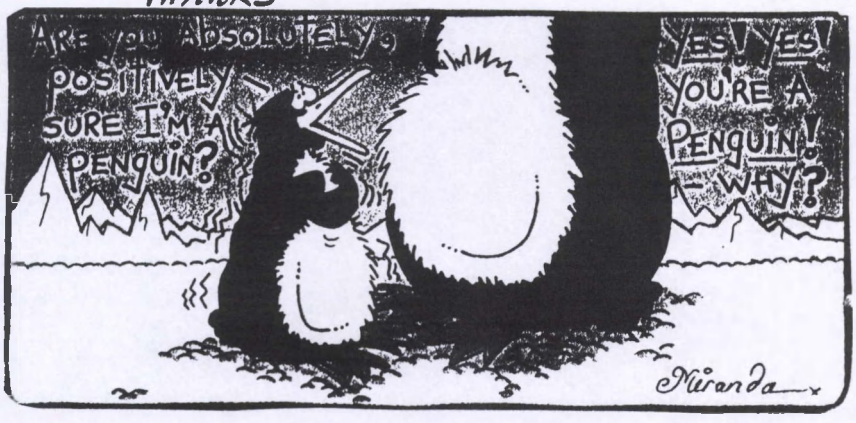
De stoom werd regelmatig eens letterlijk en figuurlijk afgelaten ten huize van Wim en Frieda. Saunabeurten, gevolgd door heerlijke maaltijden, werden mij zonder enige twijfel aangeboden, zelfs tijdens de late avonduurtjes. De vele kwaaltjes die zich uitten tijdens een stress-periode als de voorbijgaande maanden kregen geen enkele schijn van kans om te accumeleren.

Een ding staat vast, afgepeigerd over mijn toetsenbord gebogen, zit ik hier de laatste loodjes te tellen als doctorandus. Twijfelend aan mijn nietige kennis met meer vraag dan antwoord..., moet ik toch vaststellen dat de periode van mijn doktoraat een ferm stuk bijgedragen heeft tot mijn algemene vorming.

Gelukkig en voldaan, van harte bedankt allemaal !
Wat zullen we drinken?

THANKS



A special thanks to you, Andy and Petz! I would not have been able to finish, maybe even not been able to start, this doctoral work, without being taken up in the Antarctic benthic research group. I realized that I had to revise my original idea, that of a

cold white desert, populated only by scientists and support staff! Nice to have the experience of going South. Hopefully this PhD will be a good argument for continuing the established collaboration.

Many thanks also to you, Hee-Joong. The voyage on the Polarstern brought us together as two 'baptized' Antarctic friends. You succeeded very well in keeping your patience at moments when I was very critical and demanding.

Cheers Andy, danke Petz 感謝 Lee. What shall we drink? Leffe, Westmalle, Duwel, or a new own brewed beer?

Thanks to you Lloyd, especially for the constructing comments on my very poor English.

Sandra

28.05.'97

Introduction

Our knowledge of the biology of the seas around Antarctica began with the descriptions and specimens brought back by the early naturalists on voyages of discovery to the Southern Ocean. The first natural expedition in 1829 (with naturalist James Eights of Albany and the American sealing captains Palmer and Pendleton) was followed by a series of expeditions, of which the one with the Belgica, under the leading capacity of the famous baron de Gerlache, exactly 100 years ago, belongs to our national proud.

The results of these expeditions were compiled in several huge chronicles, which primarily emphasized systematics and zoogeographical distribution. Later on, the focus of the research slightly shifted to studies of life history, behaviour, and physiology as opposed to a consideration of the community as a whole. Strong interest for community ecology became only apparent during the last decades, and so far, meiofaunal studies were a big white spot in Antarctic benthic ecology.

The metazoan meiofauna, defined as organisms within the size range of 38-1000µm, and generally dominated by nematodes and harpacticoid copepods, are in terms of abundance the most important metazoan group in marine sediments, often numbering millions per m^2. They harbour many different habitats in which they constitute a variety of feeding mechanisms, including herbivory, bacterivory, detritivory, predatory, scavenging, absorption and suspension-feeding.
The interactive relations of meiofauna to other faunal elements and the contribution of meiobenthos to the energy flux through the benthic ecosystem can be assessed by measuring numerical parameters such as population abundance, biomass and production. The latter is, however, difficult to calculate. The relevant biological parameters such as fecundity, natural and predative mortality, generation time, and other data on population dynamics are little known and highly variable. Compared to macrofauna, meiofauna usually has a low standing stock; but even in tidal flats and in the shallow subtidal, where macrofauna is relatively rich, the higher turn-over rate of meiobenthos generates a high production frequently exceeding that of the macrofauna. Energy flux diagrams have repeatedly been designed to quantify the energetic connections of meiofauna with other faunal compartments in the benthic system.
The close links between micro-organisms, detritus and meiofauna integrate meiofauna into a detrital trophic complex. By preying on bacteria meiofauna maintains the bacterial populations in an exponential growth phase. Meiofauna bioturbation also activates geochemical fluxes. In particular the diffusion rate of oxygen becomes activated, enlarging the oxic habitats of aerobic bacteria and many meiofauna. The grazing impact of meiobenthos on phytobenthos is also well documented. A high, but species-specific grazing pressure of meiofauna on for example diatoms is noted.
Numerous studies support the dead-end hypothesis concerning the limited energy transfer to higher trophic levels. Stocks would then be regulated only for a minimal part by macrofaunal predation. However, many other investigations proved that this argument cannot be generalized. Furthermore, numerous interactions of meiobenthos are often more differentiated and go beyond just straightforward predator-prey relations.
In conclusion, meiofauna are tightly linked to macro- en micro-organisms, but inconsistencies render a generalized idea of the links with other components of the food web fairly complicated.

General goal

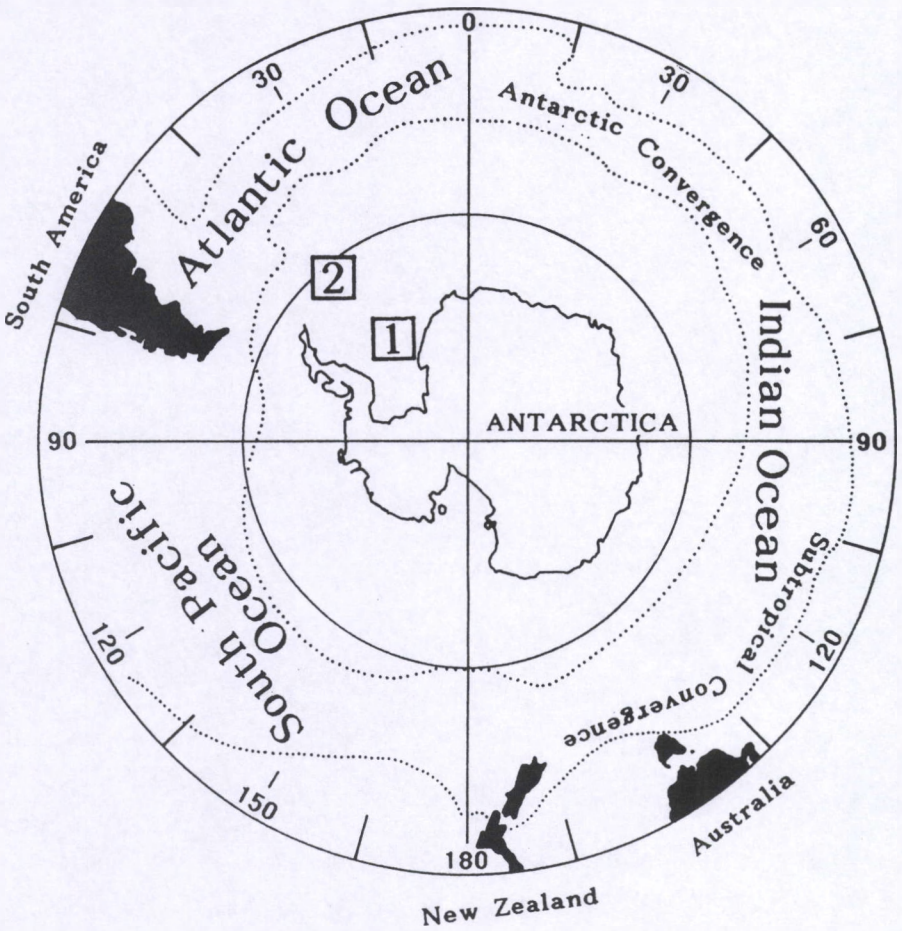
The prime aim of the present study is to contribute to a better understanding of benthic ecology. My major concern is to substantiate -or disprove- the influence of well-known environmental forces on benthic distribution and functioning. By focusing on the extreme environment of Antarctica, several question arised. My attempt was to answer them by restricting the investigations to the traditional field ecology approach based on the soft-bottom meiofauna and a close view on the nematodes.

While it is accepted that the Southern Ocean is of great importance in a global context, the logistics needed for effective operation in the Antarctic are expensive investments, currently available only to a few countries. Realizations of my ambitious plan, full of objectives, were, fortunately, facilitated by the offer of the Alfred-Wegener-Institute for Polar and Marine Research in Germany, and the British Antarctic Survey in the United Kingdom. Within the European *Polarstern* study, EPOS, and the *Signy*- programme, many concurrent surveys supplied valuable information for interpreting my results.

Research goals

The first objective was essentially centred on observing and understanding these environmental components. A summary of the basic environmental properties of Antarctica is given in the **introduction** (the physical and geological environment of Antarctica).

Throughout the thesis I will draw the attention to two contrasting conditions, *e.g.* the deep sea and low subtidal, where the benthic characteristics are respectively indirectly or directly related to primary production as to the depth of the water column (see map). The results are therefore divided into two main blocks, each of them preceded by an **introduction** to the respective environment.



Map of Antarctica with the location of the two study sites in the Southern Ocean.

BLOCK 1 : MEIOFAUNA IN THE SHELF/SLOPE SEDIMENTS OF THE WEDDELL SEA

Chapter 1: Deep-sea meiofauna communities in Antarctica: structural analysis and relation with the environment.

The objectives of this study are
(-) to assess the composition and population densities of the meiofauna of Kapp Norvegia, in the Weddell Sea and describe their distribution across the continental margin
(-) to relate the benthic structures to events occurring in the overlying water column
(-) to compare the results with other deep-sea areas in the world

Chapter 2: Comparative study of the nematode communities in the bathyal Weddell Sea (Antarctica). The objectives of this study are

(-) to deliver a geographically extensive database from one of the largest shelf areas around the Antarctic continent

(-) to undertake a comparative study of nematode distribution patterns and within-habitat diversity on different spatial scales
(-) to integrate meiofauna and macrofauna patterns, the latter obtained from literature information
(-) to applicate established theories to test whether the meiofaunal component of the zoobenthos responds in a similar way to the extreme Antarctic conditions of food, ice and temperature as does the macrofauna

Chapter 3: On the vertical distribution of the Antarctic meiofauna in the sediment profile along the Weddell shelf/slope.

The objectives of this study are
(-) to detect trends in vertical zonation in abundance and biomass of the meiofauna
(-) to detect trends in diversity, genus and trophic composition of the nematodes both at stations on the upper and lower side of the shelf break

BLOCK 2 : MEIOFAUNA IN THE SEASONAL VARYING SHALLOW WATER SEDIMENTS OF SIGNY ISLAND

Chapter 4: The metazoan meiofauna in its biogeochemical environment : the case of an Antarctic coastal sediment.

The objectives of this study are
(-) to report the density, taxonomic composition and feeding guild structure of the meiobenthic community of a shallow nearshore sediment within the northern limit of the Antarctic pack-ice
(-) to relate the data with a spectrum of environmental variables, including food and chemical regime

Chapter 5: The seasonal varying biotope of Signy Island : implications for meiofaunal structure.

This first year-round study on the ecology of meiofauna in Antarctica is designed to answer the following two questions:

(-) what is the seasonal pattern of meiofauna community size and structure?
(-) how strong is the influence of the temporal changing environment on the structural characteristics of the meiofauna taxa, and on the biomass, generic, trophic and age composition of the nematodes?

Each of these chapters take an own reference list because the contents of the discussions often differ greatly from one another. However, at the end all references were integrated into one list as well.

Limitations during the course of this PhD

One hypothesis asserted energy flow through the benthic system and between water column and benthos. One summer season (1993/94) in Antarctica was devoted to this end. However, the design of the experiments was not sufficiently adapted to the constraints of the prevailing low temperatures. Therefore the outcome was not presented in this PhD.

A great degree of biological variability is to be expected even within the most simple faunal assemblage. Consequently, the collection of multiple samples from each sampling location would be expected to provide a best estimate of the fauna. Unfortunately, dictates of time and manpower, especially inherent to field work in the Antarctics combined with working with such a small animals, impose restrictions that override desirable statistical practices. Such limits existed so that the less desirable two-sample analysis approach was often followed.

As suggested by the title of the dissertation I focus the work on the free-living marine nematodes. I am fully aware that, by restricting the meiofauna studies to only one taxon, a great deal of information is lost. However, nematodes constituted of more than 80 % of the total meiofauna, and

therefore I felt justified to go more into detail on this taxon only. To avoid too many losses the observations on gross taxonomic level were discussed as well.

A taxonomic monograph is not included, despite the many attempts to analyze and draw the nematode species. Taxonomic expertise on nematodes in the Antarctics is very old and, drawings are often restricted to simple pictures. For the deep sea this is even worse, as species descriptions are limited to a few recent works. Therefore I did not feel to go to lower level than that of the genera of the nematodes.

At the beginning of the Antarctic project, ecological processes occurring in the Antarctic meiobenthos were unknown. Hence, the main goal was to develop a general overview of meiobenthic community characteristics. Detail was often sacrificed for comprehensive generalizations. Superimposed on that major parts were published, in press or in a phase of submitting to international journals, what often resulted in the discard of 'superfluous' information. This was compensated by gathering the raw data matrices in the second part of the thesis (see **appendix**).

Final notes

In many respects, the Antarctic ecosystem is among the most pristine and least-threatened habitats on earth. Fortunately, it is far enough from human civilization that pollution has had minimal impact. It is, however, an established fact that the Antarctic and its associated ecosystems are vulnerable to the adverse effects that can be produced by human activities. The Antarctic Treaty, ratified in 1961, forbids military activity, bans nuclear explosions and radioactive-waste disposal, and mandates international cooperation and freedom of scientific inquiry. But what's the most important the Treaty is unambiguous about the need for the protection of the Antarctic and the rational management of its living resources.
I am not pretending that I am the one who will protect this environment from definite threats by writing this PhD. But, in the light of the growing renewal of international interest in matters concerning the Antarctic, and with the aim of Belgian's Antarctic Programme to maintain a level of scientific activity allowing Belgium to continue to shoulder its responsabilities as a founder member of the Antarctic Treaty, this dissertation demonstrates my willingness to participate in the international research effort in accordance with the issues set out by the Antarctic Treaty System.
This dissertation provides a basic ecological framework for interpreting the many observations and measurements on the deep-sea and shallow-water meiofauna of Antarctica. It is designed to serve as a baseline for future research topics in the area.
By this I hope that this study will aid in the gathering of as much information as is needed to understand the global importance of the Antarctic ecosystem.

However, as a consequence of its large size, isolation, and past interaction with the biota of different continents, the coastal shelf region contains different faunal and foral provinces. The concepts depicted in this study concern polar environmental effects in only two regions. Yet, a large part of the Weddell Sea will remain unknown, and many-if not most-questions will be kept open for discussion: how does the region off the Peninsula looks like? and what about the (abyss of) middle of the Weddell Sea, at depths of 4000 m and more? or in the northern Weddell Sea where annual fluxes are the smallest yet observed in the world ocean? what occurs underneath the ice shelf?
Other many other questions concern the annual variablty in the deep sea, the species diversity, the metabolic activity of the meiofauna, etc...

SUMMARY

Compared to other oceanic regions the pelagial of the Southern Ocean exhibits several unique features. In summer, when days are nearly totally light, the marine environment is free of fast ice and produces very short, but extremely intense summer phytoplankton blooms. A continuum of environmental processes eventually develops into the winter situation of nearly totally dark and low temperatures, the marine environment becomes covered by ice and very little productivity occurs. Benthic communities depend heavily on the supply of resources from the water column. Yet, the seasonality, intensity and spatial heterogeneity of the vertical fluxes resulting from the pelagic production will certainly affect its size and structure.

Until recently, Antarctic meiofauna studies were a terra incognita in the field of meiobenthology, and meiobenthic research remained a big white spot in the ecological work on Antarctic marine zoobenthos. Therefore the relative importance of this group of organisms within the size range of 38-1000µm has been assessed in two contrasting environments, *e.g.* the deep sea and low subtidal, where, as to the depth of the water column, the benthic characteristics were respectively indirectly or directly related to primary production. Several topics dealing with the extremes of the environment were touched using the traditional field ecology approach on the higher taxa of the soft-bottom meiofauna and, more particularly on the most abundant taxon of the nematodes.

Meiofauna in the shelf/slope sediments of the Weddell Sea

The metazoan meiofauna for this part of the study has been collected during the third leg of the European Polarstern Study (EPOS) carried out by the RV 'Polarstern' between 13 January and 10 March 1989. This happened within an integrated study of the benthos and fish communities in relation to biotic and abiotic environmental conditions. The current project was designed to detect how interstitial meiofauna was distributed along depth transects from 200 to 2000 m in the Weddell Sea off Halley Bay (74-75°S, 25-29°W) and Kapp Norvegia (71-72°S, 12-13°W).

MEIOFAUNA

Total meiofaunal abundance (both from SD and VD treatments) ranged from 815 to 7237 ind. per 10 cm² and total biomass from 126 to 1437 µg dwt per 10 cm². Nematodes dominated the samples (range 83-97 %), followed by harpacticoid copepods, polychaetes and kinorhynchs. The other taxa comprised together less than 4% of the total. A typical skewed length frequency distribution was obtained with most nematodes belonging to the 0.4-0.6 mm size-class (mean length: 892 µm; geometric mean length: 754µm; harmonic mean length: 646 µm). A comparison of the meiofaunal variables between the two regions in the Weddell Sea could not detect gross differences in higher taxon densities and total biomass. Clusters in multivariate analysis were primarily made on the basis of bathymetric location and/or distance from the ice-shelf. A strong resemblance was found between the shelf stations off Halley Bay (with high total density and intermediate biomass values), the deeper slopes of both transects (which were poor in terms of meiofauna density and biomass), the shelf stations off Kapp Norvegia (with a similar flourishing meiofauna population, but slightly different taxon composition compared to the Halley shelf) and the upper slope off Halley Bay (with intermediate variables). Features such as very high, but patchy primary production, with subsequent variable fluxes to the sea bed must have induced small- and meso-scale variability between and within substrates. This was reflected in meiobenthic distribution patterns.
Standing stock and distribution patterns indicated that the meiofauna from the Weddell Sea showed similar features to major deep-sea assemblages elsewhere in the world. Yet the results fit into the regression of total metazoan meiofauna density with water depth, calculated for the North-east Atlantic Ocean (Vincx *et al.* 1994).

NEMATODES

Until now nothing was known about the structure of free-living marine nematode communities in the high Antarctic. The attempt at surveying this numerically most abundant meiobenthic taxon along the continental shelf and slope furnished information on generic, trophic and age composition in the two regions in the Weddell Sea. 7300 nematode identifications were analyzed by means of a variety of statistical techniques covering univariate, multivariate and graphical methods.
From the 40 families, Chromadoridae were dominant (15%), followed by Comesomatidae (12%), Desmodoridae (11%) and Microlaimidae (10%). *Sabatieria*, with a relative dominance of 8% ranked

first, whereas *Molgolaimus*, *Microlaimus*, *Monhystera* and *Dichromadora* had abundances of more than 5% of the entire nematode population. Co-dominant genera were *Daptonema* (4%), *Leptolaimus* (4%), *Acantholaimus* (3%) and *Cervonema* (3%). Three fourth of the nematode communities (149 genera in total) was present with abundances lower than 1%.
The trophically diverse communities exhibited an equal sharing of epistrate (24-55%), non-selective (22-40%) and selective (18-49%) deposit feeders with a slight dominance of the first feeding category. The predator/omnivores were much less present, averaging 5% of the populations.

DATA ANALYSIS

Multivariate outputs (Twinspan, Group Average sorting, CA) on genus and family level of organization divided the total nematode community into four major groups : the upper slope off Halley Bay, the downslope off both regions, the Halley Shelf, and a heterogeneous group consisting of a mixture of the shelf break stations and the Norvegia shelf.
Total variability within the genus counts indicated, however, for a highly aggregated dispersion, which was in descending order of magnitude observed at the station (between the samples), subregional (between the shelf, shelf break, upper slope and downslope) and regional (between Halley Bay and

Kapp Norvegia) level. This paralleled high variation in trophic structure and life history of the assemblages.
There was no single main gradient, but a complex interaction of different environmental variables, explained the variability in the nematode distribution. The major agents behind the observations dealt with sediment grain size (22% of the genera were significantly correlated with sediment granulometry) and food content (28 % of the genera were correlated with any of the given food variables) operating over the small (m and cm) and meso (km to hundreds of km) scales. Depth *per se* had no major effect resulting in a rather abrupt transition from shallow towards deeper assemblages. Underlying mechanisms included productivity, hydrodynamics, ice-related processes and macrofaunal composition.

DIVERSITY

Diversity was high, with on average 40 to 70 genera per station (cf Hill's N_0 diversity); expected genus numbers per 100 individuals (cf Hurlbert's modification of Sander's rarefaction curves) between 30 and 54, and Shannon-Wiener diversity between 4.1 and 5.4 bits ind^{-1}. The k-dominance curves had similar shapes, showing the same trends in the distribution of the dominant genera. Genus abundance distribution curves demonstrated that, although genus richness differed greatly among the stations (roughly dividing Halley Bay from Kapp Norvegia), the eveness was quite comparable for all sites.

LITERATURE

Global-scale comparisons with literature data were restricted to only a few comparable studies. Striking was that the dominant genera *Sabatieria*, *Microlaimus*, *Monhystera, Daptonema, Leptolaimus* and *Acantholaimus* from the high Antarctic Weddell Sea were shared among vast areas along Atlantic, Mediterranean and Arctic shelves and slopes, stressing the broad geographical and latitudinal distribution of a selected number of genera, spanning an area from north to south.
On the other hand, 30 % of the genera higher than 1% in the Weddell sea were not found as abundant in other regions. This suggested a separation of large part of the nematode communities on a geographical basis, and was conductive to a belief that continental margin assemblages showed a less generic similarity than their abyssal and hadal counterparts (which themselves contain predominant genera such as *Theristus*, *Acantholaimus*, *Halalaimus*, *Desmoscolex*, *Tricoma*, *Microlaimus*, *Syringolaimus* and *Sphaerolaimus*). The most straightforward argument for this feature was searched in the fact that environmental properties of the transition zones connecting the shelves with the abyss are much more heterogeneous on a global scale than the deep-sea sites *stricto sensu*. Although comparing diversity of the high Antarctic meiobenthos with nematode data on ocean-wide scales was hampered for several reasons, the observed ranges of genus richness measures were higher than in any other transect.

THEORIES

A body of literature has arisen with mechanisms that regulate diversity patterns in the deep-sea biota. The co-ordinate of most theories, the stability-time hypothesis of Sanders (1968), was applied to explain the observed diversity in the Weddell Sea. The low temperatures and past history (glaciation, isolation and age) were factors that added to the influence of present-day productivity, in placing the nematode communities of Antarctica at some stage between biologically and physically controlled

communities. Furthermore, by applying the theory of Dayton & Hessler (1972), the previous arguments were extended with the factor disturbance. Small-scale disturbances against a background of relative constancy were suggested to induce elevated microhabitat heterogeneity in which many taxa would co-exist. Larger scale disturbance, in contrast, would affect the habitat by defaunating it, so that a complete recolonization was needed. The effect of iceberg-scouring served as an example to clarify the hypothesis.
In a final step the impact of disturbance was analyzed by variance to mean ratios (χ^2 testing), *sensu* Lambshead & Hodda (1994). High percentage aggregation in the nematode populations was suggested to be the result of biogenic disturbance from macrofaunal burrowers, whereas a homogenization of environmental patches and reduced faunal aggregation were attrributed to different intensity of physical disturbance.
Pasting all theories, the factors influencing diversity in the nematode assemblages of the Weddell Sea included climate, time, productivity, environmental stability, physical disturbance and spatial heterogeneity. In the approach the possible biological control was not included.

VERTICAL DISTRIBUTION

The vertical distribution of meiobenthic organisms in the sediment showed that in most cases animals were concentrated in the upper sediment layers confirming the general patterns drawn from deep-sea studies of meiobenthic organisms. Relative subsurface abundances were lowest in the silts, but did not differ very much from the silty sands. However, gravel percentages of the substrates interfered with pellite concentrations, entailing differences between the stations.
The size structure of the predominating nematodes directed to an increase in length with maxima at 4 to 5 cm.
Many nematode genera were confined to the upper layers, and from about 2 to 3 cm on only a limited set of genera, including *Molgolaimus* and *Sabatieria* were still highly abundant. The most dominant genera could roughly be classified into two sorts of associations: (1) those being relatively more present at the surface, namely *Microlaimus*, *Monhystera* and *Leptolaimus*, and (2) nematodes colonizing subsurface strata, *Dichromadora*, *Acantholaimus*, *Molgolaimus* and *Sabatieria*. The change was accompanied by a slight shift in feeding types, the surface layers (0-2 cm) comprising 30-40 % epistratum feeders, the intermediate strata (2-4 cm) harboring mainly selective deposit feeders (50 %), and the lowermost layers (4-10 cm) supporting predominantly non-selective deposit feeders (30-40%). The structuring rôle of redox potential, grain size and food content was inferred, though keen attention is necessary in using the current approach for meaningful ecological studies of deep-sea meiobenthos.

CONCLUSION

A general conclusion of this study in the shelf/slope sediments of the Weddell Sea was that the meiofaunal standing stock, composition and distribution (both at horizontal scales along the transect and vertical scales in the sediment profile) had great affinity with comparable deep-sea studies world-wide. Similarly, the rôle of environmental variables like redox potential, grain size and food was of fundamental importance for structuring the meiobenthic communities.
However, although the Antarctic meiofauna in many ways had elements in common with other communities along the continental margin, typical polar conditions added to a slight shift in several features (like stock size and diversity), in some instances drifting away from general patterns in other deep seas.

Meiofauna in the seasonal varying shallow water sediments of Signy Island

A temporal study on the ecology of meiofauna in the Antarctic, covering two austral winters and the intervening summer from April 1991 to November 1992, together with a survey within the austral summer of 1994, were undertaken in the low subtidal (-10 m) of Signy Island (South Orkney Islands, 60°42' S, 45°36' W). The project was designed to detect how interstitial fauna behave and respond to the extreme ecological circumstances and events, typical for many polar coastal environments. It formed a part of an integrated British research programme at the study site.

ENVIRONMENT

Evidence from literature demonstrated that the pelagic activity at Signy Island occurred through a summer bloom of large diatoms and colonial forms, superimposed on a less intense but longer nanoflagellate bloom. At the heart of the winter nanoplankton chlorophyll concentrations exceeded the microplankton chlorophyll concentrations which were then very low.
The sequence of pelagic production and transmission of detritus to the underlying benthos, was tracked in the sediments, with some weeks of delay for diatom blooms and no visible temporal delay for the flagellate phytoplankton-fraction. Fresh food supply from both *in situ* benthic production and pelagic deposition, was not only substantial, but exhibited a long duration as well, leaving the sediments for only a very short period in the second half of the austral winter under trophic limitation.

As to several hypotheses that systems receiving pulses of directly available detritus should exhibit population fluctuations closely tied to the rate of food supply, and giving the seasonal cycle of detrital input and microbial food at the current site, it was expected a *priori* that the metazoan meiofauna would experience :

*distinct distribution characteristics during periods of high nutritive input
*a fundamental temporal change in their structure and functioning over the entire annual cycle.

COMMUNITY STRUCTURE

Extremely high meiofaunal abundances were, indeed, reported with annual means between 5 and 7.5 * 10^6 ind. m^{-2}. Classified second after Narrangansett Bay (North Atlantic), the meiofauna reached peak values of slightly less than $20*10^6$ ind. m^{-2} and 14 g dwt m^{-2}. Low taxon numbers with the nematodes having abundances of up to 90 % were recorded. Similarly, genus diversity was low, dominated by *Daptonema*, *Aponema*, *Neochromadora*, *Sabatieria*, *Microlaimus* and *Chromadorita*, together comprising 97% of the total nematode population (and a total number of a rough 15 000 nematode identifications). The dominance structure prevailed throughout the annual cycle, with genus numbers between 9 and 14, and dominance diversity (given by the inverse of the most dominant genus) between 1 and 4.
The dominating trophic strategies were epistratum and non-selective deposit feeding, with the nematodes most probably grazing on a mixture of diatoms, bacteria and organic matter. The applied classification of feeding guild structure *sensu* Wieser (1953) for the nematodes of Factory Cove was, however, discussed. In particularly, the assignment of *Aponema* as a selective deposit or epistratum feeder and *Daptonema* as a non-selective deposit or epistrate grazer, deserved more attention.
As a result of the high detrital input of organic matter in the sediments during the summer, the meiofauna was strongly concentrated in the upper 3 centimetres of the sediments. High nutritive surficial layers (*e.g.* pigment content reached a maximum of 1300 mg Chl-a m^{-2}) and a high reductive regime closely underneath the surface (with pronounced compact sulphuric black layers), were the suggested driving forces. Hence, shallow depth penetration may have occurred because of the distinct chemical driven vertical zonation of food.

Overall, the nematode fauna showed a strong similarity with fine sediment communities elsewhere. Furthermore, structural characteristics such as high abundances with low diversity, characteristically encountered in advanced stages of organic eutrophication (*e.g.* beyond the ecotone point in the Pearson & Rosenberg model), were in agreement with comparable ecosystems at other geographical latitudes.

SEASONALITY IN STANDING STOCK

The meiobenthic community at Signy Island showed also impressive temporal fluctuations, in which episodic high dimensions of density and biomass alternated with periods of less concentrated standing stocks. The combination of direct and retarded relationships between many meiofaunal and environmental variables proved for a tight coupling between the pelagic and benthic ecosystem compartments.

The major response mechanisms of meiofaunal standing stock were summarized as follow:

-distinct abundances, lagging with a few weeks behind peak diatom production

-lower, though still highly fluctuating, stock during most of the year with immediate and lagged responses to lower quality nanoplankton input

-strong reduced stocks in mid winter, when food availability was at its lowest.

However, two observations have drawn the particular attention: (1) although stocks were drastically depressed in winter, they were still comparable to average values in many shallow soft bottom communities, and (2) the winter, rather than being a long period of low stocks, was confined to at most two months during late winter. It was argued that these observations had to be searched in response mechanisms of the meiofauna to the unusual pelagic phenomena during the summer seasons of 1990/91 and 1991/92, both resulting in substantial, long-lived fresh food supply during major parts of the year. Furthermore, other trophic sources such as the production by microphytobenthos, sea-ice algae and bacteria must have induced the observed variability in the meiofauna populations as well.

SEASONALITY IN HIGHER TAXA

Harpacticoid copepods and turbellarians were the most sensitive to sedimentation events. Nematodes, although showing some response to the pelagic seasonality, were less strictly dependent on fresh supplies. Therefore, and because of the high diversity in trophic food sources (which in turn lacked a distinct succession along the temporal axis, and which were highly bio-available during most of the annual cycle), temporal fluctuations in the nematode populations could not adequately be attributed to seasonal signals in the environment.

SEASONALITY IN rePRODUCTION

Nematode production at Signy looked continuous as juveniles, males and females were encountered throughout the year and juveniles dominated within the range of 14-59 %. However, by the observation that the relative numbers of gravid females and juveniles were often highest during low nutritional periods, it was suggested that reproduction effort before the season of bulk food supply could have been an advantageous life style to cope with periods of lower energy production. With a complete asynchrony in the reproductive cycles of the dominating genera, seasonal patterns in the total nematode population were often masked, and therefore a downloading to the separate genera *Sabatieria*, *Aponema*, *Neochromadora*, *Daptonema*, *Microlaimus* and *Chromadorita* was done.

Based upon annual P:B ratios reported for temperate nematodes production was calculated between 2 and 38 gC m^{-2} y^{-1}. This greatly exceeded nematode production values from temperate regions (such as the North Sea).

Despite the seemingly tight association of the meiobenthos with the seasonally varying environment, correlations with the benthic environment represented only a very limited proportion of all possible relations, and they were scarce when compared to the many correlations with sediment trap and water column variables. It was argued that the quality, rather than the quantity of the organic matter, must be considered in ecological studies of this kind.

CONCLUSION

A general conclusion of this study in the low subtidal sediments of Signy Island was that the meiofaunal standing stock and distribution (both temporal and vertically in the sediment profile) was strongly impacted by the temporal pelagic and benthic environment. The dominance of a few nematode genera, with a concomitant stable pattern of diversity throughout the annual cycle, and a restriction of most organisms to the upper sediment layers during the austral summer, emphasized a tight coupling to the eutrophic and reductive nature of the sediments, in response to the typical characteristics of the pelagic. Therefore, the assertion of Clarke (1988) that all levels of the Southern Ocean food web are influenced profoundly by the seasonality of the primary production, holds also for the low subtidal metazoan meiofauna.

SAMENVATTING

De pelagische zone van de Zuidelijke Oceaan vertoont diverse unieke kenmerken. Tijdens de zomer, wanneer de zon weinig of niet ondergaat, is het mariene milieu ijsvrij en ontstaat er een korte, maar zeer intense fytoplankton bloei. Daarna evolueert dit geleidelijk naar de wintersituatie. Dit is een periode van quasi volledige duisternis, lage temperaturen en een zee bedekt met ijs. De produktie in de waterkolom zakt dan nagenoeg tot een nulpunt.

Benthische gemeenschappen zijn zeer sterk afhankelijk van wat er in de waterkolom geproduceerd wordt, en meer bepaald van wat hiervan uiteindelijk op de bodem terechtkomt. Bijgevolg zijn de seizoenaliteit, intensiteit en ruimtelijke variatie van verticale fluxen van deze pelagische productie zeer bepalend voor de structuur en grootte van de bodemgemeenschappen.

Tot heel recent was de Antarctische meiofauna een terra incognita in het domein van de meiobenthologie. Bovendien vormde het onderzoek van deze fractie van mariene bodemdieren (38 - 1000 µm) een onontgonnen gebied in de totaliteit van de Antarctische benthische ecologie.

De studie is uitgevoerd in twee gebieden, nl. in de diepzee en in de ondiepe sublittorale zone, die zich onderscheiden door een al dan niet rechtstreekse koppeling tussen de produktieve waterkolom en de onderliggende bodem. Er werd geopteerd om het effect van verscheidene typische kenmerken van het polaire milieu op het meiobenthos, en meer bepaald op het meest voorkomende taxon, de nematoden, te onderzoeken.

Meiofauna van het continentaal plat en de continental helling van de Weddell Sea

Voor deze studie werden de benthische gemeenschappen bemonsterd tijdens de derde fase van de European Polarstern Study (EPOS), uitgevoerd van op de RV 'Polarstern' tussen 13 januari en 10 maart 1989. De studie maakt deel uit van een globaal onderzoeksproject met als doel het effect van het abiotische en biotische milieu op de bodemdieren en visgemeenschappen te evalueren. Het huidige project is meerbepaald ontworpen om de invloed op de groep van de interstitiële fauna te bestuderen. Dit gebeurt aan de hand van staalnames langsheen twee dieptetransecten ter hoogte van Halley Bay (74-75°S, 25-29°W) en Kapp Norvegia (71-72°S, 12-13°W) in de Weddell Zee, met dieptes variërend tussen 200 en 2000 m.

MEIOFAUNA

De totale meiofauna densiteit (zowel van SD als van VD stalen) varieerde tussen 815 en 7237 ind. per 10 cm² en de totale biomassa tussen 126 en 1437 µg drooggewicht per 10 cm². De nematoden domineerden met een ruwe 83 tot 97 %, gevolgd door harpacticiden, polychaeten en kinorhynchen. De andere taxa vormden samen slechts een kleine 4% van het totaal.
De gemiddelde lengte van de nematoden in de gemeenschappen in het transect bedroeg 892 µm (geometrische gemiddelde 754 µm, harmonisch gemiddelde 646 µm). De lengtefrequentie distributiecurves duidden op een dominantie van de grootteklasse van 0.4 tot 0.6 mm.
Er werden geen grote verschillen aangetroffen tussen de taxondensiteiten en de totale biomassa's van de gemeenschappen in de twee regio's van de Weddell Zee. De waargenomen distributiepatronen toonden echter wel het belang van de dieptelocatie van de stations en hun respectievelijke afstand ten opzichte van de ijsshelf aan. Met multivariate statistische technieken werden de meiofauna gemeenschappen in de volgende coherente groepen opgedeeld: de stations van het continentaal plat ter hoogte van Halley Bay (met hoge densiteiten en tussenliggende biomassa's), de dieperliggende delen van de continentale helling van beide transecten (met lage densiteiten en lage biomassa's), de stations van het continentaal plat ter hoogte van Kapp Norvegia (eveneens met een rijke meiofauna populatie, maar met een ietwat andere taxonsamenstelling dan deze ter hoogte van Halley Bay), en tenslotte the bovenliggende delen van de continentale helling ter hoogte van Halley Bay (met tussenliggende variabelen).
In het benthische milieu werd een duidelijke variabiliteit waargenomen die zich zowel op kleine als op middelgrote schaal manifesteerde. Deze werd vooral toegeschreven aan de effecten van een intense, maar ruimtelijk zeer geconcentreerde primaire productie, met daaropvolgende variabele toevoer naar de onderliggende bodem. Dit werd vertaald in geaggregeerde distributiepatronen van de meiofauna.
In een vergelijking met andere oceanen is gebleken dat de meiofauna in de Weddell Zee overeenkomstige densiteiten en biomassa's vertoont met de meeste andere (rijke) diepzeegemeenschappen: De resultaten van deze studie kwamen overeen met de regressie opgesteld voor de totale densiteit van de meiofauna in functie van de zeediepte in de Noordatlantische Oceaan (Vincx *et al.* 1994).

NEMATODEN

Tot op heden was er niets gekend over de structuur van de vrijlevende mariene nematoden in Antarctica. In dit onderzoek werden de genussamenstelling, trofische structuur en leeftijdsverdeling van de gemeenschappen bepaald aan de hand van 7300 identificaties. De gegevens werden onderworpen aan een reeks statistische technieken, waaronder univariate, multivariate en grafische methoden.

Op een totaal van 40 families waren de Chromadoridae het meest vertegenwoordigd (15%), gevolgd door Comesomatidae (12%), Desmodoridae (11%) en Microlaimidae (10%). *Sabatieria* domineerde met een relatieve abundantie van 8%. Daarnaast waren de genera

Molgolaimus, *Microlaimus*, *Monhystera* en *Dichromadora* eveneens sterk vertegenwoordigd met abundanties van meer dan 5% van de volledige nematodengemeenschap. Co-dominanten waren *Daptonema* (4%), *Leptolaimus* (4%), *Acantholaimus* (3%) en *Cervonema* (3%). 149 genera (drievierde van de gemeenschap) haalden echter uitermate lage percentages, dikwijls met cijfers lager dan 1%.
De voedingstypes van de nematoden waren evenredig verspreid, met de epistratum-eters variërend tussen 24 en 55 %, de niet-selectieve deposit-eters tussen 22 en 40%, en de selectieve deposit-eters tussen 18 en 49%. De predatoren/omnivoren behoorden tot een kleine 5% van de totale nematodenpopulaties.

DATA ANALYSE

Met multivariate statistische technieken (Twinspan, Group Average sorting, CA) konden de stations op basis van hun genus-en familiesamenstelliing in vier grote groepen worden opgedeeld. Ze bestonden uit het continentaal plat en de bovenste gedeelten van de continentale helling ter hoogte van Halley Bay, de diepere gedeelten van de continentale helling van beide regio's en een heterogene groep bestaande uit het continentaal plat van Kapp Norvegia en de overgangszone tussen het plat en de helling. De nematoden vertoonden een sterk geaggregeerde spreiding. Deze was het meest uitgesproken tussen de stations (stalen), en vervolgens in dalende volgorde tussen de subregio's (continentaal plat en continentale helling) en de regio's (Kapp Norvegia en Halley Bay). Deze geaggregeerde distributie manifesteerde zich eveneens in de trofische structuur en leeftijdssamenstelling van de nematodengemeenschappen.
De waargenomen patronen werden gerelateerd tot een aantal omgevingsvariabelen. Hieruit bleek dat er niet iets bestond als een gradiënt, zoals men wel zou verwachten uit de dieptevariatie van de stations. De variatie binnen de gemeenschappen werd daarentegen eerder veroorzaakt door een complexe interactie van diverse milieuvariabelen, die elk op zich discontinu veranderden langsheen de transecten. Hiertoe behoorden voornamelijk de sedimentsamenstelling (22 % van de genera waren significant gerelateerd aan de korrelgroottesamenstelling) en de voedselconcentraties in het sediment (28 % van de genera waren gecorreleerd met de diverse trofische variabelen). Dit gold zowel op een kleine (m en cm) als middelgrote (km en enkele honderden km) schaal.Het uiteindelijk resultaat was een abrupte, eerder diepte-onafhankelijke, overgang tussen de verschillende gemeenschappen.

De factoren aan de basis van de variatie in sediment- en voedselsamenstelling werden gevonden in de productiviteit en hydrodynamica van het pelagische milieu, de karakteristieke eigenschappen als gevolg van shelfijs, ijskap en ijsbergen, en het voorkomen van macrobenthische gemeenschappen.

DIVERSITEIT

De diversiteit van de nematodengemeenschappen langsheen de dieptetransecten was hoog, met een gemiddelde van 40 à 70 genera per station (cf Hill's N_0 diversiteit), een gemiddeld aantal genera tussen 30 en 54 bij een staalgrootte van 100 individuen (cf Hurlberts modificatie van Sanders diversiteitscurves), en een Shannon-Wiener diversiteit tussen 4.1 and 5.4 bits per individu. The k-dominantie curves waren nagenoeg identiek, wat wijst op een vergelijkbare verspreiding van de dominante genera over de diverse stations. De distributiecurves konden opgedeeld worden in twee grote groepen (grofweg overeenstemmend met Halley Bay en Kapp Norvegia). De sterke overeenkomst in de vorm van de curves bewees echter dat de spreiding van de individuen over de genera (eveness) in het geheel niet veel verschillde.

LITERATUUR

Het uitvoeren van een mondiale vergelijking met literatuurgegevens bleek niet zo evident te zijn. Gezien de schaarste aan beschikbare overeenkomstige studies werden de huidige gegevens van de Weddell Zee slechts vergeleken met de data van de Middellandse Zee, de Atlantische en de Arctische Oceaan. Opvallend waren de steeds terugkerende dominanties van *Sabatieria*, *Microlaimus*, *Monhystera, Daptonema, Leptolaimus* en *Acantholaimus.* Dit benadrukte de grote geografische distributie van de desbetreffende genera. Ondanks deze treffende overeenkomst waren er ook nog een groot aantal verschillen. Zo bleek dat 30 % van de genera (met abudanties hoger dan 1%) in de Weddell Zee niet als dusdanig voorkwamen in andere diepzeegebieden, wat dan op zich pleitte voor een scheiding tussen geografische regio's.

Dit stemt niet overeen met de ogenschijnlijke uniformiteit op hadale en abyssale dieptes. Deze vertonen immers een zeer treffende similariteit in nematodengemeenschappen beperkt tot enkele genera zoals *Theristus*, *Acantholaimus*, *Halalaimus*, *Desmoscolex*, *Tricoma*, *Microlaimus*, *Syringolaimus* en *Sphaerolaimus*.
De meest voor de hand liggende verklaring voor het verschil in similariteit tussen bathyale gemeenschappen wordt gezocht in het feit dat de omgevingsfactoren in die transitiezone (nl de shelf break en de continentale helling) veel heterogener zijn dan in de diepzee *stricto sensu*.

THEORIEEN

Heel wat literatuur behandelt het thema van diversiteit in de diepzee. Eén van de veel gehanteerde theorieën is de 'stability-time' hypothese van Sanders (1968). Deze werd dan ook toegepast op de waarnemingen binnen de nematodengemeenschappen in de Weddell Zee door ze te klasseren tussen de biologisch en fysisch gecontroleerde hypothetische gemeenschappen.
Verder werd ook de theorie van Dayton & Hessler (1972) toegepast. Door het toevoegen van de factor 'verstoring' werd de positieve versus de destructieve werking van ijsbergen gesuggereerd. In een laatste fase van deze studie werd de invloed van 'verstoring' op diverse variabelen in de mariene nematodenpopulaties van de subregio's nagegaan, en dit aan de hand van χ^2-testen, *sensu* Lambshead & Hodda (1994).

Finale argumenten, voortvloeiend uit de toepassing van de drie theorieën, benadrukken dat zowel de heersende lage temperaturen, het historisch verleden (glaciatie, isolatie en ouderdom), alsook de hedendaagse productiviteit, in combinatie met stabiliteit, fysische verstoring en ruimtelijke heterogeniteit aan de basis lagen van diversiteitspatronen in de nematodengemeenschappen van de Weddell Zee. Biologische interacties werden in deze studie niet expliciet in beschouwing genomen.

VERTICALE DISTRIBUTIE

De studie van de verticale distributie in de sedimentkolom toonde aan de bovenste sedimentlagen de hoogste percentages aan organismen bevatten. Dit beantwoordde aan de gegevens gevonden in de diepzeeliteratuur. Er werden echter ook hoge abundanties in de diepere lagen waargenomen, dit in functie van het type sediment en meer bepaald de samenstellende silt/klei en kiezelfractie. De nematoden namen over het algemeen in lengte toe naarmate ze dieper aangetroffen werden. Die toename gebeurde tot op een diepte van 4-5 cm.
Vele nematodengenera koloniseerden bij voorkeur de oppervlakkige sedimentlagen, en vanaf 2 à 3 cm diepte werd een selecte verzameling van enkele genera zoals *Molgolaimus* en *Sabatieria* met hoge abundanties aangetroffen. Onder de dominante genera werden twee types van gemeenschappen aangetroffen: (1) deze die meestal teruggevonden waren aan de oppervlakte, nl *Microlaimus*, *Monhystera* en *Leptolaimus*, en (2) de nematoden die ook in de diepere strata veel voorkwamen, *Dichromadora*, *Acantholaimus*, *Molgolaimus* en *Sabatieria*. De opsplitsing werd weerspiegeld in de voedingtypesamenstelling van deze gemeenschappen, waarbij de epistatum-eters met een 30-40% aangetroffen werden aan de oppervlakte (0-2 cm), de selectieve deposit-eters voor ongeveer 50% terug te vinden waren in de intermediaire lagen (2-4 cm) en tenslotte de niet-selectieve deposit-eters die hoogste percentages (30-40 %) haalden in the diepste strata (4-10 cm).
Deredox potentiaal en voedsel distributie werden aangehaald als structurerende factoren. Er werd echter ook gewezen op het feit dat het type onderzoek niet toelaat om definitieve conclusies te vormen betreffende de rol van omgevingsfactoren in de distributie van de meiofauna in de sedimentkolommen van de Weddell Zee .

CONCLUSIE

Uit het meiofauna onderzoek in de Weddell Zee kan besloten worden dat de totale densiteiten en biomassa's, de compositie en distributie van de hoger taxa, en van de nematoden, sterk vergelijkbaar zijn met vele resultaten in andere diepzeegebieden. Toch kan de Antarctische meiofauna zich in sommige aspecten (hoge densiteit en diversiteit) onderscheiden van andere gemeenschappen langsheen de continentale rand.

Meiofauna in de seizoenaal variërende ondiepe sedimenten van Signy

Deze ecologische studie omvat de temporele variatie van de Antarctische meiofauna in de periode van april 1991 tot en met november 1992, en de ruimtelijke variatie van deze benthische groep in de sedimentprofielen tijdens de zomer van 1994. Beide staalnamereeksen werden uitgevoerd op een ondiepe (-10 m) sublittorale plaats in Signy Island (South Orkney Islands, 60°42' S, 45°36' W) en hebben tot doel na te gaan hoe de interstitiële fauna zich gedraagt onder de extreme omgevingsfactoren kenmerkend voor een polair milieu. De studie maakt deel uit van een globaal Brits onderzoeksproject dat geconcentreerd is op het volledige ecosysteem van Signy.

MILIEU

Het pelagiaal van Signy wordt gekenmerkt door een zomerbloei van grote diatomeeën en coloniale organismen met daarbij een minder intense, maar langere bloei van nanoflagellaten. Deze laatste wint vooral tijdens de winter aan belang ten opzichte van de microchlorofyl productie.
De opeenvolging van pelagische productie en de transmissie van detritus naar de bodem, was duidelijk zichtbaar in de sedimenten. De timing van de signalen in de bodem verschilde echter in functie van de aard van de pelagische productie (flagellaten versus diatomeeën).
De toevoer van vers organisch materiaal afkomstig van *in situ* en pelagische productie was daardoor niet alleen substantieel maar eveneens van lange duur. Hierdoor was het benthos slechts voor een heel korte periode tijdens de tweede helft van de winter trofisch gelimiteerd.

De hypothese dat populaties in een dergelijk seizoenaal variërend ecosysteem fluctueren als antwoord op de toevoer van voedsel, wordt ook hier getest voor de meiofauna. *A priori* werd verwacht dat de meiofauna

*uitgesproken distributie karakteristieken zou vertonen in periodes van grote voedselinput
*een fundamentele temporele fluctuatie zou vertonen doorheen het polaire jaar.

GEMEENSCHAPS STRUCTUUR

Er werden extreem hoge meiofauna densiteiten gerapporteerd met jaarlijkse gemiddeldes tussen 5 en 7.5 * 10^6 ind. m^{-2} en piekwaarden tot bijna 20*10^6 ind. m^{-2} en 14 g dwt m^{-2}. De meiofaunagemeenschappen, gekarakteriseerd door een laag aantal hogere taxa, werden gedomineerd door de nematoden (met abundanties tot 90 %). De genus diversiteit, bepaald door iets minder dan 15000 nematoden identificaties, was eveneens laag en gedomineerd door *Daptonema*, *Aponema*, *Neochromadora*, *Sabatieria*, *Microlaimus* en *Chromadorita*, samen een slordige 97% van de totale nematodenpopulatie. De dominantiestructuur bleef nagenoeg onveranderd doorheen de volledige studieperiode. Het aantal genera varieerde tussen 9 en 14, de dominantie diversiteit (bepaald door de inverse fractie van het meest dominant genus) tussen 1 en 4.
Epistratum-eters en niet-selectieve deposit-eters waren het meest aanwezig. Hoogstwaarschijnlijk voedden deze organismen zich met diatomeeën, bacterien en organisch materiaal. De gehanteerde classificatie voor het bepalen van de trofische structuur van de nematodengemeenschappen *sensu* Wieser (1953) werd echter bekritiseerd. Hierbij ging de aandacht vooral uit naar de toekenning van *Aponema* als selectieve deposit-eter versus epistratum-eter en van *Daptonema* als een niet-selectieve deposit-eter versus epistraat-grazer.

Tijdens de zomer was de verticale distributie van de meiofauna zeer sterk geconcentreerd in de bovenste 3 centimeter van de sedimentkolom. De belangrijkste oorzaak hiervan situeerde zich wellicht in de hoge input van organisch materiaal tijdens dit seizoen. Hierdoor ontstond een voedselrijke oppervlakkige detrituslaag (met pigment concentraties tot 1300 mg Chl-a m^{-2}) met daaronder een zeer gereduceerde compacte sedimentkolom (met uitgesproken zwavel karakter). Deze chemisch bepaalde stratificatie van voedsel uitte zich in een zeer oppervlakkige dieptepenetratie van de bodembewonende fauna.

Uit een vergelijking met literatuurgegevens kon besloten worden dat de karakteristieken van de meiofauna in Signy sterk overeenkwamenmet wat is gevonden in fijne sedimenten in het algemeen. De typische structurele eigenschappen, zoals hoge densiteit gepaard gaande met lage diversiteit, worden teruggevonden in biotopen die gekenmerkt worden door een ver gevorderde vorm van eutrofiëring (cf model van Pearson & Rosenberg).

SEIZOENALITEIT IN DENSITEITEN EN BIOMASSA'S

De meiobenthosgemeenschappen vertoonden eveneens doorgedreven temporele schommelingen. Hierbij alterneerden tijdstippen van kortstondige densiteitspieken met periodes van minder dense concentraties. De combinatie van directe en uitgestelde relaties tussen de meiofauna variabelen en hun omgeving waren een bewijs voor de sterke koppeling met het seizoenaal variërende pelagische en benthische milieu.
De waargenomen responsmechanismen konden als volgt samengevat worden:

- uitgesproken densiteits- en biomassapieken enkele weken na de maximale diatomeeënproductie in de waterkolom
- lagere, maar nog steeds sterk fluctuerende biomassa's en densiteiten als direct of uitgesteld antwoord op de kwalitatief lagere nanoplankton input
-sterk gereduceerde densiteiten en biomassa's op het moment van laagste voedselbeschikbaarheid tijdens het midden van de winter.

Twee opmerkelijke observaties trokken echter de aandacht: (1) hoewel een sterke reductie in densiteiten en biomassa's tijdens de winter was waargenomen, waren de uiteindelijke waarden nog steeds vergelijkaar met de doorsnee densiteiten van meiofauna in vele andere sublittorale geografische gemeenschappen en (2) hoewel de Antarctische winter verondersteld wordt van een lange, donkere, onproductieve periode te zijn, was de meiobentische 'productie' slechts beperkt tot een korte periode van ongeveer twee maanden tijdens de tweede helft van deze zogenaamde Antarctische winter.

De afwijkende karakteristieken van het pelagiaal tijdens de huidige staalnameperiode (en in het bijzonder tijdens de Antarctische zomers van 1990/91 en 1991/92) lagen wellicht aan de basis van de geobserveerde fenomenen. Door de in de tijd langgerekte productie van fytoplankton (in tegenstelling tot de beperking van de bloei tot een korte periode van een aantal weken tijdens de zomer) ontstond er immers een bijna continue toevoer van vers organisch materiaal over een quasi volledig jaar. Bovendien was het beschikbaar voedsel voor de meiofauna afkomstig van zowel fytopankton, ijsalgen, *in situ* benthische fytogemeenschappen en populaties van bacterien. Er kan verondersteld worden dat dergelijke grote diversiteit aan voedselbronnen belangrijk waren voor het induceren van variabiliteit in de meiofaunagemeenschappen.

SEIZOENALITEIT IN DE HOGERE TAXA

De harpacticide copepoden en turbellarien waren het meest gevoelig voor schommelingen in het pelagische milieu. Hoewel de nematoden niet strict afhankelijk waren van de toevoer van vers organisch materiaal, vertoonden ook zij een zekere respons ten opzichte van het temporeel fluctuerende milieu. Toch was deze niet zo sterk uitgesproken (opnieuw omwille van de variëteit en continuïteit aan voedselbestanddelen over de volledige jaarcyclus).

SEIZOENALITEIT IN rePRODUCTIE

Gezien de alomtegenwoordigheid van de diverse levensstadia van nematoden, werd gesuggereerd dat de productie van nematoden continu doorging. Het percentage aan juvenielen schommelde daarbij tussen 14 en 59 %. Desondanks werd er toch een zekere ritmiek waargenomen, waarbij de graviede vrouwtjes en juvenielen tijdens voedsel-armere periodes het sterkst vertegenwoordigd waren. Er werd verondersteld dat dergelijke toename in reproductie voorafgaand aan de periode van grote voedselinput een optimale levensstrategie zou zijn aangepast aan periodes van lage voedselbevoorrading. In voedselrijke periodes wordt daarentegen bijvoorbeeld meer energie gestoken in andere activiteiten zoals lichaamsgroei en opstapeling van reservemateriaal.

De dominante genera reproduceerden echter soms zeer ongelijktijdig. Dit werd aangetoond voor *Sabatieria*, *Aponema*, *Neochromadora*, *Daptonema*, *Microlaimus* en *Chromadorita*.

Aan de hand van gepubliceerde waarden over jaarlijkse P:B ratio's in nematodengemeenschappen van gematigde streken werd een productie tussen 2 en 38 gC m^{-2} y^{-1} berekend. Aldus werd vastgesteld dat de jaarlijkse productie van de Antarctische meiofauna hun gematigde tegenhangers (zoals in de Noordzee) ruim overtreft.

Ondanks de vele aanwijzingen over een nauwe verband tussen de meiofauna en het seizoenaal variërende biotoop, en de talrijke correlaties met sediment trap en waterkolom variabelen, zijn er maar een beperkt aantal correlaties gevonden met het voedsel in de sedimenten zelf. Blijkbaar is het niet zozeer de hoeveelheid maar wel de kwaliteit van het voedsel dat telt voor de bepaling van de distributiepatronen in meiofaunagemeenschappen. Dergelijke benadering vergt echter een ander type van analyses.

CONCLUSIE

Een algemene conclusie uit deze studie in de ondiepe sublittorale sedimenten van Signy was dat de distributie van de meiofauna zeer sterk beïnvloed werd door het temporele karakter van de pelagische en benthisch ecosysteem compartimenten. De dominantie van een beperkt aantal nematodengenera was stabiel doorheen de studie. Bovendien waren de meeste organismen tijdens de zomer sterk gelimiteerd tot de bovenste sedimentlagen. Deze beide waarnemingen bewijzen de sterke impact van het eutrofe (en bijgegevolg het reductieve) karakter van het omringende benthische milieu. De bewering van Clarke (1988) dat alle compartimenten van het Antarctische (mariene) voedselweb sterk onderhevig zijn aan de seizoenaliteit van de primaire productie, werd ook door deze studie bevestigd.

INTRODUCTION to the physical and geological environment of Antarctica

All topics described below were completely adapted from two syntheses of the current state of knowledge on Antarctica and the surrounding Southern Ocean :

Stonehouse, B. (1989)
Polar Ecology
Tertiary Level Biology, Chapman & Hall, New York

and

Knox, G.A. (1994)
The Biology of the Southern Ocean.
Studies in Polar Research, Cambridge University Press.

Antarctica, for most people a grim, white area at the end of the earth, far from every day life, is the area of the far south that is characterized by distinctively polar conditions of climate, plant and animal life, and other physical features. In contrast to the Arctic, which is centred on an ocean basin, Antarctica includes an ice-covered continent (East Antarctica or Greater Antarctica), the Antarctic Peninsula (West Antarctica or Lesser Antarctica), off-lying islands and a surrounding ocean (Southern Ocean: 37.5 10^6 km²). Despite its large size (14 million km², 10 % of continental surface on the globe) and its large mean surface elevation (over 2000 m without ice-cap, twice higher than Asia), it is poorly presented on world maps, usually with distorted shapes, directions and areas.

While the Southern Ocean can be considered as one big system, in reality it is a series of interconnected ecosystems (sea ice, ice shelves, icebergs, water column, benthos, littoral, sublittoral, deep-sea, etc.). Descriptions of this ocean have been given by several workers over the years, and more recent overviews contribute to a comprehensive outline of a variety of physico-chemical and biological sources in this region. Citing Knox (1995), amongst the characteristics of the Southern Ocean are:

1. It is the largest marine ecosystem on the globe
2. It is semi-enclosed regarding the occurrence of the northern boundary water mass, the Antarctic Convergence
3. It is an old system with a long evolutionary history, established at least 20 million years ago
4. The principal variation is that of the productivity which is greater in certain regions than in others
5. The quantitative and qualitative features of the basic processes of the Southern Ocean system are obviously different from those of other oceanic systems, as demonstrated by the distribution of the dominant herbivore and key species of the system, Euphausia superba.

In further only those characteristics, in some way or another, important for understanding the environment of the study sites in this PhD, will be considered.

Climate and seasonality. The Southern Ocean is a cold ocean. Across the Antarctic convergence zone the temperature range in the summer is from 4 to 8°C, and in the winter from 1 to 3°C. Surface water immediately south of the Convergence has an average temperature of about 1 to 2°C in the winter and 3 to 5°C in the summer, while further south near the continent temperatures range from -1.0 to -1.9 °C. The annual range troughout does not exceed 4-5°C.

The polar environment has, however, not always been cold. The fossil record of Antarctica testifies to a long pre-glacial history of warm or temperate climates (*e.g.* early Tertiary temperatures were about 15°C) and cooling occurred through a series of slow and discontinuous glaciation periods during the past 60 million years. The polar flora and fauna, thus, had a long time to develop under gradually lowering temperatures.

Natural selection has never been simply a selection of cold-hardy species for increasingly cold environments. Many other factors not directly related to cold have been involved. Adaptations to thrive in seasonal environments, in which day-length, temperatures, water and food availability and other important factors fluctuate widely throughout an annual cycle, might have been at least as critical as adaptations to cold. Although there are indeed seasons of scaricity, alternating with periods of extraordinary abundance, there is also great amount of year-to-year variability.

Ice cover. One of the salient characteristics of the Southern Ocean is the dramatic change which occur in sea ice cover, from about $20*10^6$ km² in late winter to about $4*10^6$ km² in late summer. Figure I1 illustrates the growth and decay of the sea ice in the Southern Ocean. The months of minimum extent are February and March while those of maximum extent are September and October. This pack ice (drifting ice floes) zone of annual sea ice is 1-2 m in thickness. Its distribution is highly variable as the ice cover is frequently broken-up by storms and the resulting floes drift considerable distances driven by surface currents and wind.

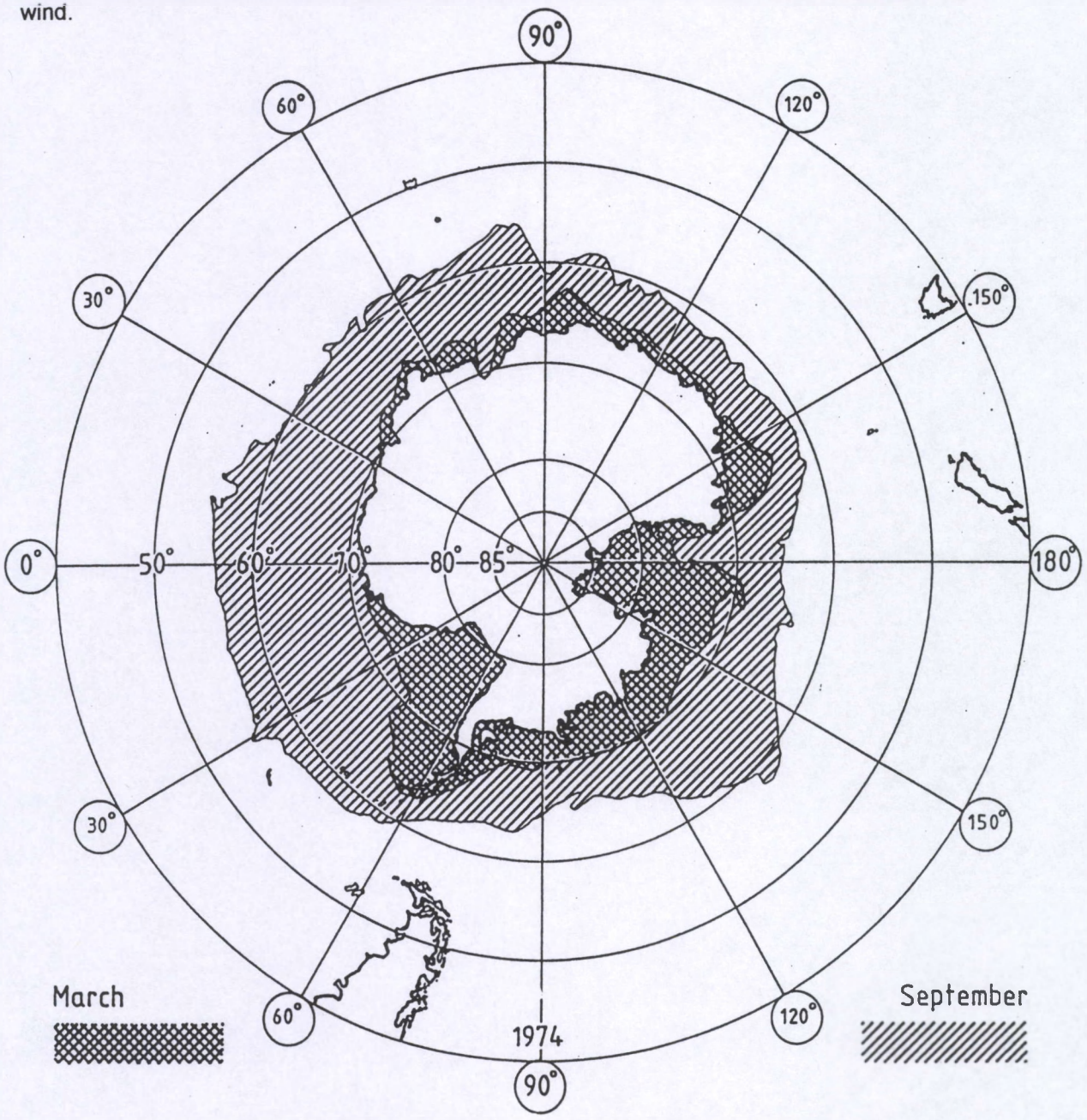


***Figure I1** : The distribution of the pack ice in winter (September) and summer (March). Copy from Knox (1994).*

Large areas of open water -polynas- may occur and persist throughout the winter, when offshore katabatic winds (downflowing air cooled by radiation) are sufficiently strong and persistent. The best known polyna is a large ice-free region in the Weddell Sea (in the area of the Maud Rise).

The melting of the sea ice during the summer results in the introduction of a large amount of low-salinity melt water into the surface layer of the seasonal sea ice region. This has a profound effect on the trophic dynamics of the region as the presence of the meltwater is a key factor leading to phytoplankton blooms in the marginal ice zone. Furthermore, high concentrations of sea ice microalgae grow in association with the pack ice.

Not only sea ice, but also ice shelves and icebergs distinguish the Southern Ocean from any other ocean on the globe. The ice sheet convering the Antarctic continent extrude into the sea hence leading to the fomation of the Filchner and Ronne Ice Shelves in the Weddell Sea and Ross Ice Shelf in the Ross Sea. Continually moving seaward at about 1 m a day, these ice shelves eventually crack and calve icebergs.

Glacial and ecological history. Antarctica was formerly linked to South America and Australia in the Gondwana supercontinent, and no doubt shared a Tertiary flora and fauna with them. Since its separation by the formation of the circum-Antarctic current some 23.5 million years ago the continent and the nearby islands have been isolated from the rest of the world. Both climate and history are at the base of the present-day fauna and flora.

Oceanography and bathymetry. The Southern Ocean is connected trough deep ocean basins with the Indian, Pacific and Atlantic Oceans. Bounded only partially by a series ridges and rises (for example the Scotia Ridge between South America and Antarctica) deep Antarctic Bottom Water tend to flow freely to the north, hence fuelling world's oceans. Circulation patterns of Antarctic water masses are:

1. Antarctic Circumpolar Current (ACC or West Wind Drift): being the only zonal current encircling the globe, and almost unobstructed by land masses, it joins the great current gyres of the South Atlantic, South Indian and South Pacific Oceans.

2. Antarctic Coastal Current (East Wind Drift): following the coastline this surface current appears south of about 65°S with two important indentations in the Ross and Weddell Sea.

3. Circumpolar frontal zones (Figure I2): dividing the Southern Ocean into two distinct regions (sub-Antarctic to the north and Antarctic to the south) the most significant frontal zone is the Antarctic Convergence (Polar Front, 45-60°S). It is a zone of variable width characterized by steep gradients in sea-surface temperature, abrupt changes in phytoplankton abundance, zooplankton distribution, pelagic bird species, wheather conditions, and sometimes by a salinity maximum at the surface. Other fronts are, the Sub-Antarctic Front to the north and the Antarctic Divergence to the south of the Convergence. In the region of the divergence (at about 60-55 °S) deep water upwells to reach the surface. The entire study of the PhD was performed south of the Convergence.

The continental shelf that surrounds Antarctica differs from that surrounding other continents in that it is unusually deep, with the 'shelf-break' (the transition between the continental shelf and the continental slope) lying two to four times deeper than in other oceanic regions. This is partly due to the isostatic equilibrium adjustment of the continent to the large mass of the Antarctic ice sheets. Only about 2% of the continent is exposed, the rest lying under an ice mantle of mean thickness 1880 m.

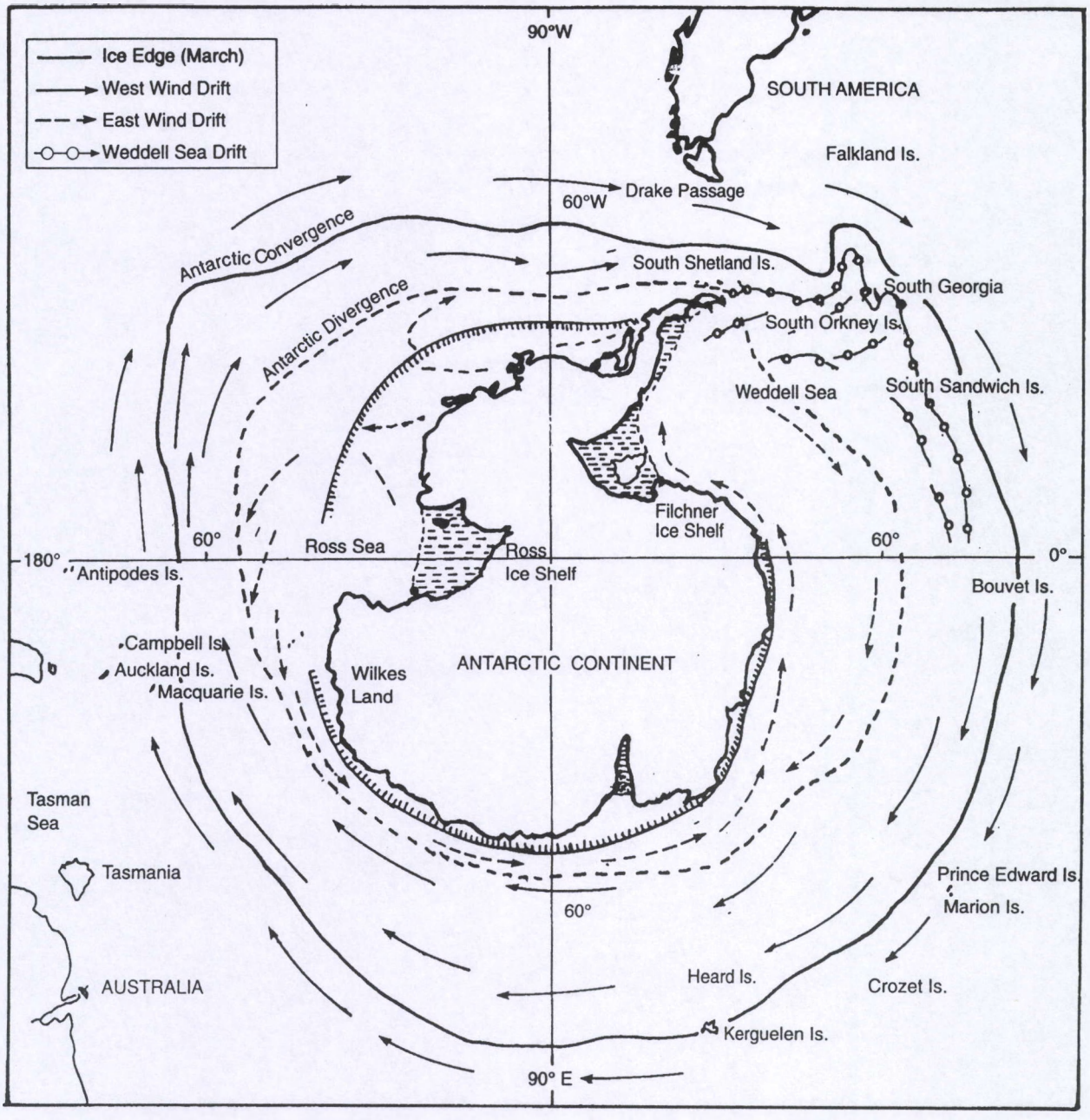


***Figure I2**: Antarctica and the Southern Ocean showing the positions of oceanic fronts and surface currents (Copy from Knox 1994).*

MEIOFAUNA IN THE SHELF/SLOPE SEDIMENTS OF THE WEDDELL SEA

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Meiofauna in the shelf/slope sediments of the Weddel Sea

INTRODUCTION:

The Weddell Sea environment.

The following descriptions on the Weddell Sea topography, sediments and hydrography, together with the prevailing ice conditions, primary production and sedimentation are adapted from

Carmack & Foster (1977), Foster & Carmack (1977), Hellmer & Bersch (1985), Grobe (1986), Eicken *et al.* (1987), Fischer *et al.* (1988), Nöthig (1988), von Bodungen *et al.* (1988), Rohardt *et al.* (1990), Wefer *et al.* (1990), Bathmann *et al.* (1991), Weber (1992), Fahrbach *et al.* (1992).

Bottom topography. The Weddell Sea belongs to the Atlantic sector of the Southern Ocean. It is bounded to the south by the Antarctic continent, to the west by the Antarctic Peninsula (ca. 60°W) and to the north by the Scotia Ridge (60°S). Using the limit of the South Sandwich Islands (26°W) to Kapp Norvegia (12°W) as the eastern boundary, the Weddell Sea covers about 2.3 10^6 km², which is approximately equal to the Mediterranean Sea. With a mean depth of about 4400 m the volume of the Weddell Sea amounting to 7.6 10^6 km^3 represents about 0.5 % of the water volume of the World Ocean.
The continental shelf region occupies one-quarter of the area but forms only 4% of the volume of the Weddell Sea. Due to the weight of the ice-cap on the continent and isostatic movements the continental shelf is very deep. The 600 m-isobath is generally defined as the shelf edge, but changes occur depending on locality. The shelf is very narrow from about 90 kilometers in the east to 10 kilometers in the northeast. Traces of icebergs are frequently found being often several hundred meters in width and with depths amounting to 30 meter. The continental slope east of 25°W is relatively steep (9-12°).

Hydrography (Figure 1.1.). The westward moving Antarctic Coastal Current enters the Weddell Sea as a relative intense (up to 20-40 cm s^{-1}) flow following the contours of the continental margin. The catabatic coastal winds cause an upwelling of Ice Shelf Water. The colder and less saline eastern ice-shelf water generally does do not mix with the more saline Warm Deep Water, but upwelling phenomena occur in specific regions (f.e. at Kapp Norvegia). On the eastern and southern shelf strong bottom currents prevail.

Ice cover. The extent of the Antarctic pack ice shows a high seasonal (and annual) variation. Consequently most of the ice is renewed and 1-1.5 m thick. Maximum levels are reached in September (northernmost position at the South Sandwich Islands: 56°S). In late September the ice retreat begins and is accelerated in November. Whilst a large part of the Weddell Sea, mainly in the west and south, is permanently covered with sea ice (perennial ice of 3 m in thickness), the southeastern and eastern parts are often icefree during spring and summer. Due to the occurrence of semi-permanent polynas (open water masses in the pack ice) these regions are also partly icefree in November in the southeast and in winter in the northeast Weddell Sea.
These polynas are, however, very variable in size and location, depending on day-to-day wheather conditions. Exact information on seasonal phenomena of the pack ice is scarce, and therefore the above description serves as a general aspect in the Weddell Sea.

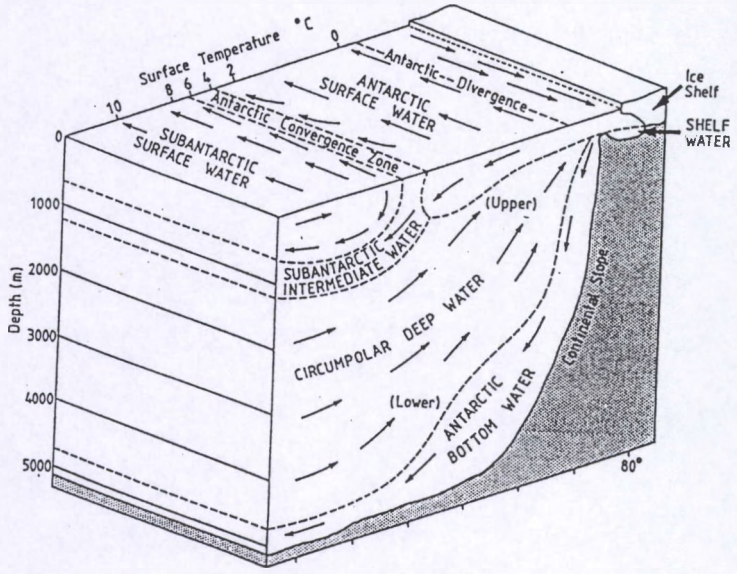

Figure ¿.1.: *Schematic diagram of water masses and flow during summer in the Atlantic sector of the Southern Ocean. Copy from Knox (1994).*

Primary production and sedimentation. Despite the large amount of data that has been collected for decades, geographical and temporal coverage of phytoplankton, its production, and subsequent deposition, is sparse. Dictated by wheather conditions and remoteness, an incomplete picture of short-term and local data is available. In addition, methods and techniques differ considerable (f.e. gross production vs net and regenerated production; estimates based on real activity vs adapted from chlorophyll concentrations or sediment trap data, seasonal vs annual rates etc..), giving very extreme ranges of primary production:

Author	primary production
Holm-Hansen *et al.* 1977	1670 mg C m^{-2} d^{-1}
Nöthig, 1988	268-489 mg C m^{-2} y^{-1}
Schnack-Schiel 1987	0.4 ng C h^{-1} l^{-1} chl a
von Bodungen *et al.* 1988	100-1000 mg C m^{-2} d^{-1}
Bathmann *et al.* 1991	2342 mg C m^{-2} d^{-1}

Sedimentation in the Weddell Sea occurs by melting processes in the vicinity of the ice shelves and by currents. Fluxes from icebergs are of minimal importance, and only a small detritus fraction is sedimented this way in the eastern Weddell Sea. In addition, the importance of ice rafting decreases with the increasing distance form the shelf. In Vestkapp (northeastern Weddell Sea) 60-90% of organic content in sediment traps is from protozoan faecal pellets and only 0.5% is of planktonic origin (mainly chl-a from diatoms).

Author	vertical flux
Bathmann *et al.* 1991	3-110 mg C m^{-2} d^{-1}
Wefer *et al.* 1990	0.1 g C m^{-2} y^{-1}

Sediment. The sediments of the shelf and slope are mainly originating from the ice-sheets (glacial marine sediments) with originally a broad size spectrum of the particles, with good sorting. In a latter stage of sedimentation sorting becomes gradually worse and the finer fraction remains. At Kapp Norvegia, for example, sediments become very badly sorted, mainly as a consequence of iceberg prevalence. Furthermore, biogenic components (debris, spicules) originating from sponges and bryozoans/hydrozoans accumulate to about 11% of the sediment on the central part of the shelf.
By the NE-SW direction of the bottom currents, a SW directed transport of sediment occurs.

The study undertaken in the Weddell Sea is situated off Halley Bay (74-75°S, 25-29°W) and Kapp Norvegia (71-72°S, 12-13°W) (Figure ¿.2). More details concerning the environment and meiofauna sampling are given in chapter 1,2 and 3.

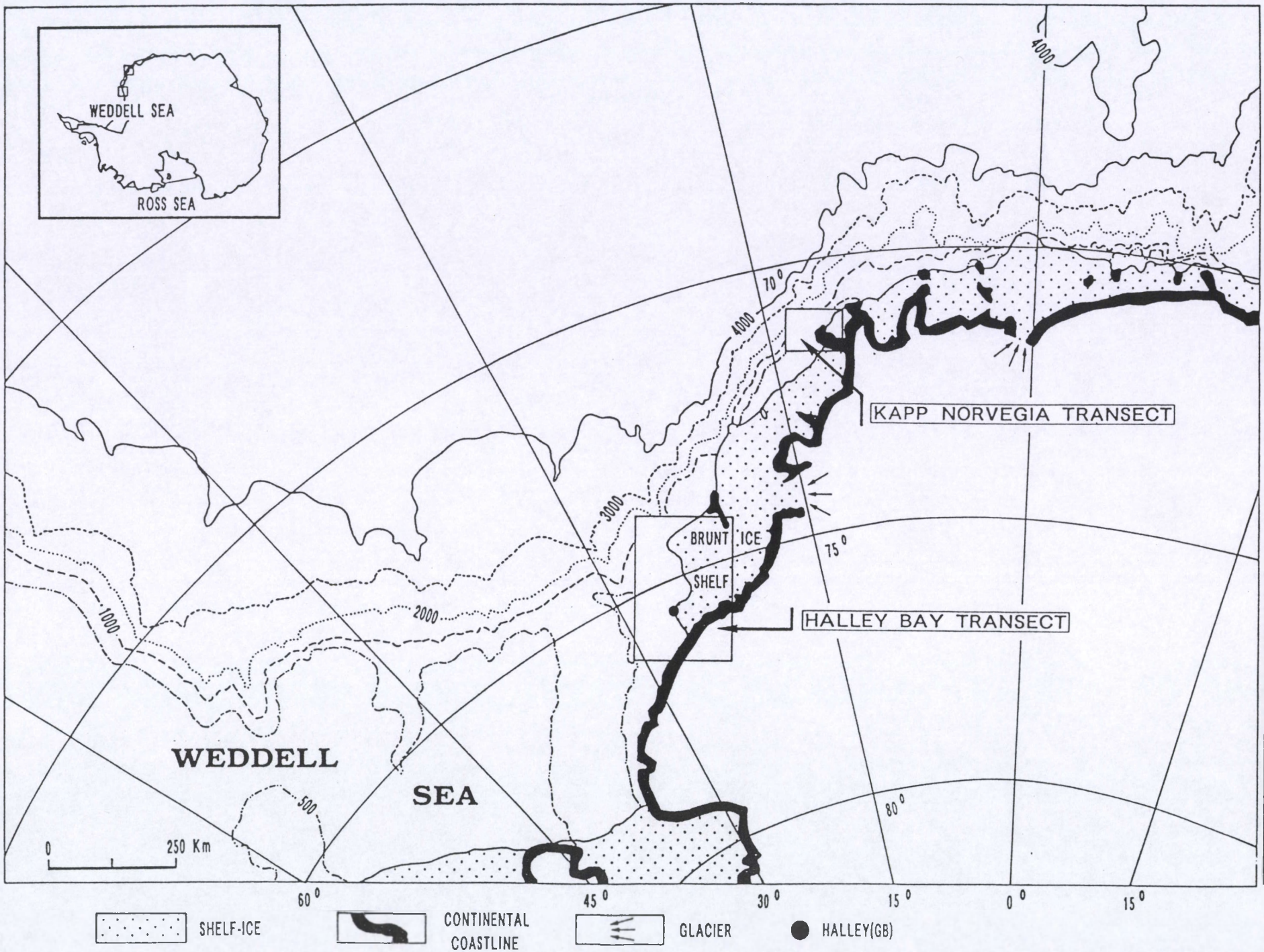

Figure 1.2: Location of the two depth transects in the Weddell Sea.

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CHAPTER 1.

Deep-sea meiofauna communities in Antarctica : structural analysis and relation with the environment

1.1. Introduction.

The ecology of deep-sea meiofauna has been extensively studied since the first quantitative investigation by Wigley & McIntyre (1964). Most of these studies, however, have focused on the Atlantic, Pacific and Indian Oceans (Vincx *et al.* 1994). So far only 2 meiofauna studies have investigated sediments from deep polar seas: one in northern boreal waters (Pfannkuche & Thiel 1987) and one in the Weddell Sea, Antarctic (Herman & Dahms 1992).

Compared to other oceanic regions, the pelagic of the Southern Ocean (*e.g.* south of 50°S) has a very short, but extremely intense, summer phytoplankton bloom, often associated with the melting of sea ice. As benthic communities depend heavily on the supply of resources from the water column, the seasonality, intensity and spatial heterogeneity of depositing matter will certainly affect the size and structure of its components. The intense pulse in primary production results in strong sedimentation of organic matter to the sea bed (Knox 1994).

From macrobenthic studies it appears that Antarctic shelf and slope sediments support high biomasses and large numbers of individuals, characterized by a relative scarceness of infaunal worms. Towards the deep sea (below 1000 m) Antarctic and non-Antarctic biomass levels do not seem to differ greatly (Arntz *et al.* 1994).

Studies on cycling of organic matter in deep-sea sediments of the north-east Atlantic suggest degradation rates of 0.3 to 2.9% d^{-1} (Lochte 1992). Remineralization processes in the sediment mainly involve bacteria (Poremba 1994), but meiofauna also play an important rôle (Findlay & Tenore 1982, Ingham *et al.* 1985, Alkemade *et al.* 1992, Giere 1993).

The objectives of this study are (1) to asses the composition and population densities of the meiofauna off Kapp Norvegia, in the Weddell Sea (71-72°S,12-13°W) and describe their distribution across the continental margin; (2) to compare the results with a previous study on meiofauna composition in a similar transect in the Weddell Sea to the south and west of the present study (Herman & Dahms 1992, Halley Bay); and (3) to relate the benthic structures to events occurring in the overlying water column by comparison with other deep-sea areas in the world.

This study serves as background for a more detailed investigation on the meiofauna in the Antarctic environment. In the future, research emphasis will be on the ecological rôle of the most abundant taxon, the nematodes.

1.2. Material and Methods.

1.2.1. Study area and treatment of meiofauna samples (Figure 1.1., Table 1.1.).

Samples were collected off Kapp Norvegia (Weddell Sea, 71-72°S, 12-13°W) during the third leg of the European Polarstern Study (EPOS) carried out by the RV 'Polarstern' between 13 January and 10 March 1989. General descriptions of the biological, chemical and physical characteristics of the Weddell Sea during the present investigation are given by Arntz *et al.* (1990). Characteristic features of sedimentation, hydrography and topography off Kapp Norvegia are described in Grobe (1986) and Hempel (1993). The investigated bathymetric range was between 211 and 2080 m. Ice had started to retreat during the sampling period. The sediments are of glacial marine and biogenic origin (Hough 1956), and mainly consist of fine sands.

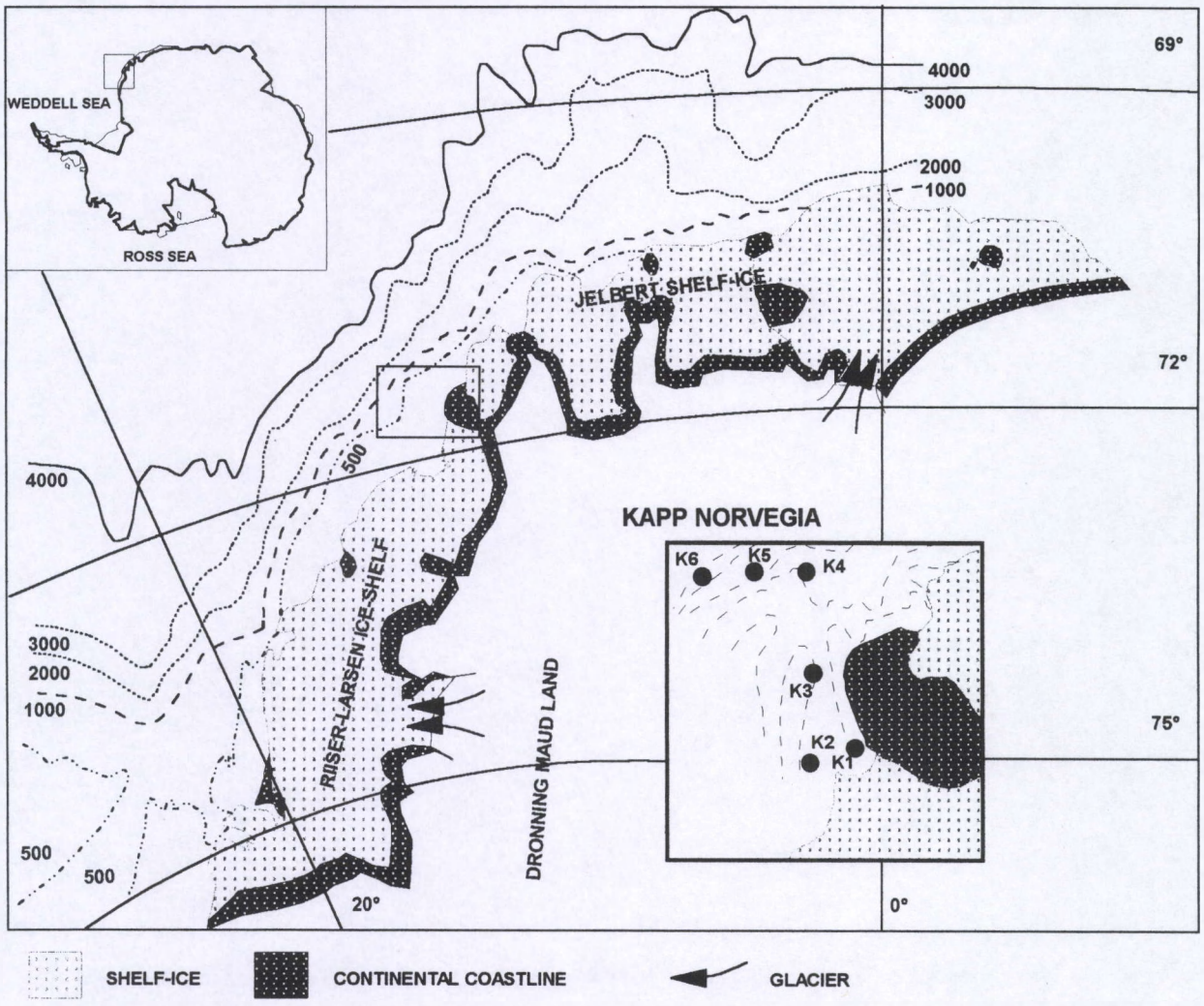

Figure 1.1. : Map showing the study area in the Weddell Sea, with station locations.

Samples were taken with a multicorer with a hydraulic system (MUC; each core 25 cm^2; Barnett *et al.* 1984). A multiboxcorer (MG; each core 240 cm^2; Gerdes 1990) was used where sampling with the more fragile multicorer was impossible, because of bad weather conditions and high sediment gravel content. The sampling device and original station numbers are included in Table 1.1. In both cases meiofauna was subsampled using 10 cm^2 plastic cores and material was held on a 38 µm mesh sieve. For 6 stations at least 2 cores were analyzed for both bathymetric distribution (SD is spatial distribution, bulk sediment) and vertical distribution (VD) within the sediment. The detailed descriptions of the VD replicates will be presented in chapter 3.

Density data presented are concerned with metazoan meiofauna. A description of the species composition of the foraminifers is given by Mateu (1992).
Approximately 200 nematodes were collected from each SD core, while 100 nematodes were used from each sediment interval for the VD analysis. After mounting the nematodes in glycerine slides (Seinhorst 1959), the length and maximum width of each individual were measured. Assuming a specific gravity of 1.13 and a dry/wet weight ratio of 0.25, the biomass of nematodes was calculated using the adjusted method of Andrassy (Soetaert 1989).
Parametric (ANOVA, covariance analysis) was performed on respectively square and fourth root transformed data of total biomass and density. Nonparametric analysis (Kruskal-Wallis; Siegel 1956) were used on the data for individual nematode length and nematode biomass, where the assumptions for parametric analysis were not met.

1.2.2. Comparison with Halley Bay.

Herman & Dahms (1992) described the structure of the meiofauna along a similar depth transect in the Weddell Sea at Halley Bay. Their results were compared with the current data in classification techniques (**T**wo-**W**ay **IN**dicator **SP**ecies **AN**alysis, TWINSPAN, Hill 1979; **G**roup-**A**verage **S**orting cluster analysis, GAS, with the Bray Curtis similarities, Bray & Curtis 1957) using taxon composition. The stations off Kapp Norvegia are denoted with K1 to K6, the stations off Halley Bay with H1 to H12. The density data were reduced using a 4%- rule (*e.g.* taxa consisting of less than 4% of the total density after elimination of the nematodes were excluded), and were fourth root transformed prior to this analysis (Jongman *et al.* 1987). The relation with environmental impact was tested using the nonparametric Spearman rank correlation analysis. Environmental data (sediment properties and microbiota) were obtained simultaneously with similar sampling devices (Table 1.1.). For details on methods consult Arntz *et al.* (1990). Sediment grain size was calculated using the Wenthworth classification (Krumbein & Pettijohn 1938).

Table 1.1. *Environmental characteristics at the study sites in the Weddel Sea. Values are integrated over the top 5 cm, except when stated. Original station numbers and sampling gear employed (MG: multiboxcorer, MUC: multicorer) are added.*

	Kapp Norvegia						Halley Bay											
STATION	**K1**	**K2**	**K3**	**K4**	**K5**	**K6**	**H1**	**H2**	**H3**	**H4**	**H5**	**H6**	**H7**	**H8**	**H9**	**H10**	**H11**	**H12**
STATION NUMBER (according to Arntz *et al.* 1990)	274	277	278	292	294	295	226	229	230	235	241	245	248	249	250	252	253	258
DEPTH (m)	211	405	537	561	1199	2080	582	502	247	399	458	492	633	681	806	1183	1958	502
SAMPLING GEAR	MG	MG	MG	MG	MUC	MUC	MUC	MUC	MG	MUC	MUC	MUC	MUC	MUC	MUC	MUC	MUC	MG
SEDIMENT GRANULOMETRY (%)																		
Mean (phi)		4.0	4.1	3.4	5.0	5.7	4.3	4.0	2.9	4.1	5.4	3.9	2.6	2.5	2.7	4.2	6.7	
Gravel		6.1	34.5	40.1	15.7	1.0	0.0	0.0	1.5	0.0	7.0	19.1	11.4	17.6	2.1	0.0	0.0	
Very coarse sand		16.0	9.5	16.8	16.2	2.0	0.1	0.6	11.1	2.9	2.6	8.7	13.6	12.1	6.1	1.2	2.5	
Sand		48.0	33.9	33.8	36.2	26.6	61.8	67.5	76.0	58.6	25.8	48.1	71.0	66.9	86.7	53.0	6.4	
Silt		24.5	18.5	7.2	20.2	54.3	29.3	26.7	9.0	32.7	51.0	15.1	2.1	2.5	4.2	42.1	61.3	
Clay		5.3	3.6	2.2	11.8	16.0	8.8	5.2	2.4	5.8	13.7	9.1	1.9	1.0	0.9	3.8	29.8	
Porosity		60.7	63.4	37.2	51.4	75.4	59.3	57.8	35.5	61.2	72.2	58.3	37.2	38.5	39.4	62.2	81.5	
SEDIMENT ORGANIC MATTER																		
Org C (%)		0.5	0.7	0.4	0.2	0.5	0.2	0.2	0.1	0.3	0.4	0.5	0.2	0.2	0.2	0.3	0.6	
Tot N (%)		0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	
C/N		8.8	9.3	8.1	9.0	7.5	6.8	6.7	7.0	6.6	6.8	6.6	7.9	7.4	9.4	8.1	6.7	
PORE WATER NUTRIENT CONTENT (µM)																		
SiO_2		334.1			341	353	375	334		358	359	271	336	376	416	381	212	
PO_4		16.9			14.5	7.8	8.0	27.7		28.0	11.7	22.6	55.8	43.2	27.9	20.2	5.2	
NO_2		0.6			0.8	0.3	1.2	0.6		0.8	0.7	1.0	0.9	2.8	1.0	0.5	0.7	
NO_3		40.8			27.0	64.2	27.7	52.1		29.7	17.5	56.2	21.1	28.9	17.4	40.2	54.4	
SEDIMENT PIGMENT CONTENT (µg cm^{-2})																		
Chl a)		0.4	0.1	0.0	0.0		0.4	0.2		0.4	0.6	1.1	0.3	0.1	0.0	0.2	0.3	
Pheo) CPE[a]		4.3	2.1	3.5	0.5		3.2	3.1		6.4	5.3	7.1	2.0	2.2	1.2	2.4	2.4	
SEDIMENT ATP (mg m^{-2})[b]		3.2	2.7	5.9	2.1	2.6	1.3	3.3	3.0		3.0	4.2	2.7	1.7	0.8	2.9	2.5	1.0
BENTHIC MICROBIOTA (values integraded over 63 mm) (ngC cm^{-2})																		
heterotrophic nanoflagellates	88	131	118		54	50	341	149	57	51	120	56	102	52	32	16	13	
bacteria		104	95		76	69	91	106	55	76	91	103	79	47	78	115	65	
Eh (mV)																		
at -1 cm		506			479	403	608	418		526	526	436	484	433	467	498	556	
at -5 cm		313			359	391	542	406		428	428	419	396	548	-21	440	531	

[a]Chloroplastic pigment equivalents (chlorophyll *a* and degradation products)
[b]Used as a biomass estimate of bacteria in the sediment

1.3. Results

For raw data see
appendix 2 : Depth variation within meiofauna communities: meiofauna taxon data
appendix 7 : Nematode size measurements, Weddell Sea: dimensions of nematode length and width

1.3.1. Sample replication.

The contrast analysis (ANOVA) showed that there was no significant difference between a VD and an SD treatment (SD is bulk sediment; VD is the sum of subsequent sediment slices) of the sediment core. The exception was due to the occurrence of a small-scale spatial heterogeneity within a treatment, probably reflecting patchiness. Consequently VD and SD samples could be assigned as replicates (the data of the VD treatments are presented in Chapter 3).

1.3.2. Distribution and composition of the meiofauna off Kapp Norvegia.

Total meiofauna densities ranged from 815 ± 321.7 ind.10 cm^{-2} at 1199 m depth (K5) to 5122 ± 3254.0 ind.10 cm^{-2} at 278 m depth (K3). Total biomass varied from 126 ± 47.2 µg dwt 10 cm^{-2} (K4, 561 m) to 966 ± 698.6 (K3, 537 m) µg dwt cm^{-2}. The 2 variables were significantly related to each other (dwt:abundance, $p < .05$). Covariance analysis showed 2 distinct groups of stations (Tukey, $p < .001$). Stns K1, K2 & K3 (Group I) had the highest densities and total biomass, while a noticeable lower stock was found in stations K4, K5 & K6 (Group II)(Figure 1.2.).

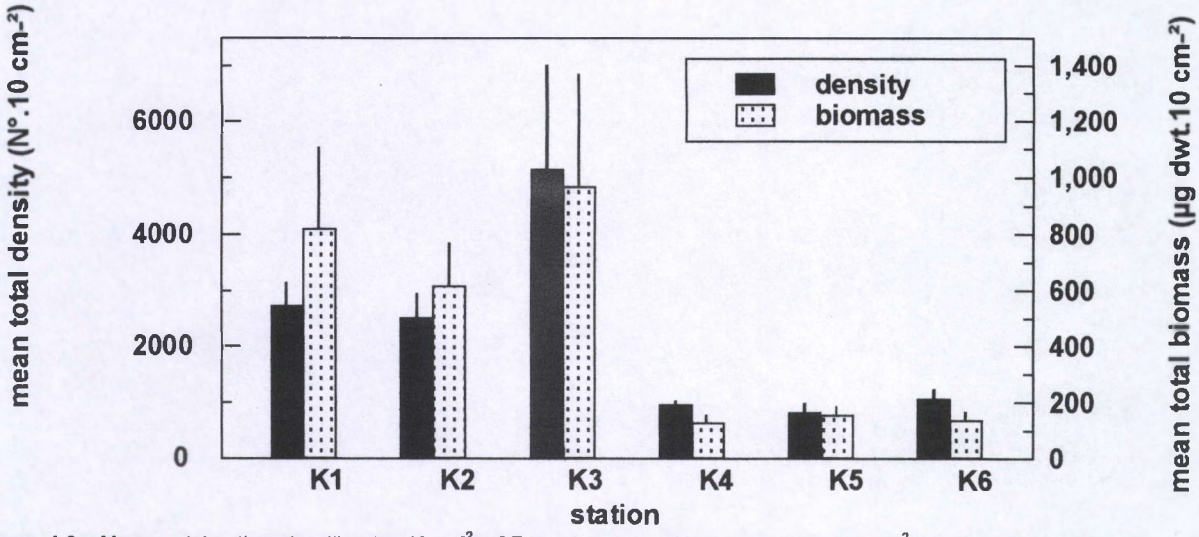

***Figure 1.2.** : Mean meiobenthos densities (no 10 cm^{-2} ± SE) and mean total biomass (µg dwt 10 cm^{-2} ± SE) at the 6 stations.*

There was no clear relationship with bathymetric depth, but 2 separate geographical groups were present: Group I was close to the ice-shelf, while Group II was more off-shore. Mean total biomass was 20% higher in Group I than in Group II.

Nematodes were most abundant, and accounted for 83 to 97% of the total. They were followed by nauplii and Harpacticoidea, Polychaeta and Kinorhyncha (Figure 1.3.). The other taxa (19 in total) comprised together less than 4 % of the total (Table 1.2.). From this table it is clear the diversity (*e.g.* number of taxa) did not differ between Groups I and II along the transect.

Harpacticoid copepod and polychaete density exhibited a significant negative correlation with depth ($p < .01$), whereas the nematodes and the kinorhynchs did not (Figure 1.3.). The distinction between the ice-shelf and open-water stations can partly be inferred from the taxon composition (Figure 1.3., Table 1.2.).

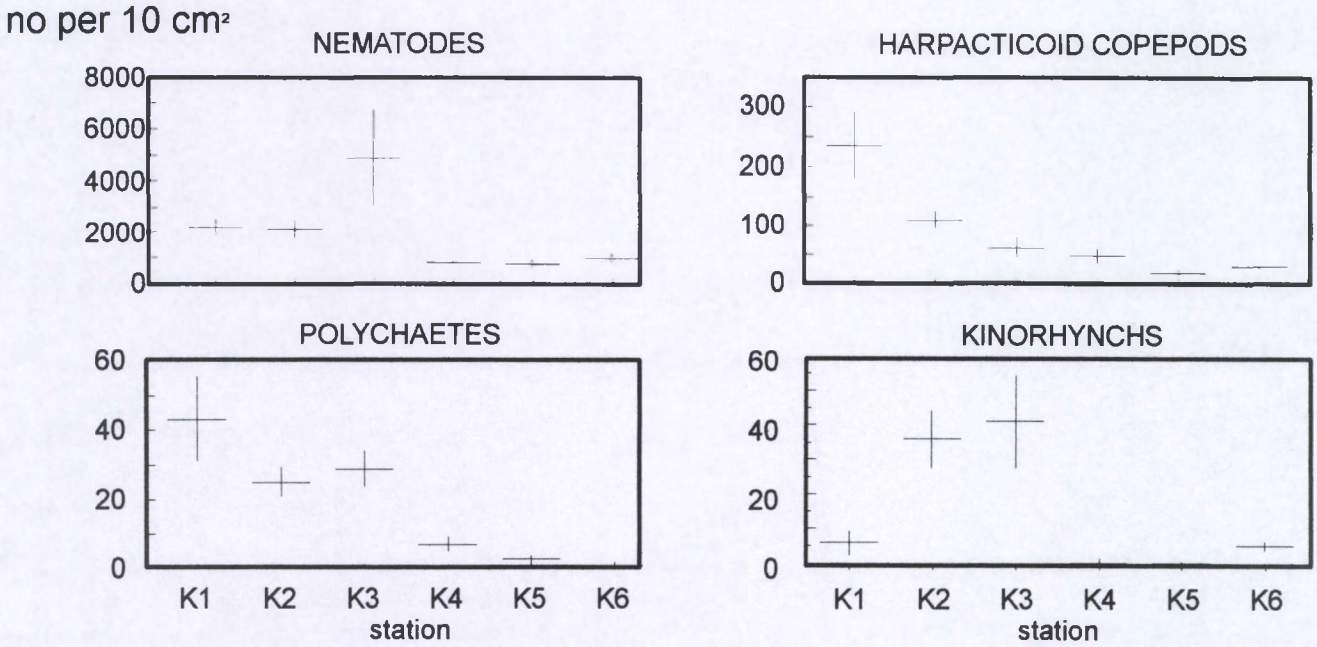

Figure 1.3. *: Bathymetric distribution of nematodes, harpacticoid copepods, polychaetes and kinorhynchs. Values shown are means ± SE (n ≥ 4).*

Table 1.2. *Relative abundance of nematodes, and mean metazoan meiofaunal abundance of the less abundant taxa (no 10 cm^{-2}).*

	K1	K2	K3	K4	K5	K6
Abundance nematodes	**82.5**	**86.8**	**96.0**	**86.9**	**96.4**	**95.9**
other taxa (%)	**2.7**	**2.0**	**0.5**	**3.4**	**0.8**	**0.6**
Amphipoda					**0.1**	**0.1**
Bivalvia	**1.0**	**8.2**	**7.5**	**3.5**	**2.0**	**0.4**
Bryozoa		**9.8**		**5.0**		
Coelenterata	**1.0**	**0.8**	**0.8**	**1.8**		
Cumacea						**1.7**
Echinodermata			**0.3**			
Gastrotricha	**0.7**	**0.3**		**1.8**	**0.2**	
Halacaroidea	**6.7**	**2.0**		**0.3**	**0.5**	**0.2**
Isopoda		**0.3**		**1.0**		
Loricifera		**0.6**	**0.5**		**0.8**	**0.8**
Oligochaeta	**0.3**	**7.2**	**5.0**	**1.3**	**1.4**	**0.6**
Ostracoda	**14.7**	**13.8**	**8.25**	**7.8**	**0.8**	**1.7**
Porifera		**0.2**				
Priapulida		**0.5**	**0.8**	**0.5**		**0.1**
Rotifera		**3.2**	**1.0**	**6.0**		
Tanaidacea	**0.3**	**0.2**	**0.3**	**0.3**	**0.3**	
Tardigrada	**6.0**	**0.2**		**1.5**	**0.5**	**1.2**
Tunicata			**0.3**			
Turbellaria		**3.3**	**1.0**	**1.5**	**0.1**	
# taxa	**8**	**15**	**12**	**13**	**10**	**9**

1.3.3. Size structure of nematodes.

In order to test the hypothesis of Thiel (1975) (*i.e.* meiofauna become smaller in size with increasing water depth), nematode sizes were studied along the transect.

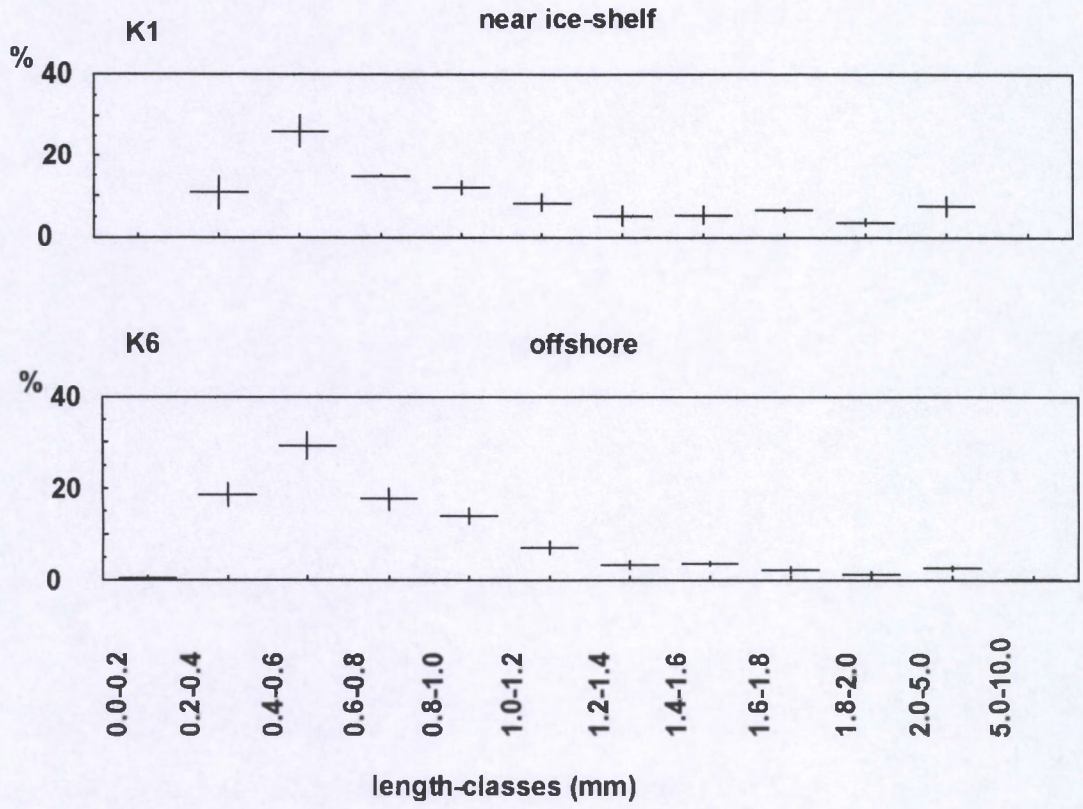

Figure 1.4. *: Length frequency distributions of the nematodes at Stns K1 & K6 off Kapp Norvegia (mean length in mm ± SE, n = 3 and 5). Stns K1 & K6 are representative of the other stations in the study.*

The length-frequency distributions of the nematodes in the 6 stations showed similar shapes. The end stations of the transect can be considered as representatives for the whole depth transect (Figure 1.4.). Skewed patterns were obtained with the smaller animals (0.4 to 0.6 mm) being more highly represented. Only 27 % of the nematodes were longer than 1 mm, and only 4 and 0.9 % reached lengths over 2 and 3 mm respectively. Mean nematode lengths varied from 743 µm at K4 to 986 µm at K1 (overall mean: 892 µm ± 579; geometric mean: 754 µm; harmonic mean: 646 µm). The high standard deviation indicates a high variation between the replicates. Mean individual nematode lengths were significantly different between the stations (Kruskal-Wallis, $p < .001$), but were not related to bathymetric depth. This is consistent with the overall similarity in age structure of the nematodes throughout the transect (53 to 67 % of the organisms were juveniles).

The smallest mean individual nematode biomass per station of 0.140 µg dwt at K6 shifted to 0.352 µg dwt at K1 (overall mean: 0.233 µg dwt; geometric mean: 0.07 µg dwt; harmonic mean: 0.03 µg dwt; Figure 1.5.). Mean individual nematode biomass was significantly different between the stations (Kruskal-Wallis, $p < .001$) and negatively correlated with water depth ($p < .01$).

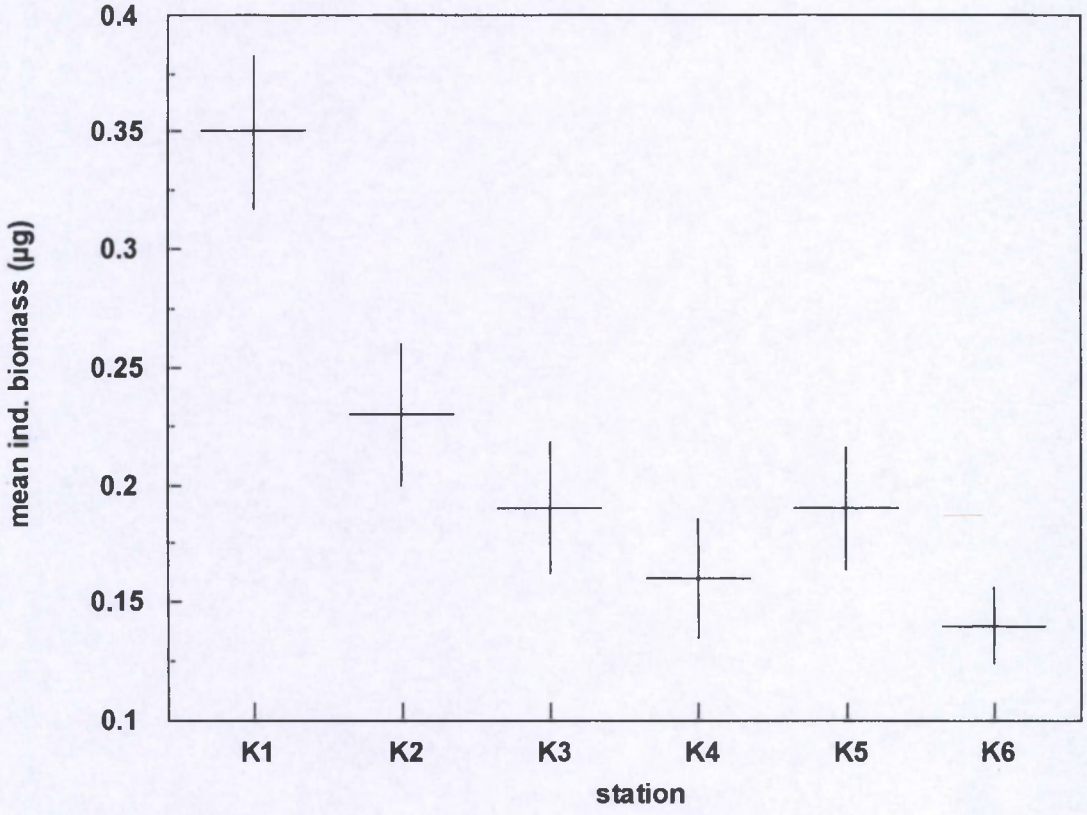

***Figure 1.5.** : Mean individual biomass (µg dwt ± SE) of nematodes at each station off Kapp Norvegia.*

1.4. Discussion.

1.4.1. Halley Bay (74-75°S ; 25-29°W) - Kapp Norvegia (71-72°S ; 12-13°W).

Meiofauna. Table 1.3. represents a comparison between the 2 regions in the Weddell Sea studied to date. The nematode community in Kapp Norvegia does not markedly differ from Halley Bay (Herman & Dahms 1992). Only slightly higher density and biomass readings were noted in the former area. Similar conclusions can be drawn from the TWINSPAN analysis (Figure 1.6.), where no clear distinction was found between the 2 transects. Clusters were primarily made on the basis of bathymetric location and/or distance to the ice-shelf, which was also relevant from the correlation analysis, and was also from observations by Herman & Dahms (1992). A strong resemblance was found between the following areas: the shelf stations of Halley Bay (H1, H2, H3, H4, H5; mean depth: 438m; indicator species: polychaetes); the deeper slopes of both transects (K5, K6, H9, H10, H11; mean depth: 1445m); the shelf stations off Kapp Norvegia (K2, K3, K4; mean depth: 501m; indicator species: turbellariens and priapulids); and the upper slope of Halley Bay (H6, H7, H8, H12 and exception K1; mean depth: 577m; indicator species: halacarids). Comparable sub-division were obtained in the GAS analysis (not depicted), with the exception that all the shelf stations were clustered in a single group, and distinctly separated from the deeper localities (upper and deeper slope).

Table 1.3. *: Comparison of the main variables of the nematode communities between Halley Bay and Kapp Norvegia. Data given are the range values (of SD and VD replicates) at each of the sites; means are in parentheses.*

	HALLEY BAY (582 - 1958 m)	KAPP NORVEGIA (211 - 2080 m)
Absolute density (ind.10 cm^{-2})	730.4 - 2291.0 (1585.7)	823.8 - 4914.8 (1993.5)
Relative density (%)	88.1 - 97.1 (93.7)	82.5 - 96.4 (90.8)
Mean individual length (mm)	0.667 - 0.972 (0.850)	0.747 - 0.986 (0.860)
Mean individual biomass (µg dwt)	0.124 - 0.297 (0.188)	0.154 - 0.351 (0.230)
Total biomass (g dwt m^{-2})	0.087 - 0.652 (0.285)	0.126- 0.966 (0.470)

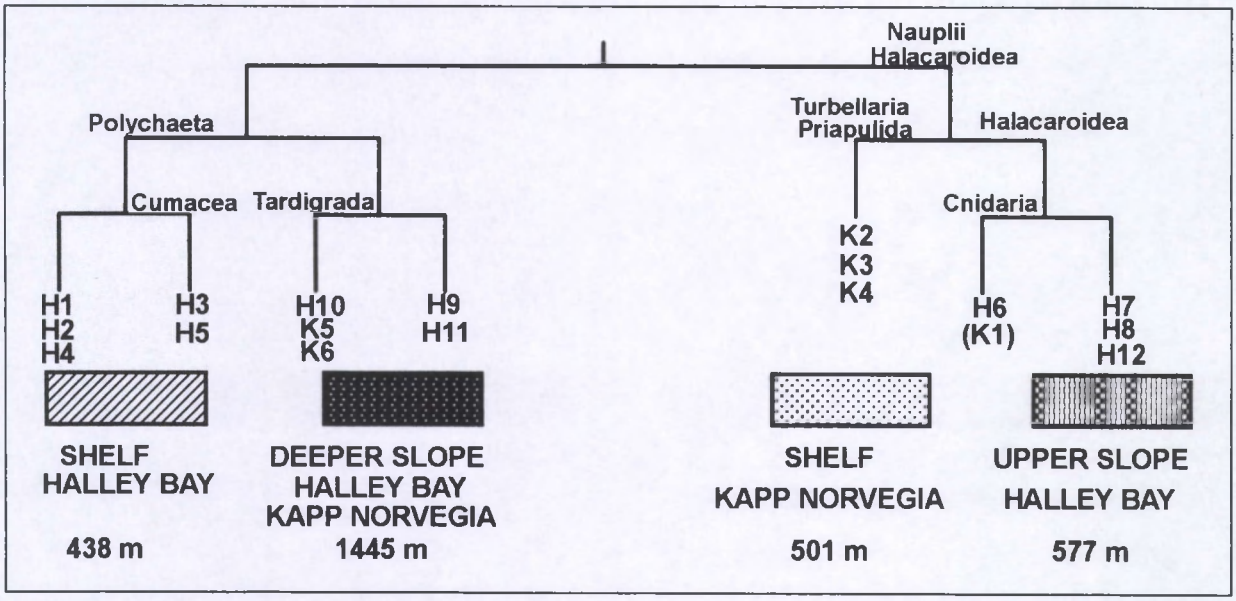

Figure 1.6.: *TWINSPAN analysis of the samples based on the fourth-root-transformed taxon data with the indicator species (taxa) for each division indicated.*

Meso-scale variability in the Weddell Sea. A significant correlation was found between depth and food (*e.g.* ATP, organic matter, heterotrophic nanoflagellates and bacteria) on one hand, and meiofauna on the other hand (Table 1.4.).
Except for kinorhynch, nematode and oligochaete densities, meiofauna distribution was not correlated with sediment texture. Surface oxygen levels (Eh), pore water nutrients (SiO_2, PO_4, NO_2, NO_3), and pigment concentrations (chlorophyll a, phaeopigments) also had little impact. High variability between sites was found in the sediment texture, nutrient pore water chemistry, microbiota (bacteria and heterotrophic nanoflagellates), and concentrations of pigments and organic matter (Table 1.1.). Despite this, the sediments within the 4 major TWIN-groups exhibited several abiotic and biotic similarities (Figure 1.7.).

***Table 1.4.** : Summary of significant Spearman Rank Order Correlations for meiofauna variables with environmental characteristics measured: total meiofauna density (tot dens); total nematode biomass tot biom); individual nematode biomass (ind biom); number of taxa (N taxa); nematodes (nem); kinorhynches (kin); harpacticoids (har); cnidarians (cni); priapulids (pri); naupliids (nau); oligochaetes (oli); tardigrades (tar); ostracods (ost); tanaidaceans (tan); bivalves (biv); polychaetes (pol).*

	tot dens	tot biom	ind biom	N taxa	nem	kin	har	cni	pri	nau	oli	tar	ost	tan	biv	pol
depth	***	***		***	**		*	*		*		*	**			***
porosity					*	***										
very coarse sand						*					*					
sand						**										
silt					*	***										
clay						*										
SiO_2							**									
NO_3										*				*		
Eh at -1 cm	*				*	*			*							
ATP	*	*			*	*			**							*
organic carbon						*								**		
organic nitrogen						**								**		
biomass bacteria	*	*	*					**	*				*	*	*	*
biomass flagellates	*	*		*				**	*				**		***	***

*** : p ≤ .001 ** : .001 < p ≤ .01 * : .01 < p ≤ .05

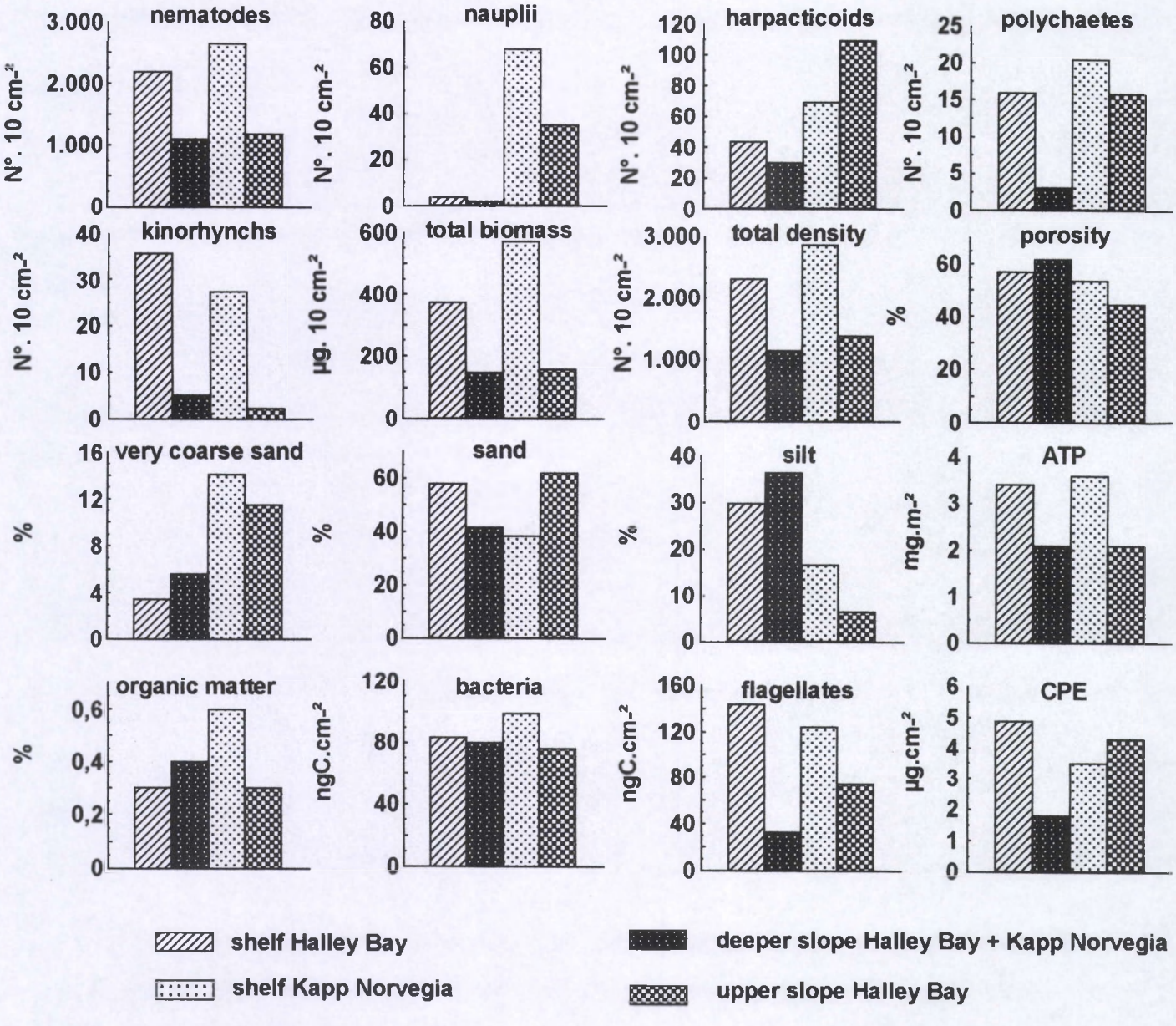

Figure 1.7. *Sediment characteristics and meiofauna densities in the 4 TWIN groups.*

The shelf of Halley Bay was typically characterized by high total density, high numbers of nematodes, kinorhynchs, heterotrophic nanoflagellates, intermediate nematode biomass values and very low nauplii numbers; the sediments were a mixture of silt and sand, and contained high ATP and CPE levels. The shelf of Kapp Norvegia has a dense meiofauna population, coarser sediments and high food concentrations.
The deeper slopes of both transects were poor in terms of meiofauna density and biomass compared to the shelves. Low ATP, CPE and flagellate concentrations characterized the fine sediments. Total density and biomass, nematode density, and ATP in the upper slope sediments had a strong affinity with the deep localities, whereas generally intermediate concentrations were found.
The sands were the major component of the sediment, and there was a significant occurrence of gravels. The sedimentation patterns can be related to high energy conditions due to the effect of the Antarctic Coastal Current in this zone (Rohardt *et al.* 1990).
Such conditions prevent the deposition of finer fractions. At bout 400m deep off Halley Bay (Stns H4, H5, H6) active sedimentation processes were recognizable from the high values of total suspended matter observed during the cruise (Rabitti & Boldrin 1990).

A cluster analysis on macrobenthic densities and biomass in the Weddell Sea region (Galéron *et al.* 1992) indicated the existence of 2 assemblages according to geographic location (*e.g.* southern and eastern shelf communities), though high variability within and between these 2 groups was found.
For the same reason Gerdes *et al.* (1992) could not easily distinguish macrobenthic biomass from Halley Bay and Kapp Norvegia. Most stations, therefore, were grouped with the eastern shelf community described by Voss (1988), which is mainly composed of suspension feeders, strongly dependent on depositing food particles.

Small-scale variability in the sediment. A high variation between replicates (as seen for the density and biomass of the meiofauna), was observed. This small-scale (at the cm^2 level) heterogeneity, inherent to meiofauna in general (Sun & Fleeger 1991), is likely to be strongly influenced by the microtopography and physical structure of the habitat, and hence the patchy distribution of the earlier mentioned environmental factors.

1.4.2. Comparison with other deep-sea areas in the world : large scale variability and environmental impact.

***Table 1.5.** : Literature data on total metazoan meiofauna density and biomass in deep seas with comparable depths. box: (multi)boxcorer; mc: multicorer; *: unicellular organisms included in total counts; ** only nematodes counted. Following Heip et al. (1985), conversion factors of 0.1, 0.4 and 0.5 were used to obtain comparable C equivalents from wet wt, dwt and AFDW respectively.*

region	source	depth m	gear	mesh µm	density ind 10 cm^{-2}	biomass g C m^{-2}
Mediterranean Sea	De Bovée *et al.* 1990	672-2105	box	40	36-1005	
	Soetaert *et al.* 1991, Heip *et al.* 1985	160-1220	box	38	370-724	0.002-0.028
Red Sea	Thiel 1979	507-1977	box	40	39-407	
	Thiel *et al.* 1987	593-1945	box	42	43-195*	
	Pfannkuche 1993	1223-1650	mc+box	40	33-123*	
Pacific Ocean	Shirayama & Kojima 1994	245-1964	box	63	438-2060*	
Atlantic Ocean						
-NE Atlantic	Thiel 1971	290-2000	box	42	30-4226	0.020-2.850
	Pfannkuche 1985	500-2000	mc	42	828-2604	0.002-0.005
	Vanreusel *et al.* 1992	190-325	box	38	864-915	0.055-0.134
-NW Atlantic	Coull *et al.* 1977	400-800	box	42	217-1408*	
-SE Atlantic	Soltwedel 1993	551-1965	box	42	277-1398	0.030-0.890
Norwegian Sea	Dinet 1974	283-2000	box	40	139-971	
	Jensen 1988	970-1255	box	45	138-204**	0.006-0.073
	Thiel 1975	1250-2250	box	40	600-1920	
Arctic Ocean -Barents Sea & Nansen Basin	Pfannkuche & Thiel 1987	226-2500	box	42	1143-4339	
Southern Ocean -Weddell Sea	Herman & Dahms 1992; this paper	211-2080	mc+box	38	815-5122	0.040-0.480

Meiofauna. Table 1.5. is restricted to transects crossing continental shelves and upper slopes (*e.g.* ± 200 to 2000m). The mesh sizes of sieves were similar, except for the study of Shirayama & Kojima (1994). As the use of different gear seriously influences the quantity of meiofauna sampled (Blomqvist 1991; Bett *et al.* 1994; Vincx *et al.* 1994), only boxcore and multicore studies were considered. In this context it is important to note that a mixture of gear types was used in this study (Table 1.1.). According to Bett *et al.* (1994), boxcorers are less efficient collectors resulting in lower density records, with possible differences of up to 50%. However, the apparent bias may vary both with time and location. From the present study it is difficult to test the difference in sampling efficiency as both types were not applied at the same sites. If such sample bias occurred, the implication is that density data obtained from multiboxcorer samples would underestimate the true population levels.

From Table 1.5. it is clear that the meiofauna in the Weddell Sea is characterized by densities within the range of other deep-sea environments (upper limit of 5122 ind.10 cm^{-2} is a single exceptional high value). Only the warm and oligotrophic deep-sea sediments in the Red and Mediterranean Sea had significantly poorer populations. Hence, the current results fit the regression of total metazoan meiofauna density with water depth, calculated for the north-east Atlantic Ocean (Vincx *et al.* 1994, Figure 1.8.).

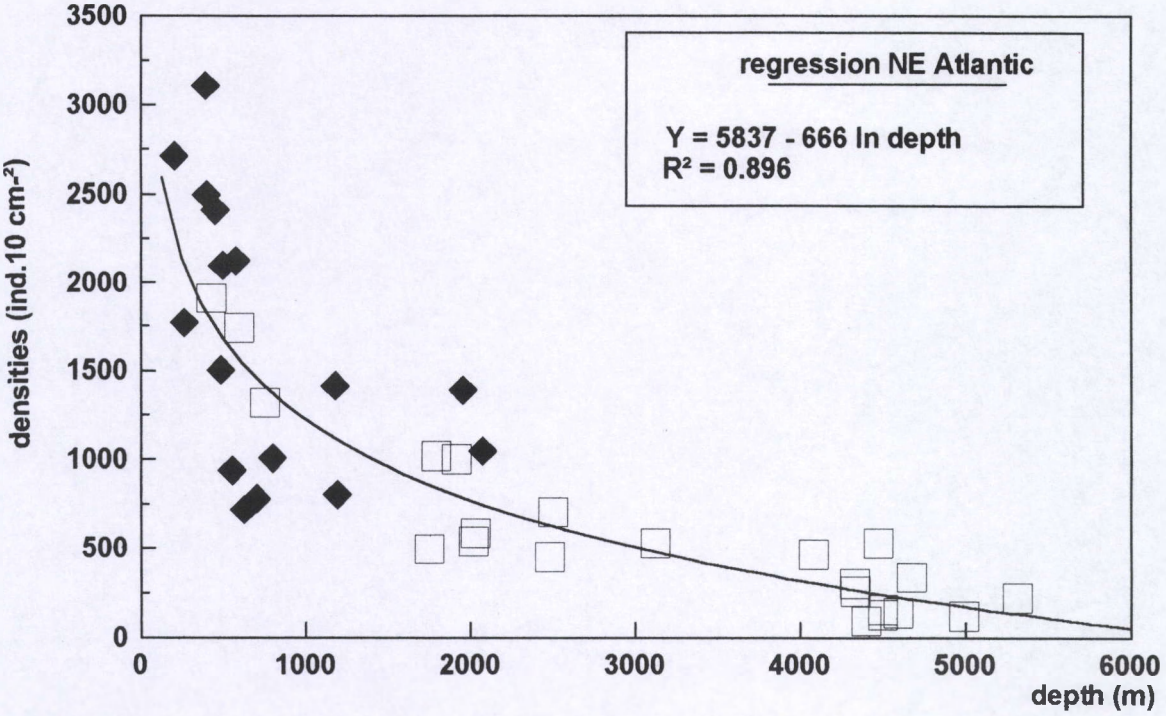

***Figure 1.8**. Regression output of the meiofaunal densities in the north-east Atlantic according to Vincx et al. (1994). Data from the Weddell Sea are added (black squares) but not included in the regression analysis.*

The composition of meiofaunal taxa turned out to be similar to that found in other deep-sea environments, with a predominance of nematodes and a relatively high importance of harpacticoids, polychaetes and kinorhynchs. A body mass of 0.05 to 0.14 µg C is also in accordance with dimensions of deep-sea nematodes recorded from similar depths in the east Atlantic Ocean and Norwegian Sea (Jensen 1988; Soltwedel 1993). Mean individual dry weight diminished along the transect, but no correlation was found with median size. This difference is because extremely large individuals are less frequent at greater water depths. These results partly support Thiel's hypothesis (1975).

Environmental impact. The factors controlling the standing stock of deep-sea benthos have recently received more attention. Gage & Tyler (1991) stated that large areas of the deep-sea floor are subjected to spatial and temporal disturbances on scales ranging from centimetres to tens of kilometres, and from days to decades or longer. The amount of biologically utilizable particulate organic matter settling from the pelagic, in particular, is a function of sedimentation and degradation rates in the water column, and determines the amplitude and duration of a benthic response (*Lutze et al.* 1986; Graf 1989; Gooday & Turley 1990; Sayles *et al.* 1994; Bak *et al.* 1995). Meiobenthic biota have been suggested to be structured by such POC flux and therefore coupled to phenomena in the pelagic (Shirayama & Kojima 1994; Vincx *et al.* 1994; Soetaert & Heip 1995; Vanreusel *et al.* 1995).

The pelagic regime of the high Antarctic is typically characterized by sudden and pronounced bloom events. Substantial amounts of organic carbon and biogenic opal may sink as a result of high plankton death rates, current activity and melting processes in the vicinity of ice-shelves and polynyas (Fischer *et al.* 1988; Wefer *et al.* 1990). Moreover, the sedimentation of faecal pellets originating from the grazing activity of protozoans, copepods and krill is sometimes the main process for the transport of material from the surface to the sea floor in the Weddell Sea (Wefer *et al.* 1990). The importance of sedimentation pulses, both from the bloom and grazing, decrease with increasing distance from the shelf (Nöthig 1988; Weber 1992). In the coastal/shelf domain off Vestkapp (Weddell Sea) primary production exhibited high figures in the austral summer, ranging from 100 to 1000 mg C m^{-2} d^{-1}, with a maximum daily POC flux of 65% at 100m depth (von Bodungen *et al.* 1988). For Kapp Norvegia no data on primary production were found, but flux rates were 3 to 110 mg m^{-2} d^{-1} at 630m (Batmann *et al.* 1991).

Substantial transport of phytodetritus to the sea bed (after ice-cover-related bloom events) and supplementary lateral transport mechanisms were thought to give rise to high concentrations of CPE in high Arctic waters (Pfannkuche & Thiel 1987). Low temperatures induce low microbial rates, and hence low organic degradation. Therefore, according to Thiel (1983), food is available to the benthos for longer periods in these cold environments. In combination with low benthic respiration, which is thought to slow down growth rates and increase individual life spans, these high food concentrations gave rise to high meiobenthic standing stocks in the Arctic (Pfannkuche & Thiel 1987).

The same could apply to the cold waters (0.4°C to 1.9°C); Rohardt *et al.* 1990) of the study area. In this region about 60% of phytoplankton derived from detritus is mineralized within 16d by the microbial community in the pelagic (Knox 1994). However, phytodetritus can deposit relatively rapidly and rates of 100 to 150 m d^{-1} have been reported (Billet *et al.* 1983). This result implies that a great amount of utilizable organic matter still reaches the sea bed within a few days. Concentrations of pigment and organic matter recorded in sediments in this study were, however, low (Table 1.3). it is likely that sampling periods here were not immediately after phytodetrital sedimentation events. Deposited organic matter had probably been utilised by the benthic faunal assemblages. Under the assumptions that primary production and POM fluxes to the sea bed showed similar features as in former years (*i.e.* high and very time-restricted), this would imply that benthos respond rapidly and efficiently to the episodic food supply.

1.5. Conclusion

Meiobenthic density and biomass data encountered in the Weddell Sea are comparable to major deep-sea environments. Features such as very high, but patchy primary production, with subsequent variable fluxes to the seabed, induce small- and meso-scale variability between and within substrates (*e.g.* food resources and sediment texture), and are reflected in meiobenthic distribution patterns. It seems that the meiofauna in these regions has, therefore developed strategies favourable to the conditions prevalent in deep-sea environments (*e.g.* high variability within the environment and unpredictability of food sources). Year round surveying of meiofauna and sediment properties, and a detailed investigation of age structure, metabolic activity and diversity of the populations, is now needed before further conclusions about the Antarctic deep-sea meiofauna can be drawn.

1.6. Acknowledgements

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CHAPTER 2.

Comparative study of the nematode communities in the bathyal Weddell Sea (Antarctica)

2.1. Introduction.

During the "European Polarstern Study" (EPOS leg 3), the zoobenthos of the eastern Weddell Sea was sampled within an interdisciplinary approach which also included the analysis of environmental factors and other faunal groups. The principal aim was to focus on different ecosystem compartments at the same time from the same stations off Halley Bay and Kapp Norvegia, with the general purpose of interrelating the various results (Arntz *et al.* 1990). With the basic idea of characterizing a presumably rich benthic community from the High Antarctic Subregion *sensu* Hedgpeth (1969), the intention was also to check whether the two areas of interest differed in their faunal composition. Studies on the macrobenthic level largely separated the sites into (a) an Eastern Shelf Community, within the confines of the Antarctic Coastal Current in the east, on unsorted sediments at depths between 204 and 445 m and typified by more sessile suspension-feeding bryozoans and hexactinellids, and (b) a Southern Shelf Community, described by a trophic diverse association of motile echinoids and decapod shrimps on sandy and soft bottoms strewn with stones at depths between 220 and 531 m (Hain 1990, Gutt 1991, Galéron *et al.* 1992, Gerdes *et al.* 1992, Hempel 1992). The finding of these two communities confirmed the pioneering work by Voss (1988) and broadly distinguished between the two regions in question.

Previous assays on abundance and biomass of the meiofauna on gross taxonomic level illustrated the relative importance of the nematodes in the area under investigation (Herman & Dahms 1992, Vanhove *et al.* 1995). However, nothing is known about the distributional patterns of these free-living marine organisms in the high Antarctics. What's more, a pile of literature reported on various ecological aspects of nematode assemblages in the deep sea (de Bovée 1987; Dinet & Vivier 1979; Jensen 1988, 1992; Renaud-Mornant & Gourbault 1990; Rutgers van der Loeff & Lavaleye 1986; Thistle & Sherman 1985; Tietjen 1971, 1976, 1984, 1989; Vivier 1978 a,b), but the majority concentrated on the abyssal and hadal depths, ignoring the vicinity of the shelf break. So far, only 4 studies addressed full transects crossing the shelf and slope (Soetaert *et al.* 1991; Soetaert & Heip 1995; Vanaverbeke *et al. in press, subm*) and one concentrated on the shelf break (Vanreusel *et al.* 1992).

As nematode communities contain a large number of species, usually an order of magnitude greater than for any other major benthic taxon (Heip *et al.* 1985), they are particularly suitable for tackling ecological concepts such as the recent biodiversity problem. Biodiversity of nematode assemblages is, however, far from fully understood (Boucher & Lambshead 1995) and completely unknown for the high Antarctics. Nevertheless this is a crucial point in the general understanding of nematode ecology. Furthermore it is a widely accepted view that macrobenthos in Antarctica expresses elevated diversity (Arntz *et al.* 1994). Generalizing this finding to the entire benthos needs considerations about the smaller fractions such as the meiobenthos.

The present paper reports for the first time on the nematode community composition in the soft-bottom marine sediments in a number of stations at two regions (*e.g.* Kapp Norvegia and Halley Bay) in the southeastern Weddell Sea at depths between 200 and 2000 m. It delivers a geographically extensive database from one of the largest shelf areas around the Antarctic continent and challenges several undiscovered aspects in ecological research. The data will be used in a comparative study of nematode distribution patterns and within-habitat diversity on different scales (replicate, station, subregion, region and latitude), and effort will be done to integrate the results with macrobenthic patterns. The application of established ecological theories will enable us to test whether the meiofaunal component of the zoobenthos responds in a similar way to the extreme Antarctic conditions of food, ice and temperature as does the macrofauna.

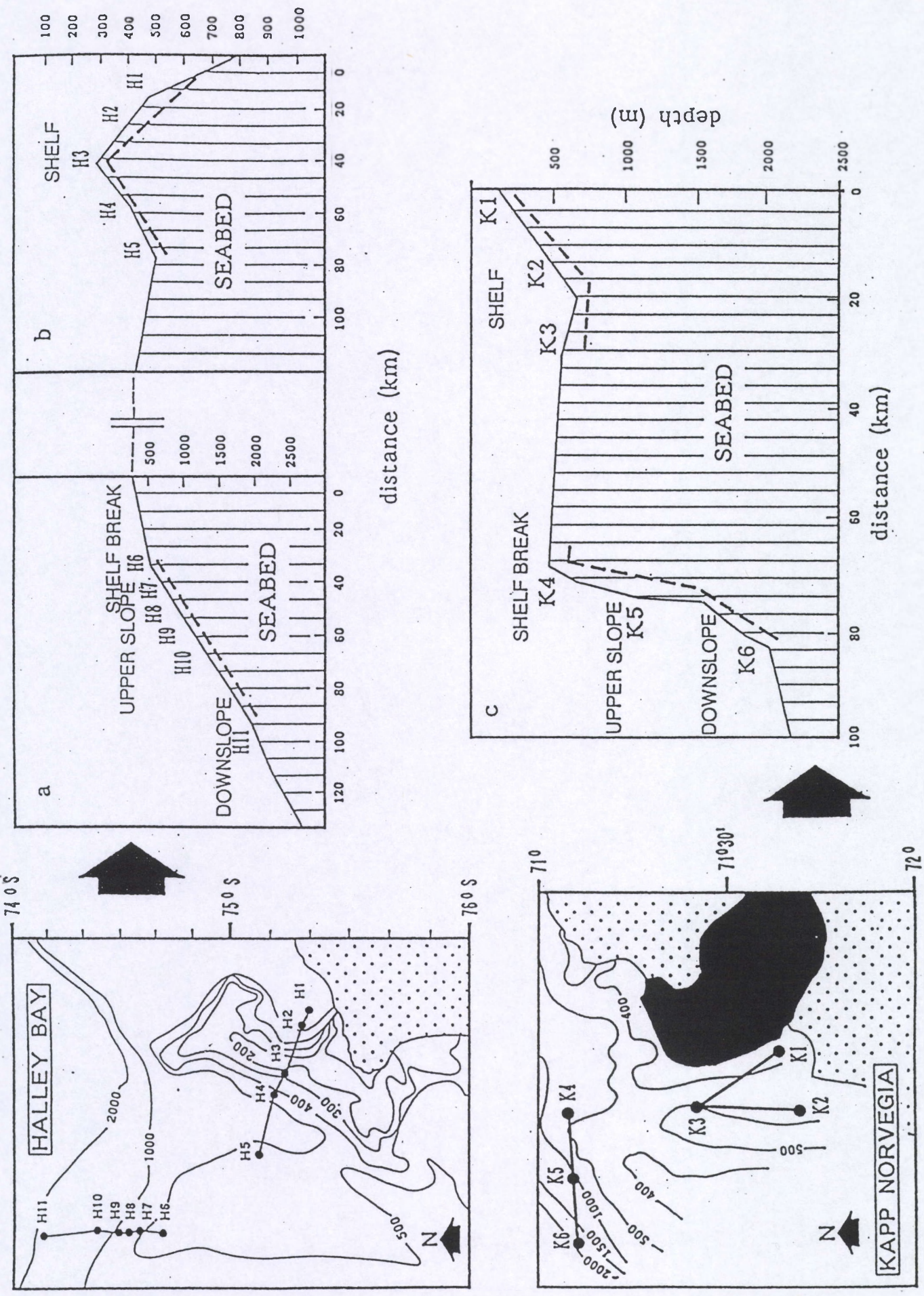

Figure 2.1.: Location of the sampling sites in the two transects in the Weddel Sea, and bottom topography off Halley Bay (a) perpendicular to the slope, (b) across the shelf, and (c) along the shelf break off Kapp Norvegia (adapted from Fahrbach et al. 1992)

2.2. Material and methods.

2.2.1. Study area, meiofauna and nematode treatment.

Details on the sampling of the meiofauna, geographic, bathymetric and environmental conditions were described in detail elsewhere (Table 1 in Vanhove *et al.* 1995). The environmental variables used in the current study were listed in Table 2.1. In summary, the samples were taken in the Weddell Sea at Kapp Norvegia (71-72°S, 12-13°W, station numbers starting with K) and Halley Bay (74-75°S, 25-29°W, station numbers starting with H) at depths varying between 211 and 2080 m (Figure 2.1.). The terminology of *downslope*, *deeper slope* and *upper slope* used in the following sections actually refers to only one bathymetric region, namely the upper continental slope *sensu* Grobe (1986). No sampling occurred at the slope terrace or lower continental slope. The same holds for the use of the term deep sea in the section of the discussion.

Table 2.1.: *Sampling gear, number of replicates identified, environmental variables and nematode numbers. For details see Vanhove et al. (1995).*

		K1	K2	K3	K4	K5	K6	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11
	abbreviation																	
Sampling gear		MG	MG	MG	MG	MUC	MUC	MUC	MUC	MUC	MUC	MUC	MUC	MUC	MUC	MUC	MUC	MUC
Replicates		3	3	3	4	3	3	2	2	2	2	2	2	2	2	2	2	2
Environmental variables (unit)																		
depth (m)	DEPT	211	405	537	561	1199	2080	582	502	271	339	458	492	633	681	806	1185	1958
gravel (%)	GRAV		6.1	34.5	40.1	15.7	1.0	0.0	0.0	1.5	0.0	7.0	19.1	11.4	17.6	2.1	0.0	0.0
medium sand (%)	MSAN		16.5	14.1	14.9	15.3	3.0	1.3	4.7	24.5	8.0	4.1	7.8	20.7	16.9	13.4	2.1	1.2
pellite (%)	PELL		38.3	39.5	21.6	46.9	72.6	38.1	32.2	13.1	39.7	71.5	33.4	5.4	4.9	5.6	46.5	93.5
organic matter (%)	ORGM		0.6	0.8	0.4	0.3	0.5	0.2	0.2	0.2	0.3	0.5	0.5	0.2	0.2	0.2	0.4	0.7
ratio organic carbon:nitrogen	C/N		8.8	9.3	8.1	9.0	7.5	6.8	6.7	7.0	6.6	6.8	6.6	7.9	7.4	9.4	8.1	6.7
chloroplastic equivalents (µg cm^{-2})	CPE		4.7	2.2	3.5	0.5		3.6	3.3		6.8	5.9	8.2	2.4	2.3	1.2	2.6	2.7
sediment ATP (mg m^{-2})	ATP		3.2	2.7	5.9	2.1	2.6	1.3	3.3	3.0		3.0	4.2	2.7	1.7	0.8	2.9	2.5
sillicate (µM)	SIO2		334.1			340.1	353.4	375.2	334.1		357.5	358.6	270.9	336.2	376.4	416.0	380.9	212.0
biomass bacteria (ngC cm^{-2})	CBAK		103.7	94.6		75.9	68.5	91.1	106.0	55.3	76.1	90.5	102.9	78.7	47.1	78.2	114.6	64.5
biomass heterotrophic nanoflagellates (ngC cm^{-2})	CFLAG	88.2	130.8	118.2		53.6	49.5	341.5	149.5	57.0	51.3	120.2	56.2	111.7	51.9	31.6	16.4	13.0
Eh at -1 cm (mV)	Eh-1		506			479	403	608	418		526	526	436	484	433	467	498	556
Nematodes																		
abundance (%)		82.5	86.8	96	86.9	96.4	95.9	93.6	94.6	93.2	95.9	94.5	88.7	88.1	94.3	97	97.1	93.9
numbers (ind.10 cm^{-2})																		
mean		2245	1422	2119	827	750	818	1999	1995	1658	2991	2289	1342	730	747	990	1384	1317
standard deviation		442.3	301.9	1699.7	137.4	334.9	285.6	358.4	563.6	452.1	552.8	1025.3	218	508.2	376.7	154.8	365.8	827.9

Along the transects variation in grain size was sometimes high with median sand (0.5-0.25 mm) ranging between 1 and 25 %. A significant presence of pellite (sometimes over 90 %) and gravel (sometimes over 40 %) indicated differing sedimentation and hydrodynamic processes.

Meiofauna sampling included the use of multiboxcorer (MG) and multicorer (MUC) to a minimum sediment depth of 10 cm; each meiofauna replicate originated from a 10 cm^2 subsample of a separate box or core of the device. The procedure for organism processing followed Higgins and Thiel (1988); a 38 µm sieve was used to extract the meiofaunal size class. The nematode numbers and their relative contribution to total meiofauna counts were discussed in Vanhove *et al.* 1995 and summarized in Table 2.1.

A random set of 200 nematodes from 2 to 3 cores were mounted in glycerin slides (Seinhorst 1959). Identification to genus level was done using the pictorial keys of Platt & Warwick (1988) and relevant deep-sea literature (Platt 1985, Bussau 1993, Gourbault & Boucher 1981, Soetaert & Vincx 1988). The nematodes were classified according to Lorenzen (1994). The four feeding groups of Wieser (1953), distinguishing selective (1A), non-selective (1B) deposit feeders, epistratum feeders (2A) and predators/omnivores (2B) were used to investigate the trophic structure of the assemblages.

2.2.2. Data analysis.

A variety of multivariate, univariate and graphical methods were employed in the analysis of nematode and environmental data sets.

(1) Test for replicability and small-scale patchiness. The variance to mean ratio of the nematode genus numbers per station was used to detect departure from randomness. The X^2 test of sampling accuracy (Heip *et al.* 1988) indicated that differences between replicates at each station were minimal *(e.g.* with exception of K4, the median X^2 per station varied between 0.1 and 7.4 with 1-2 degrees of freedom, giving a non-aggregated dispersion at the 2.5% significance level). K4c appeared an errantic replicate and was therefore eliminated before averaging the data for further statistical analyses. A test for the small-scale distribution of trophic and age composition within a station was done on the pooled genera per replicate.

(2) Test for community structure. To define communities spatially, the averages per station at the genus level of organization were used as input for the Two Way INdicator SPecies ANalysis - TWINSPAN (Hill 1979). First, as rare genera can be informative on the state of the community, the non-reduced, non-transformed percentage datamatrix (158 genera) with cutlevels 0.00, 0.29, 0.59, 1.41, 8.20 was used, for total analysis (the intermediate cutlevels were chosen so that an equivalent number of observations were present at each cutlevel, the highest cutlevel was chosen so that the highest scores were reduced in weight compared to the rest of the dataset).
Second, two reduced datasets for assessing the impact of the dominant genera were applied. Herefore the median (0.11 %) and mean (0.61%) genus percentage of the entire datamatrix were defined. Hence, genera with a relative abundance in the full stationset (percent of total) of less than 0.11% (reduction of 47%) and 0.61% (reduction of 78%) were subjected to classification.
In a third step, as to the analysis of presence/absence, only two cutlevels were used being 0.00 and the maximum percentage data for the full and two reduced matrices.
To assess the consistency of these TWINSPAN-results, the clustering statistic group-average sorting with Bray-Curtis similarities-GAS (Bray & Curtis 1957) on the same datasets and an exploratory Correspondence Analysis (CA-option from the program package CANOCO, Ter Braak 1988) on the arcsin transformed datamatrix were done.

(3) The relationship between community structure and environmental variables was examined using the ordinatory Canonical Correspondence Analysis (CCA, also from the CANOCO package). Apart from the variable 'depth', all available environmental variables dealt with sediment properties: -) *sediment texture*: porosity, percentage of gravel, median sand, very coarse sand, sand, silt, clay; -) *potential food*: organic nitrogen, organic carbon, chlorophyll-a, phaeopigments, ATP, ETS, numbers and biomass of bacteria, numbers and biomass of heterotrophic nanoflagellates at different size classes; -) *interstitial nutrients*: SiO_2, PO_4, NO_2, NO_3; -) E_h at each sediment slice of 1 cm to a depth of 5 cm. As many variables proved to be redundant only 10 were retained : depth, percentage gravel, median sand, pellite (silt+clay), organic matter (carbon+nitrogen), biomass of bacteria and flagellates, concentration of silicate, chloroplastic equivalents (chlorophyll-a + phaeopigments) and E_h. The method to chose for the best variables was done by running CANOCO with the subsequent addition of environmental variables (without forward selection) and testing the additional effect of the variable with a Monte Carlo permutation test (ter Braak 1990).

The missing values were calculated by interpolating from data of neighborhood stations (f.e. the missing value of chloroplastic equivalents at Sta H3 was calculated as the mean of data from H2 and H4; the value at Sta K6 was an average of all other stations off Kapp Norvegia). As the environmental variables for K1 were not available, this station could not be used in the CCA. The approximate position was used from the CA outputs.
Additionally Spearman rank correlations were computed between the biotic data and the reduced set of environmental variables (augmented with ATP and C:N). Only the significant relations below the 5% level were retained in the output.

(4) The spatial variability in the nematode populations was tested using variance to mean ratios (= index of dispersion) at different scales (*e.g.* station, subregion, region). Multiplied by the degrees of freedom (number of samples-1) a good estimate of the pooled X^2 statistic was given. A probability of < 2.5% indicated significant aggregation (AGD)(Lambshead & Hodda 1994). A high proportion of the genera proved to exhibit very low abundances, often with many zero values. In a first series the zero-mean and zero-variance for absent genera in a set of stations were eliminated; in a second set the nematodes with abundances lower than 0.11 % throughout a set of stations were discarded. This data reduction was needed as rare genera drop below the resolving power of the test (type II error, the power of the test becomes so low that non-random distribution cannot be distinguished from random, Lambshead & Hodda 1994).

(5) When characterizing a community it is advisable to give different measures of diversity (Boucher & Lambshead 1995). The methods for diversity employed included Simpson's dominance index $D = \sum (p_i)^2$ (Simpson 1964), the species-richness Shannon diversity index $H' = -\sum (p_i \log_2 p_i)$ (Pielou 1975), Margalef's species-richness diversity index $SR = (S-1) \ln N$ (Margalef 1958), Pielou's equitability index $J' = H'/\log_2 N_0$ (Pielou 1975) and Hill's diversity numbers N_0 (number of genera), $N_1 = EXP(H'*ln2)$, $N_2 = 1/D$ and N_{inf} = the inverse of the proportional abundance of the most common genus (Hill 1973). p_i is the proportional abundance of each genus; S is the number of genera. K-dominance curves (Lambshead *et al.* 1983), and genus abundance distribution curves (logarithm base 2, Preston 1948) were constructed to visualize respectively dominance and genus richness/equitability (eveness). Hurlbert's modification of Sander's rarefaction curves (Hurlbert 1971; BioDiversity-ecological analysis program, Copyright NHM&SAMS) were used to determine E(G100), that is, the expected number of genera present in a population of 100 individuals. This diversity measurement (based on a lognormal distribution of the genera) is independent of sample size (that is the number of genera identified), allowing to compare the different stations and regions in the Weddell Sea (alpha and beta diversity *sensu* Whittaker 1960) and to compare geographical areas on a global scale (gamma diversity *sensu* Cody 1986). As a supplementary measure of 'richness' the numbers of species from common genera were given for each station. As nematodes from deep seas and in particular the Southern ocean are very poorly described, we used the 'morpho'species concept (that is the putative, easily recognizable species on the base of prominent morphological features such as tail shape, buccal cavity, amphid dimensions, cuticle ornamentation etc.). The counts were based upon males only (*e.g.* as to the relative low amount of females the morphology of males was the only sure and immediate indication of a new species), and therefore robust and minimum estimates.
Trophic diversity was calculated to describe the diversity in feeding types as $T = \sum \vartheta^2$, with ϑ the proportion of each feeding type in the assemblage (Heip *et al.* 1984). Trophic diversity is highest when all feeding types are equally presented (*e.g.* T=0.25) and lowest when only one trophic type is present (*e.g.* T=1). The diversity within each feeding guild was calculated using Hill's diversity numbers and Shannon's diversity index on the abundances of the genera within each feeding type over the entire transect.
A Kruskal Wallis H-test and subsequent Mann-Whitney U-tests (Siegel 1956) were performed to look for significant differences in diversity between Kapp Norvegia and Halley Bay and between the TWINSPAN-clusters.

(6) Most analyses under (2), (3) and (5) were also applied to the family level of organization.

2.3. Results.

For the classification of the genera see appendix 1
For raw data see appendix 3

2.3.1. Description of the populations.

About 7300 specimens were identified. 97% belonged to 158 genera. The remaining 3% appeared to be unrecognizable. Many specimens were also pooled to single genera, although based upon the high level of morphological distinctness, probably belonged to different genera. Examples were *Desmoscolex* (*Pareudesmoscolex* and *Desmoscolex*), *Greeffiella* (*Greeffiella* and *Prototricoma*), *Paramonhystera* (*Paramonhystera* and *Promonhystera*), *Monhystera* (all Monhysterids except for *Diplolaimella*), *Gammarinema* (*Gammarinema*, *Geomonhystera*, *Thalassomonhystera*), *Araeolaimus* (*Araeolaimus* and *Pararaeolaimus*) and *Desmodora* (*Desmodora* and *Pseudochromadora campbelli*). Pooling was done because of taxonomic uncertainty.

***Table 2.2**.: Overall relative abundance of the nematode families collected in the Weddell Sea sorted by descending order of importance, and with indication of the number of genera found.*

	% OF TOTAL	# GENERA		% OF TOTAL	# GENERA
Chromadoridae	14.90	13 + 1 undefined	Pandolaimidae	0.64	1
Comesomatidae	11.98	7 + 1 undefined	Thoracostomopsidae	0.44	5 + 1 undefined
Desmodoridae	10.66	4	Oncholaimidae	0.43	2
Microlaimidae	10.16	6	Phanodermatidae	0.35	4
Monhysteridae	8.91	4 + 1 undefined	Anoplostomatidae	0.20	2
Xyalidae	8.89	15 + 1 undefined	Epsilonematidae	0.16	1
Leptolaimidae	5.75	6	Sphaerolaimidae	0.11	3
Diplopeltidae	3.78	6	Coninckiidae	0.11	1
Oxystominidae	3.15	7	Neotonchidae	0.10	1
Cyatholaimidae	3.01	10	Axonolaimidae	0.10	3
Aegialoalaimidae	2.58	3	Rhabdodemaniidae	0.10	1
Desmoscolecidae	2.16	5 + 1 undefined	Draconematidae	0.09	3
Selachinematidae	1.97	5	Enchelidiidae	0.07	6
Linhomoeidae	1.69	11 + 1 undefined	Haliplectidae	0.04	1
Monoposthiidae	1.58	1	Leptosomatidae	0.04	2
Anticomidae	1.48	3	Simpliconematidae	0.04	1
Ceramonematidae	1.46	3	Tubolaimoididae	0.03	2
Meyliidae	1.16	3	Siphonolaimidae	0.03	1
Ironidae	0.82	1	Ethmolaimidae	0.01	1
Trefusiidae	0.79	3	Tarvaiidae	0.01	1
				100.00	

From the 40 families (Table 2.2.), Chromadoridae were dominant (15%). They were followed by Comesomatidae (12%), Desmodoridae (11%) and Microlaimidae (10%). 14 other families were represented by 1% of the nematode populations, whereas more than 50% of the families had relative abundances lower than 1%. Xyalidae, Chromadoridae and Linhomoeidae were most diversified in terms of genus numbers, with respectively 16, 14 and 12 genera. *Sabatieria*, with a relative dominance of 8% ranked first, whereas *Molgolaimus*, *Microlaimus*, *Monhystera* and *Dichromadora* had abundances of more than 5% of the entire nematode populations (*e.g.* respectively 8, 7, 7 and 6% in Table 2.3.). Co-dominant genera were *Daptonema* (4%), *Leptolaimus* (4%), *Acantholaimus* (3%) and *Cervonema* (3%). 75% of the genera were present with abundances lower than 1%.

***Table 2.3.**: Overall relative abundance of the nematode genera collected in the Weddell Sea and sorted by feeding types; 3.4 % of the total set was not identified. The genera in the center of the CCA genus plot (not depicted) were indicated with an asterisk.*

SELECTIVE DEPOSIT FEEDERS		%	NON-SELECTIVE DEPOSIT FEEDERS		%	EPISTRATUM FEEDERS		%	PREDATORS-OMNIVORES		%
Molgolaimus	*	7.84	*Sabatieria*	*	8.44	*Microlaimus*	*	7.39	*Halichoanolaimus*	*	1.22
Leptolaimus	*	4.16	*Monhystera*	*	6.63	*Dichromadora*	*	6.07	*Syringolaimus*	*	0.79
Cervonema	*	2.71	*Daptonema*	*	4.43	*Acantholaimus*	*	3.34	*Gammanema*	*	0.63
Aegialoalaimus	*	2.19	*Paramonhystera*	*	1.37	*Desmodora*	*	2.22	*Viscosia*	*	0.38
Halalaimus	*	2.02	*Gammarinema*	*	1.08	*Prochromadorella*	*	2.19	*Metasphaerolaimus*	*	0.33
Southerniella	*	1.74	*Diplolaimella*	*	0.83	*Nudora*		1.52	*Pomponema*	*	0.25
Desmoscolex	*	1.11	*Campylaimus*		0.79	*Actinonema*	*	1.30	*Paramesacanthion*	*	0.22
Metadasynemella		0.75	*Theristus*	*	0.78	*Calomicrolaimus*	*	1.26	*Sphaerolaimus*		0.11
Diplopeltula	*	0.63	*Ammotheristus*	*	0.63	*Camacolaimus*	*	1.20	*Bolbolaimus*		0.10
Oxystomina	*	0.57	*Pandolaimus*		0.62	*Paracanthonchus*	*	1.15	*Phanoderma*		0.10
Pareudesmoscolex	*	0.56	*Paralinhomoeus*	*	0.47	*Paranticoma*	*	1.00	*Rhabdodemania*	*	0.10
Pselionema	*	0.53	*Amphimonhystrella*	*	0.36	*Ixonema*		0.63	*Mesacanthion*		0.07
Quadricoma	*	0.51	*Gnomoxyala*		0.22	*Chromadorita*		0.59	*Enoplolaimus*	*	0.05
Rhabdocoma	*	0.51	*Rhynchonema*		0.19	*Nannolaimoides*		0.55	*Oxyonchus*		0.05
Araeolaimus	*	0.40	*Chaetonema*		0.14	*Linhomoeus*	*	0.38	*Batheurystomina*		0.05
Greeffiella	*	0.37	*Elzalia*	*	0.12	*Chromadora*	*	0.31	*Doliolaimus*	*	0.04
Tricoma	*	0.34	*Halanonchus*		0.12	*Metacyatholaimus*	*	0.27	*Siphonolaimus*		0.03
Diplopeltoides	*	0.29	*Metadesmolaimus*		0.11	*Cephalanticoma*	*	0.25	*Pontonema*		0.03
Prototricoma	*	0.27	*Metalinhomoeus*	*	0.08	*Marylynnia*	*	0.22	*Simplocostomella*		0.03
Aponema	*	0.26	*Anticyathus*		0.07	*Neochromadora*	*	0.16	*Cheironchus*		0.01
Thalassoalaimus	*	0.26	*Megadesmolaimus*		0.07	*Longicyatholaimus*	*	0.16	*Latronema*		0.01
Terschellingia	*	0.25	*Axonolaimus*	*	0.07	*Pseudodesmodora*	*	0.16	*Fenestrolaimus*		0.01
Anticoma	*	0.18	*Pierrickia*		0.07	*Spirobolbolaimus*		0.16	*Cylicolaimus*		0.01
Epsilonema	*	0.15	*Amphimonhystera*	*	0.05	*Paramesonchium*		0.16	*Belbolla*		0.01
Minolaimus	*	0.14	*Anoplostoma*	*	0.05	*Cobbia*	*	0.14	*Calyptronema*		0.01
Disconema	*	0.14	*Eleutherolaimus*	*	0.04	*Trochamus*	*	0.11	*Eurystomina*	*	0.01
Trefusia	*	0.14	*Setosabatieria*		0.04	*Neotonchus*	*	0.10			
Pterygonema		0.12	*Richtersia*		0.03	*Crenopharynx*	*	0.08			
Nannolaimus		0.11	*Desmolaimus*	*	0.03	*Chromadorella*		0.07			
Micoletzkyia	*	0.11	*Eumorpholaimus*		0.03	*Rhips*		0.07			
Litinium	*	0.11	*Diplolaimelloides*		0.01	*Vasostoma*		0.07			
Coninckia		0.11	*Ammotheristus aff.*	*	0.01	*Echinodesmodora*		0.05			
Alaimella		0.08	*Ascolaimus*	*	0.01	*Chromadorina*		0.04			
Draconema		0.05	*Odontophora*		0.01	*Paralongicyatholaimus*		0.04			
Linhystera	*	0.05				*Dagda aff.*	*	0.04			
Diplopeltis aff.	*	0.05				*Valvaelaimus*		0.04			
Phanodermopsis	*	0.05				*Platycoma aff.*		0.03			
Leptolaimoides	*	0.04				*Enchelidium*		0.03			
Setoplectus		0.04				*Spiliphera*		0.01			
Manganonema	*	0.04				*Ptycholaimellus*		0.01			
Simpliconema	*	0.04				*Ethmolaimus*		0.01			
Diplopeltis		0.03				*Paracyatholaimoides*		0.01			
Nemanema		0.03				*Prochaetosoma*	*	0.01			
Wieseria	*	0.03				*Hopperia*	*	0.01			
Dracograllus		0.01									
Hapalomus	*	0.01									
Protricomoides	*	0.01									
Stephanolaimus		0.01									
Tarvaia		0.01									
Cyartonema		0.01									
Tubolaimoides	*	0.01									
Disconema aff.	*	0.01									
Cricohalalaimus		0.01									
Chitwoodia		0.01									

High juvenile percentages and inadequate descriptions of deep-sea and Antarctic nematodes restricted the research to the generic taxon level. However, for comparison the number of 'morphospecies' (*e.g.* species typified by drawings of males) of common genera in each station were listed in table 2.4.

Table 2.4.: *Number of putative species in common genera from each station.*

		no			no			no
K1	*Sabatieria*	5	**H1**	*Cervonema*	1	**H6**	*Sabatieria*	1
	Southerniella	4		*Monhystera*	8		*Acantholaimus*	3
	(Calo)microlaimus	3		*Daptonema*	3	**H7**	*Molgolaimus*	3
K2	*Molgolaimus*	5		*Leptolaimus*	1	**H8**	*(Calo)microlaimus*	3
	Sabatieria	1	**H2**	*Dichromadora*	1	**H9**	*(Calo)microlaimus*	4
	Dichromadora	3		*Sabatieria*	3		*Molgolaimus*	2
K3	*Molgolaimus*	5		*Daptonema*	1	**H10**	*Sabatieria*	5
	(Calo)microlaimus	2		*Leptolaimus*	2		*Molgolaimus*	4
	Nudora	1	**H3**	*Dichromadora*	3	**H11**	*(Calo)microlaimus*	4
K4	*Sabatieria*	1		*Daptonema*	4		*Dichromadora*	4
	Monhystera	2		*Monhystera*	3		*Acantholaimus*	2
	Molgolaimus	3	**H4**	*Daptonema*	3		*Desmodora*	1
K5	*Molgolaimus*	4		*Monhystera*	3			
	Sabatieria	4		*Sabatieria*	6			
K6	*(Calo)microlaimus*	5		*(Calo)microlaimus*	4			
	Dichromadora	4	**H5**	*Daptonema*	3			
	Acantholaimus	4		*(Calo)microlaimus*	3			
	Sabatieria	3		*Monhystera*	3			

Classification of the genera of the entire nematode population in the Weddell Sea into feeding guilds (Table 2.3.) suggested a predominance of epistratum (2A: 34%, 44 genera), selective deposit (1A: 30%, 54 genera) and non-selective deposit feeders (1B: 28%, 34 genera). The predator/omnivores were much less present (2B: 5%, 26 genera)(the remaining 3% was not identified). Differences among stations were considerably high revealing extreme ranges of feeding types: 18-49% (1A), 22-40% (1B), 24-55% (2A) and 2-13% (2B) (Table 2.5.: left columns). The variance:mean ratios (Table 2.5., right columns), indicators of small-scale spatial distribution, showed that all feeding categories had on average a clumped distribution (*e.g.* mean and median variance:mean ratio is much higher than 1). X^2-testing showed also that the four trophic categories were often distributed in patches among the replicates within the stations (*e.g.* significant departure from randomness at the .025 probability level was indicated with asterisks). Half of the nematode populations were juveniles (on average about 50%) and the sex ratio of the adults was 1:1. Where the males were not significantly aggregated, the females and juveniles were at two stations. This difference was confirmed by the median variance:mean ratio for the three age categories, but again patterns between stations varied a lot.

Table 2.5.: *Percentage data of J: juveniles, F: females, M: males; 1A: selective deposit feeders, 1B: non-selective deposit feeders, 2A: epistratum feeders and 2B: predators/omnivores (values at the left), and variance:mean ratios on pooled nematode data (values at the right). The values marked with an asterisk indicate significant aggregation at the .025 significance level (d.f. = degrees of freedom for chi-quadrat testing).*

	d.f.	J		F		M		1A		1B		2A		2B	
K1	2	57	0.6	18	0.3	25	0.3	27	1.5	40	3.6	29	1.8	4	1.4
K2	2	53	0.1	22	1.3	25	0.4	38	1.2	25	1.4	36	2.4	6	9.1*
K3	2	61	0.6	19	1.9	20	0.6	36	2.5	23	7.5 *	29	4.5 *	2	1.8
K4	3	67	7.3 *	18	0.1	15	0.1	35	13.0 *	27	4.7 *	35	11.1*	4	1.2
K5	2	55	6.4 *	23	0.2	22	0.1	49	8.2 *	23	10.6 *	24	5.8 *	4	0.3
K6	2	50	0.1	26	3.7	24	2.6	26	0.7	28	8.6 *	40	0.6	6	2.8
H1	1	51	2.3	24	0.1	25	0.8	37	1.2	29	2.7	29	1.2	5	8.0
H2	1	43	3.2	30	11.7 *	26	2.2	28	1.3	34	4.6	32	0.3	7	2.9
H3	1	47	0.1	25	0.4	29	0.0	23	0.7	35	4.5	37	0.2	6	1.8
H4	1	50	0.3	23	0.4	27	1.0	22	1.8	42	0.1	34	0.1	3	0.1
H5	1	52	1.1	24	0.2	24	0.0	23	6.6 *	42	15.3 *	32	0.6	4	3.8
H6	1	60	2.6	24	2.5	16	0.3	25	10.9 *	27	4.0	35	3.1	13	5.2 *
H7	1	50	0.0	23	5.6 *	27	0.1	40	15.9 *	23	0.3	31	2.7	6	3.9
H8	1	52	2.3	23	2.8	25	0.0	26	10.6 *	25	0.0	46	3.1	4	3.8
H9	1	50	0.0	25	1.8	25	0.3	37	0.3	22	0.1	38	2.6	3	0.0
H10	1	52	1.3	24	0.1	24	2.7	28	2.8	26	4.4	38	4.8	8	6.3 *
H11	1	46	2.4	30	1.8	24	0.0	18	1.0	24	0.1	55	0.6	2	0.1
mean		53	1.8	24	2.1	24	0.7	30	4.7	29	4.3	35	2.7	5	3.1
median		52	1.2	24	1.6	25	0.3	28	2.2	27	4.1	35	2.5	4	2.9

2.3.2. Faunal affinities between the stations.

The Twinspan on the non-reduced genus dataset (Figure 2.2A) divided the total nematode community into four major groups (in following discussion assigned as subregions): the UPPER SLOPE stations H7,8,9 off Halley Bay + K5 off Kapp Norvegia; the DOWNSLOPE samples K6, H11; the stations on the HALLEY SHELF H1,2,3,4,5; and a heterogeneous group (MIX-group) consisting of a mixture of the SHELF BREAK stations K4, H6 at both transects and NORVEGIA SHELF stations K2,3. The results were consistent between TWINSPAN and GAS for the full and reduced datasets, within a wide range of chosen cutlevels for TWINSPAN-analysis, and for genus and family level of organization (not figured). Changes occurred in the positions of K1, K5, H6 and H10.

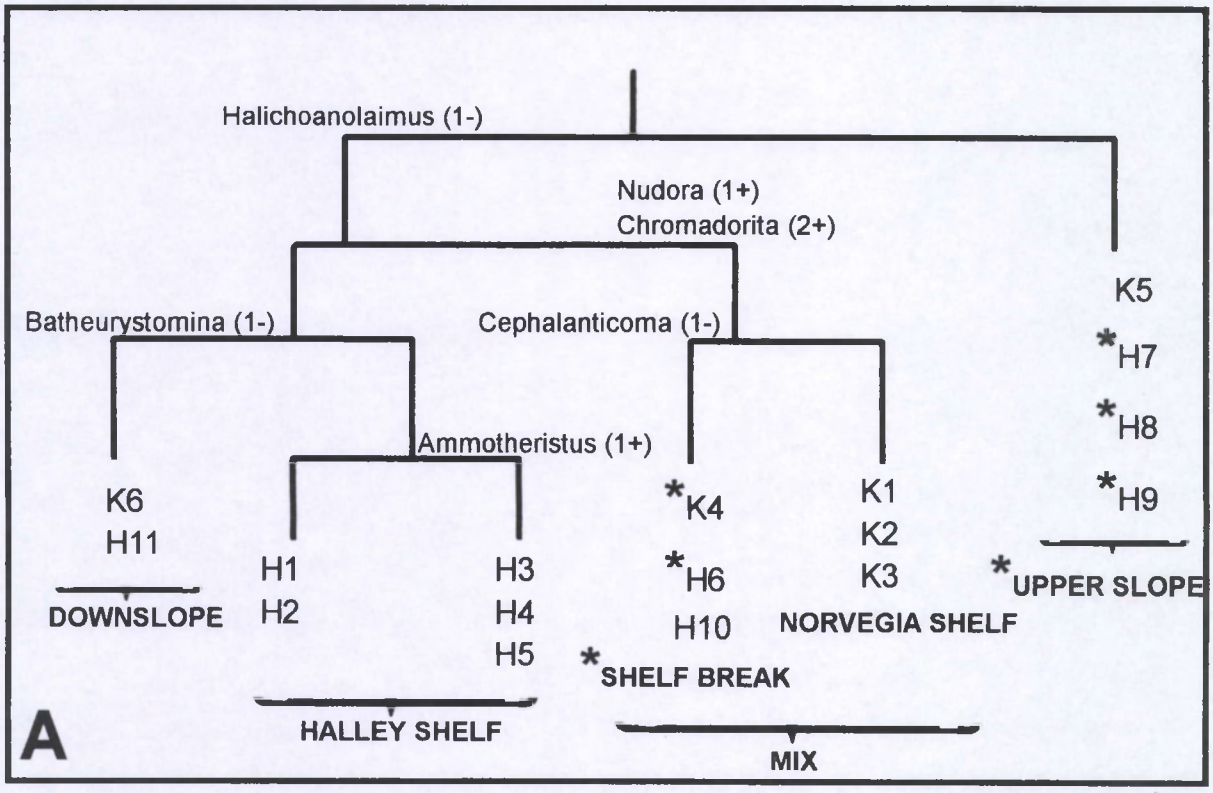

***Figure 2.2.A**: Output of classification (TWINSPAN with indication of indicator genera) on genus level of organization.*

The CCA-ordination diagram (Figure 2.2B) matched greatly with the TWINSPAN-classification; only the shelf break cluster could not easily be identified. The upper slope and mixed group showed the highest separation along the second axis, and confirmed greatest dissimilarity in the GAS-analysis (upper slope 45% and shelf break 43%). Centered genera (53 % of the total number) were indicated with an asterisk in Table 2.3., and belonged to all feeding types. Other axes combinations (*e.g.* axis 1/3, axis 2/3, etc..) gave more or less the same results.

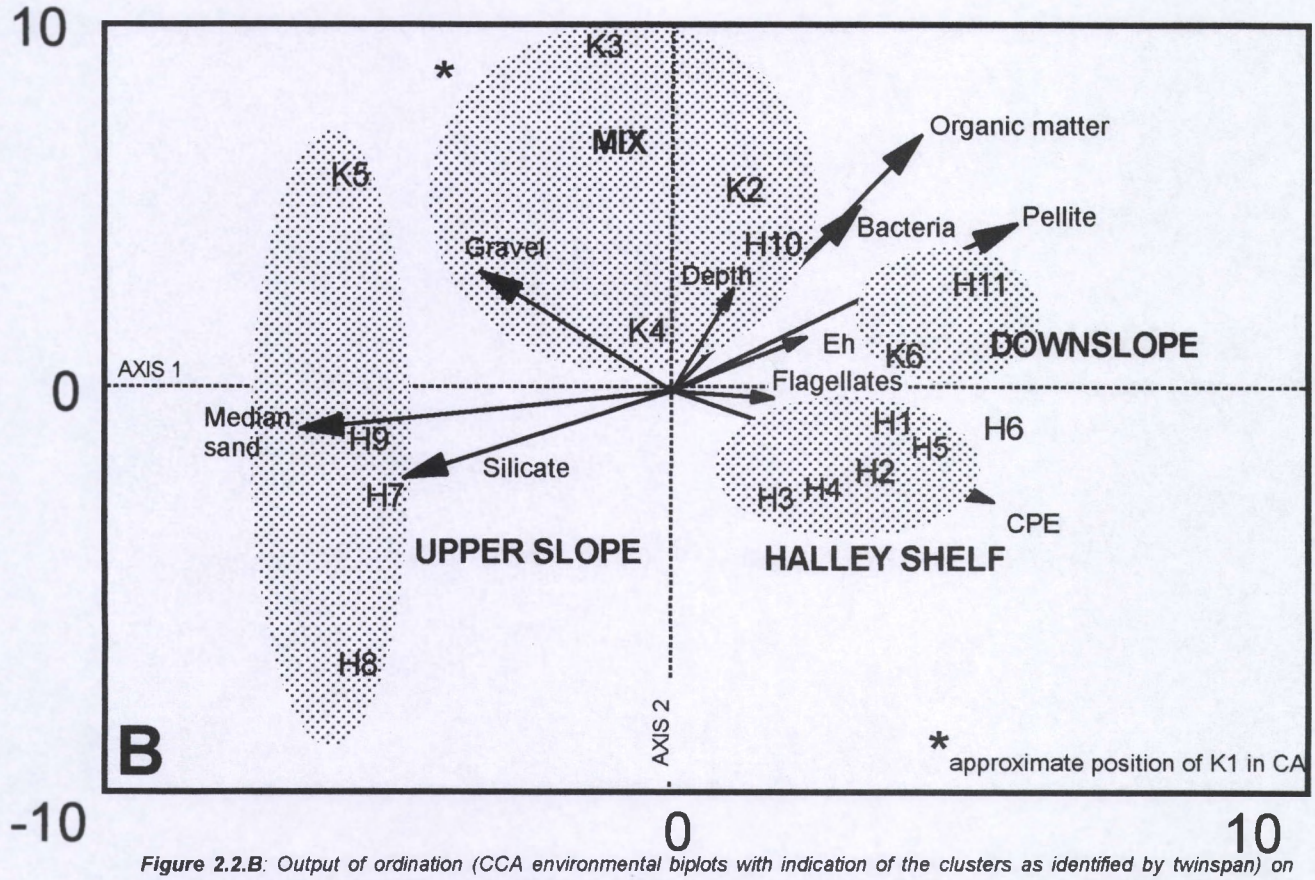

***Figure 2.2.B**: Output of ordination (CCA environmental biplots with indication of the clusters as identified by twinspan) on genus level of organization. The gradient length for the biplot of environmental variables is 3.4 times higher than the species scores. Maximum variance was 21% (axis 1).*

2.3.3. Relation with environment.

On the one hand, the biplot diagrams (Figure 2.2B) demonstrated that the environmental vectors did not coincide with any of the four first canonical axes, indicating low correlations of the environmental variables with the ordination plane (for example, the eigenvalues of the first four canonical axes of the analysis on genera were respectively 0.20, 0.14, 0.13 and 0.12, and the separation of genus distribution was 3.7 times smaller than the environmental gradients). On the other hand, the cumulative percentage variance explained by the four axes was still 63%, and 42% of the genera were in one way or another significantly correlated with environmental variables. Combining these observations shows that there was no single main gradient, but a complex interaction of different environmental variables, explaining the variability in the nematode distribution.

Some distinction could be discerned between the different subgroups, confirmed by the Spearman rank analysis between the preferentials of each cluster and the environmental variables (Table 2.6.). The majority of the UPPER SLOPE-populations showed significant positive correlations with median sand and opposite effects with pellite and organic matter. The HALLEY SHELF-genera preferentially lived in undeep, food rich (high CPE, low C/N) circumstances, often avoiding the coarser sediment fractions, whereas at the DOWNSLOPE they lived in finer sediments with low benthic biomass (p was significantly negative for ATP). These nematodes did not explicitly correlate with depth ($p > .05$, except for *Batheurystomina*). The MIX-string (shelf break and Norvegia shelf) showed combined properties, often typified by higher gravel concentrations and higher C/N ratios.

40 of the remaining genera- no pronounced indicators of any of the 4 subgroups showed also correlations with specific environmental features (not presented). In total, 22% of all (158) genera of the nematode were significantly correlated with sediment granulometry, 28 % with any of the food related factors and 4 % with depth.

The proportion of selective deposit feeders (1A) augmented when the C:N ratio's increased ($p< .001$), and decreased in importance with elevating CPE-levels ($p< .05$). A completely opposite relation was found with the non-selective deposit feeders (*e.g.* p values of 1B vs. C/N and 1B vs. CPE were respectively - .004 and +.01). The epistratum feeders (2A) were related to the overall sedimentary biomass given by ATP ($p< .05$) and the biomass of heterotrophic nanoflagellates ($p< .01$). The life history stages showed only obvious correlations with gravel (- sign for adults and + for juveniles) and organic matter (- signs for adults).

***Table 2.6**.: Significant p-levels of the Spearman Rank correlation between main nematode genera of each subregion in the Weddell sea, the overall trophic and life history traits, and environmental variables (msand: median sand, pell: pellite, C/N: organic carbon/nitrogen, CPE: chloroplastic equivalents, Cbak: biomass bacteria, Cflag: biomass heterotrophic nanoflagellates).*

		depth	gravel	msand	pell	orgm	C/N	CPE	ATP	SiO2	Cbak	Cflag
GENERA												
Upper slope	*Chaetonema*				.004 (-)	.02 (-)						
	Coninckia			.05 (+)	.02 (-)							
	Halanonchus			.05 (+)	.02 (-)							
	Ixonema			.05 (+)	.001 (-)	.05 (-)						
	Metadasynemella			.03 (+)	.05 (-)	.03 (-)		.03 (-)				
	Paramesonchium				.005 (-)	.02 (-)						
	Rhynchonema			.005 (+)	.0001 (-)	.004 (-)						
	Spirobolbolaimus		.03 (+)	.02 (+)					.03 (-)			
	Trochamus			.007 (+)	.01 (-)	.0007 (-)					.02 (-)	
Halley shelf	*Calomicrolaimus*	.05 (-)						.05 (+)				
	Daptonema		.02 (-)	.03 (-)			.005 (-)		.01 (-)			
	Desmoscolex	.009 (-)										
	Diplolaimella						.03 (-)					
	Gammarinema	.02 (-)										.01 (+)
	Leptolaimus			.02 (-)		.05 (+)						
	Metasphaerolaimus	.02 (-)					.04 (-)	.02 (+)				
	Monhystera						.004 (-)	.05 (+)				
	Paralinhomoeus				.001 (-)	.003 (-)						
	Prochromadorella						.0001 (-)	.004 (+)				
Downslope	*Acantholaimus*			.007 (-)								
	Batheurystomina	.02 (+)		.05 (-)	.02 (+)				.05 (-)			.05 (-)
	Gammanema		.002 (+)	.02 (+)								
	Theristus								.02 (-)			
Mix	*Draconema*		.03 (+)									
	Metadesmolaimus					.005 (+)						
	Nudora						.00004 (+)					
	Pandolaimus		.005 (+)	.03 (+)			.008 (+)					
TROPHIC	1A						.001 (+)	.04 (-)				
	1B	.04 (-)					.004 (-)	.01 (+)				
	2A								.03 (-)			.002 (-)
	2B											
LIFE HISTORY	J		.001 (+)									
	F		.01 (-)			.05 (-)						
	M		.05 (-)			.01 (-)						

2.3.4. Spatial variability within the nematode populations.

Table 2.7.: *Percentage aggregation (%AGD) of the nematode populations at different scales in the Weddell Sea calculated by the chi-quadrat statistic. The variability within the data of the individual nematode genera was tested for (n-1) degrees of freedom; aggregation was assigned when p < .025; Station: between the individual stations, Subregional: between the pooled stations of the TWIN-groups, Regional: between the pooled stations off Halley Bay and Kapp Norvegia. The tests were done on two types of reduced datamatrices: I) elimination of all genera with zero mean and zero variance in the considered set of stations, and II) elimination of all genera with abundances < 0.11 % in the considered set of stations. N: number of genera in the respective station sets.*

	I		II	
	N	% AGD	N	% AGD
Station	158	58	83	88
Subregional	158	51	83	78
Regional	158	34	83	61
Variability within regions and subregions				
Halley Bay	130	49	87	69
Kapp Norvegia	132	37	85	56
Upper slope	109	24	91	27
Downslope	77	20	76	20
Norvegia shelf	93	29	73	38
Halley shelf	83	30	57	42
Shelf break	92	27	73	33
Mix	120	38	84	54

Total variability within the genus counts, given by the X^2 value (65018.6, 2685 df), indicated a high significant contagious dispersion at the .001 level of the nematode populations of the Weddell Sea.

Looking at different spatial scales (Table 2.7.) this aggregated pattern was most obvious at the station level (*e.g.* 58-88% of the nematode populations aggregated in particular stations), and was mainly due to the most dominant genera *Acantholaimus*, *Ixonema*, *Nudora, Theristus*, *Molgolaimus, Microlaimus* and *Sabatieria*. The dispersion patterns indicated a descending magnitude of aggregation from the lowest (station; 88%) towards the highest (regional; 61%) scale. At the regional level (second half of table 2.7.) the within group variation was highest in Halley Bay (49-69 %) compared to Kapp Norvegia (37-56%). At the subregional scale the variation was lowest downslope (20%) and highest in the MIX-string (38-54%). The X^2 statistics confirmed the findings of the CCA and GAS analyses.

2.3.5. Diversity and relationships with the environment.

Table 2.8.: *Nematode genus and family diversity on the number of nematodes identified per sample. N: identified nematodes as average numbers per sample (total) and as percentage (%) of population size per station, E(G100): expected no of genera per 100 individuals, D: Simpson's dominance index, H': Shannon's diversity index, SR: Margalef's species richness diversity index, J': Pielou's equitability index, Hill's diversity numbers: N_0: no of genera (respectively families), N_1: EXP (H' * ln2), N_2: 1/D, N_{inf}: 1/proportional abundance of the most common genus (respectively family), T: trophic index.*

	N		GENUS										FAMILY			
	total	%	E(G100)	D	H'	SR	J'	N_0	N_1	N_2	N_{inf}	T	N_0	N_1	N_2	N_{inf}
K1	190	8	39	0.07	4.8	20.3	0.80	62	27.4	14.8	5.0	0.29	28	14.0	10.3	4.8
K2	196	14	41	0.05	4.8	21.5	0.79	69	28.5	18.4	7.7	0.31	27	13.2	9.7	5.3
K3	171	8	34	0.07	4.6	20.5	0.78	58	23.6	14.8	6.3	0.30	25	13.3	10.7	5.8
K4	147	18	35	0.04	5.1	23.5	0.86	60	34.5	24.6	11.1	0.27	25	15.4	12.5	7.3
K5	188	25	45	0.09	4.7	23.6	0.77	72	26.8	11.6	4.2	0.34	26	13.3	8.0	3.4
K6	186	23	42	0.06	4.9	23.3	0.80	66	29.1	18.1	8.3	0.30	25	12.2	8.9	4.2
H1	178	9	30	0.07	4.4	20.6	0.82	42	21.3	15.2	9.1	0.28	22	12.3	10.1	6.9
H2	173	9	38	0.05	4.7	20.6	0.84	46	25.3	18.3	9.1	0.29	21	13.3	10.5	5.8
H3	183	11	38	0.05	4.8	21.1	0.86	47	27.4	18.9	7.1	0.30	22	11.6	8.5	4.4
H4	185	6	35	0.07	4.4	19.5	0.80	46	21.3	14.3	7.1	0.33	19	9.8	7.5	5.0
H5	182	8	32	0.07	4.4	20.2	0.82	44	22.2	15.0	6.7	0.32	19	11.3	8.9	5.8
H6	175	13	54	0.04	5.3	21.8	0.87	70	40.4	26.8	11.1	0.24	25	15.9	11.9	5.2
H7	177	24	52	0.03	5.4	23.8	0.89	68	42.9	30.2	10.0	0.29	25	17.2	14.4	8.6
H8	182	24	44	0.05	5.0	23.8	0.85	62	33.1	21.6	8.3	0.29	28	14.7	10.1	4.5
H9	172	17	43	0.06	4.9	22.8	0.83	58	29.1	16.8	6.7	0.30	21	13.9	10.7	5.5
H10	172	12	34	0.05	4.8	21.6	0.86	45	26.0	19.4	9.1	0.29	22	12.9	9.8	5.6
H11	189	14	30	0.10	4.1	21.8	0.76	40	16.6	10.5	5.0	0.38	19	9.0	6.5	3.8

Diversity was high. The total genus numbers (N_0) on an average of 180 specimens identified per station varied between 40 and 72; the expected genus numbers (EG100) between 30 and 54; the Shannon-Wiener diversity index per 10 cm^2 between 4.1 and 5.4 bits and Margalef's diversity index between 20 and 24. Additional diversity indices were listed in Table 2.8. Family numbers averaged around 23 per station with a dominance index (N_{inf}) varying between 3.4 (in K5) and 8.6 (in H7).

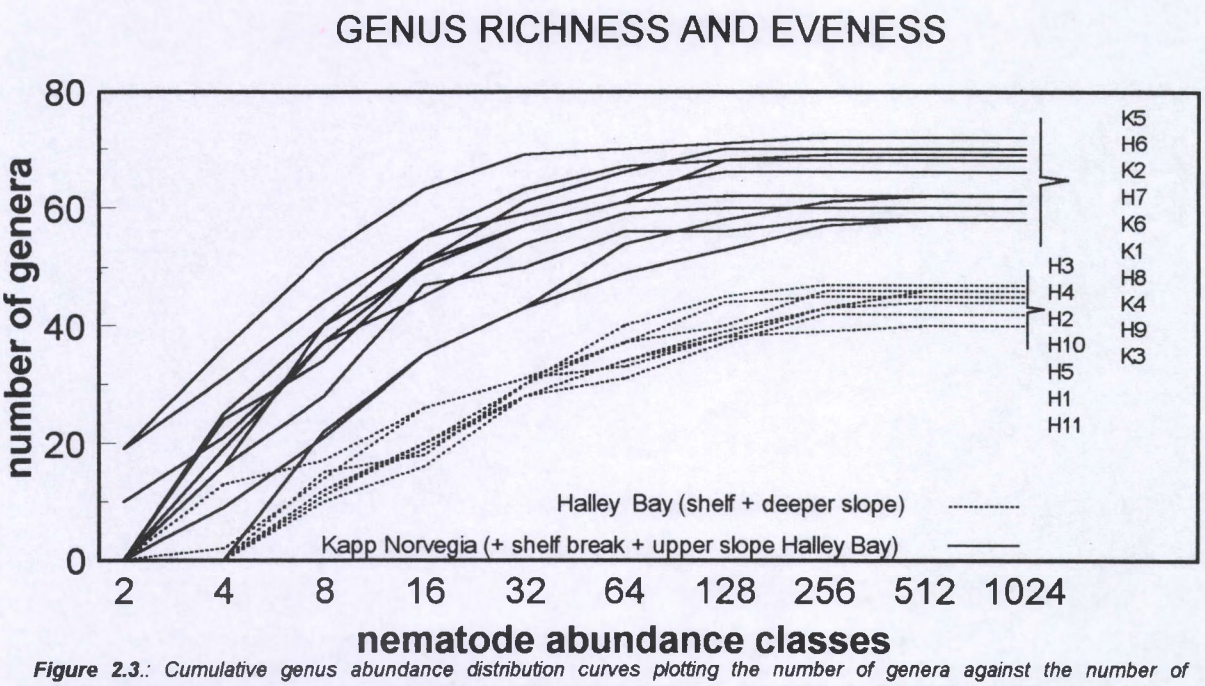

***Figure 2.3.**: Cumulative genus abundance distribution curves plotting the number of genera against the number of nematodes in density classes, according to Preston (1948). The consecutive stations were indicated next to the graphs.*

The genus abundance distribution curves (Figure 2.3.), plotting the number of genera against nematode density classes, demonstrated that

(1) according to the height of the curves (genus richness), the closely clustered Halley Bay stations (shelf and deeper slope) were separated from the comparatively widely scattered Kapp Norvegia stations (including shelf break and upper slope from Halley Bay). The distinction was based on the number of nematodes identified (~10 and 20 %, N% in Table 2.8.), and thus as a result of sample processing. Yet, genus richer stations in the upper part of the graph (*e.g.* Kapp Norvegia, shelf break and upper slope with exception of K1 and K3, on average EG100=43, SR=22.5, H'=5.0, N_0=65, N_1=32) were separated from the genus poorer stations in the lower sector of the plot (on average EG100=34, SR=20.8, H'=4.5, N_0=44, N_1=23).

(2) according to the shape of the curve, genus distribution was more or less similar for all the stations. This confirmed the stability of eveness values in Table 8 (*e.g.* J' varied between the narrow range of 0.76 and 0.89).

Genus richness (H', N_0 and N_1) was positively correlated with gravel ($p < .05$) and median sand ($p < .05$), and negatively correlated with pellite ($p < .01$) (results not presented). Eveness (J) was negatively correlated with pellite and organic matter ($p < .05$).

The k-dominance curves (Figure 2.4.) had similar shapes, showing the same trends in the distribution of the dominant genera. They were positioned intermediate between the upper H11 with highest dominances (D=0.10) and the lower H7 with opposite trend (D=0.03)(Table 2.8.).

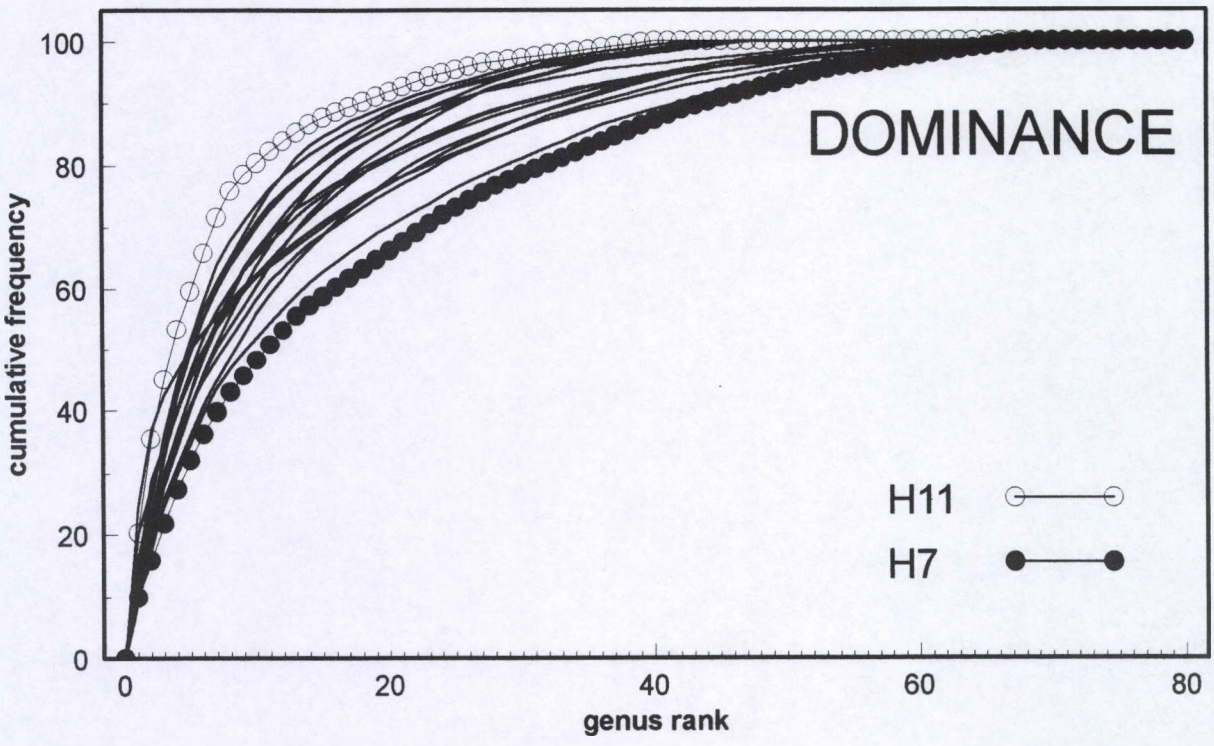

Figure 2.4.: *K-dominance curves plotting the cumulative genus frequencies against their rank. All station curves were situated between the extremes H7 and H11.*

None of the environmental variables dealing with potential food (C/N, CPE, ATP, biomass of flagellates, biomass of bacteria), were correlated with any of the diversity indices, nor was depth.

Trophic diversity (T in Table 2.8.) was very similar for all the stations averaging around 30. Two sites deviated from the general trend: H6 (T=0.24, the highest diversity) due to the exceptionally high proportion of predators/omnivores at the expense of the usually dominant detritivores, and H11 (T= 0.38) with a dominating proportion of epistratum feeders. The selective deposit feeders contained the highest number of genera (N_0), whereas the epistratum feeders were more diverse regarding the dominance indices N_2 and N_{inf}. However, differences in diversity among the trophic guilds were minimal (Table 2.9.).

Table 2.9.*: Abundance and diversity of the different feeding types pooled over the entire transect. H': Shannon's diversity index (bits.ind^{-1}); Hill's diversity numbers: N_0: no of genera per trophic category, N_1: EXP (H' * ln2), N_2: 1/Simpson's dominance index, N_{inf}: 1/highest abundance per feeding category.*

			Hill			
	%	H'	N_0	N_1	N_2	N_{inf}
1A	**30**	4.0	54	16.1	8.9	3.9
1B	**29**	3.2	34	8.9	5.6	3.3
2A	**36**	3.9	44	14.6	9.2	4.6
2B	**5**	3.5	26	11.1	7.4	3.8

Trophic dominance (high T) was significantly positively correlated with pellite, and negatively with genus diversity (H': $p<.02$; N_{inf}: $p<.001$). The selective deposit feeders were significantly correlated with the number of genera (N_0, $p< .05$, - sign), and predators/omnivores were highly positively correlated with N_{inf} (Table 2.6.).

2.3.6. Comparison between the nematode communities in the regions.

Figure 2.5., comparing the major characteristics of the nematode communities between Kapp Norvegia and Halley Bay, demonstrated that the two regions had, among the highest dominances, genera like *Sabatieria*, *Molgolaimus*, *Microlaimus*, *Monhystera* and *Dichromadora* in common. *Daptonema* dominances in Kapp Norvegia were, however, low compared to Halley Bay, and the contrary held for *Molgolaimus*. Similarly chromadorid dominances in Halley Bay were substituted by the closely related desmodorids in Kapp Norvegia.

The communities differed also in their structure of the less common *Nudora, Southerniella, Camacolaimus, Gammarinema* and *Actinonema* in Norvegia from populations of *Prochromadorella*, *Halichoanolaimus*, *Paranticoma*, *Calomicrolaimus* in Halley. Twinspan indicator families (classification outputs not depicted) for Kapp Norvegia were Monoposthiidae, Diplopeltidae, Ceramonematidae, Pandolaimidae and Sphaerolaimidae; and for Halley Selachinematidae, Anticomidae and Linhomoeidae. Deposit and epistratum feeders dominated at both sites, being roughly equally represented (about 30% each) and sexual composition was more or less similar for the two regions. Except for the absolute number of genera (Kruskal-Wallis, $p = .03$) indices of structural and trophic diversity were identical (Kruskal-Wallis, $p > .05$).

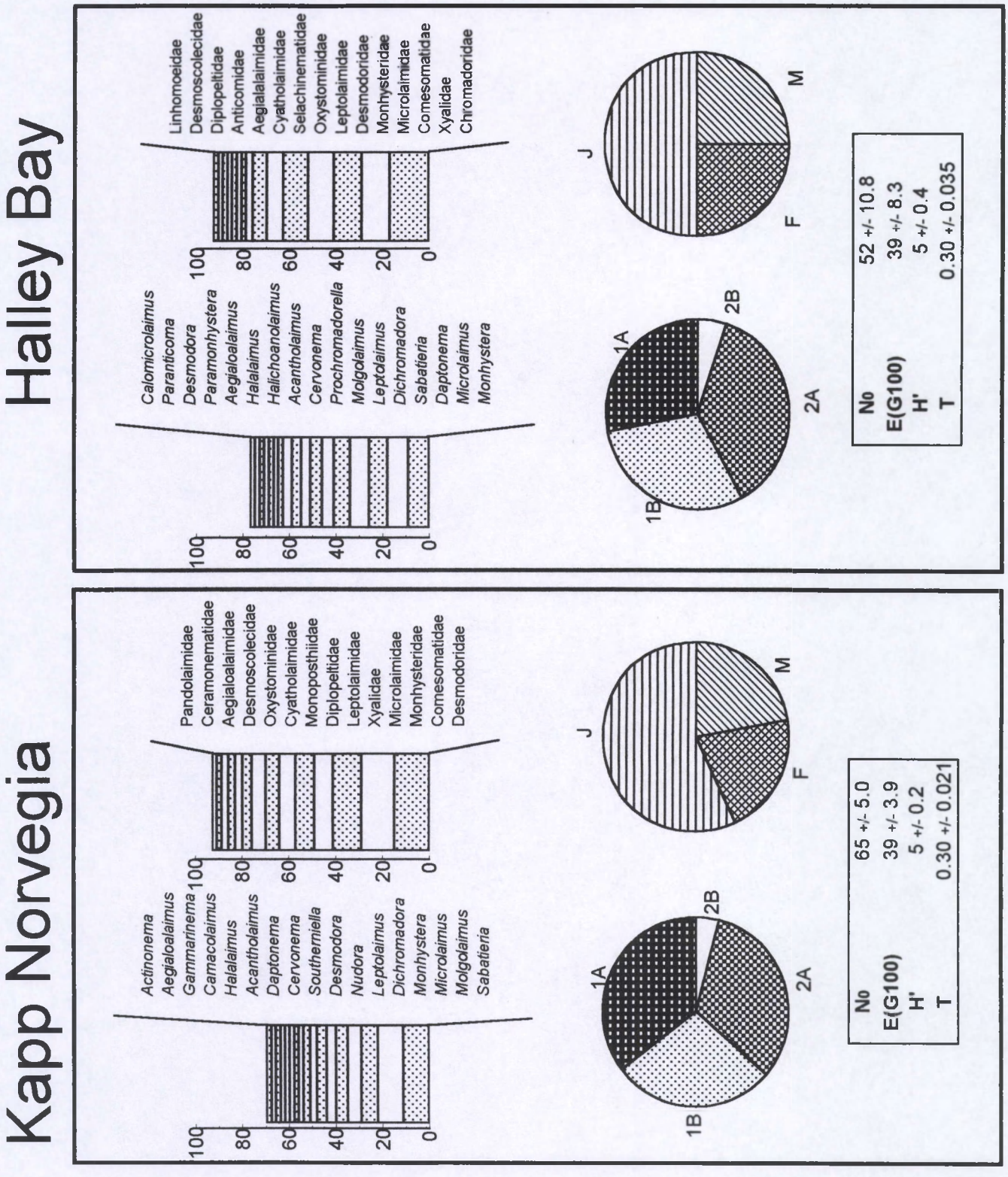

***Figure 2.5.**: Comparison on a regional scale of the nematode assemblages in the Weddell Sea. Genera and families representing on average a minimum of 2% of the regional population were shown; trophic and age composition were calculated as averages of the composing stations; diversity indices give mean ± standard deviation.*

2.3.7. Comparison between the nematode communities in the subregions (twingroups).

The comparison on the subregional level (Figure 2.6. and results from Twinspan analyses) indicated that *Monhystera* and *Dichromadora* were amongst the most dominating genera in all subregions along the transects.

The shallow-water nematodes, of which *Monhystera*, *Microlaimus*, *Sabatieria*, *Dichromadora* and *Leptolaimus* were the most prominent representatives, switched in their dominances on both shelves (Figure 2.6A &B). Additonal genera for the Halley shelf were *Daptonema*, *Leptolaimus*, *Prochromadorella*, *Cervonema*, *Halichoanolaimus*, *Paracanthonchus*, *Calomicrolaimus*, *Paranticoma*, *Gammarinema*, *Desmoscolex*, *Paramonhystera*, *Diplolaimella*, *Quadricoma*, *Paralinhomoeus*, *Metasphaerolaimus*, *Aponema*, *Aegialoalaimus* (mainly members of the Xyalidae, Monhysteridae, Comesomatidae, Leptolaimidae, Desmoscolecidae, Microlaimidae).
For the Norvegia shelf more individuals from *Molgolaimus*, *Leptolaimus*, *Pandolaimus*, *Gnomoxyala*, *Metadesmolaimus*, *Vasostoma*, *Mesacanthion*, *Paralongicyatholaimus* and *Nemanema* (mainly Pandolaimidae and Monoposthiidae) were recorded. Where trophic composition and diversity were highly similar, the absolute number of genera was higher on the Norvegia shelf.

The shelf break (Figure 2.6C), showing some faunal affinities with the Norvegia shelf by a common presence of the less dominating *Nudora*, *Chromadorita, Draconema, Metadesmolaimus* and *Pandolaimus* and having highly similar dominant genera as the upper slope, was composed of two stations (K4, H6) with very different genus composition (also visible in CCA). Shared genera were the dominants in figure 2.6C (*Sabatieria*, *Monhystera*, *Dichromadora*, *Acantholaimus*, *Molgolaimus*) and the less common *Paracanthonchus*, *Daptonema*, *Leptolaimus*, *Desmodora*, *Camacolaimus*, and the indicator *Cephalanticoma*. Specific assemblages of *Draconema*, *Eumorpholaimus*, *Chromadorina*, *Belbolla*, *Fenestrolaimus*, *Phanoderma* and *Richtersia*, however, typified only station H6.

The preferential upper slope genera (from TWINSPAN) included the dominant ones in figure 2.6D, and the lesser abundant *Ixonema*, *Dichromadora*, *Metadasynemella*, *Acantholaimus*, *Rhynchonema*, *Paramesonchium*, *Spirobolbolaimus*, *Chaetonema*, *Halanonchus*, *Coninckia*, *Trochamus*, *Rhips*, *Setosabatieria*, *Valvaelaimus* and *Pontonema* (mainly Monoposthiidae, Siphonolaimidae, Pandolaimidae and Enchelididae). *Chaetonema* was spatially restricted to the upper slope, whereas *Halichoanolaimus* was completely absent (indicator species at the first division in TWINSPAN-presence/absence analysis).

Finally, the downslope nematodes belonged to the dominant epistrate feeding *Microlaimus*, *Dichromadora* and *Acantholaimus*, and to the co-dominant *Monhystera, Theristus, Leptolaimus, Daptonema* and the rare *Batheurystomina* (mainly Chromadoridae, Microlaimidae and Xyalidae)(Figure 2.6E).

Genus richness measures (N_0, EG100, H') steadily indicated the upper slope (H7,8,9) and shelf break (K4, H6) as most diverse sites. Differences were, however, not significant (Kruskal-Wallis for the indicated diversity indices between all subregions, $p > .05$; U-test between Halley shelf and shelf break indices, $p < .05$; U-test between Halley shelf and upper slope indices, $p < .05$, all other combinations, $p > .05$). Trophic diversity was lowest downslope (Fig 2.6E) and was so mainly as a consequence of the dominance of the epistratum feeders. Trophic diversity was only significant different between the Halley shelf and shelf break, $p < .05$).
The Norvegia shelf and shelf break contained highest juvenile numbers, and the shelf break comprised relatively more predators.

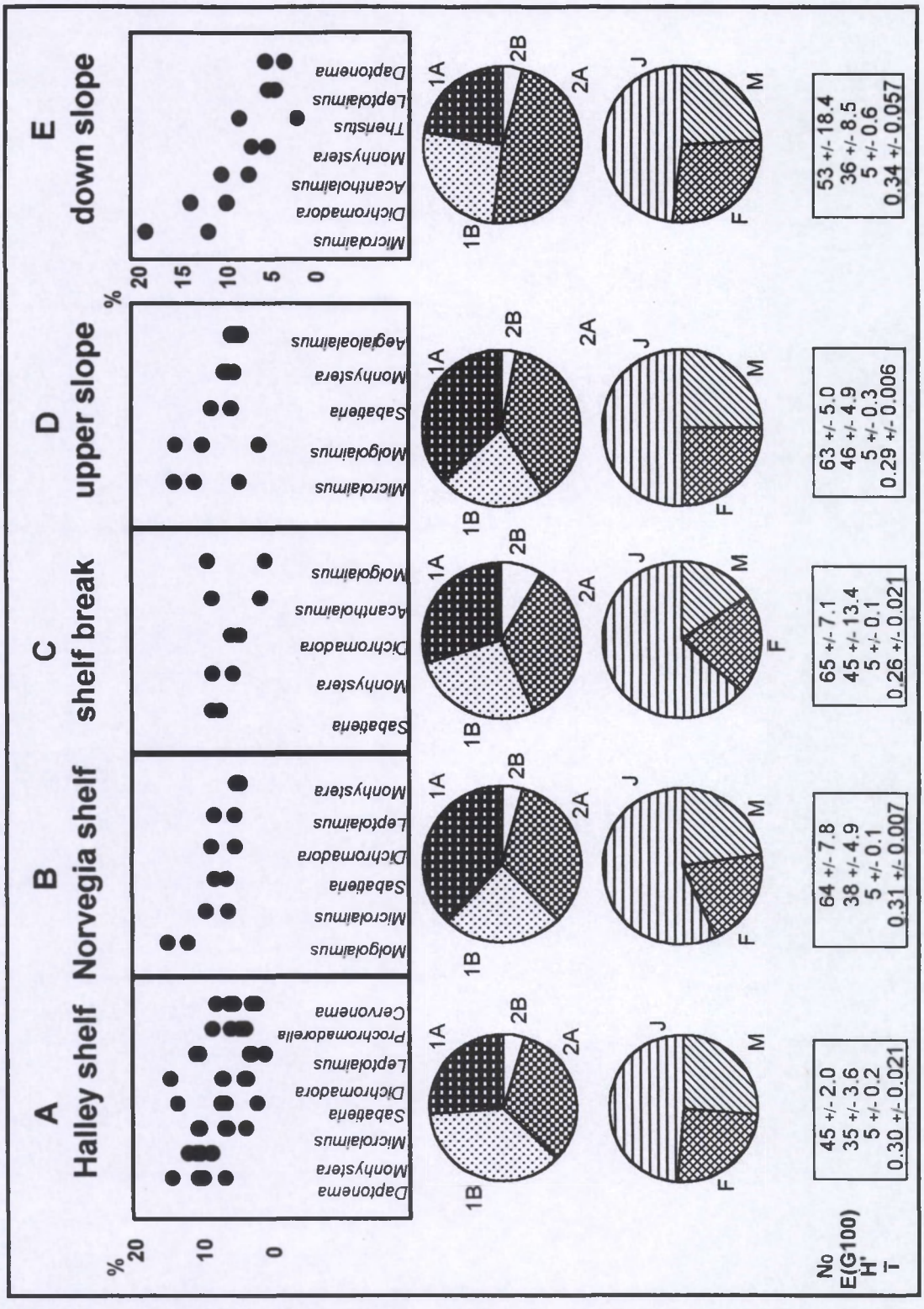

***Figure 2.6.**: Comparison on a subregional scale of the nematode assemblages in the Weddell Sea (groups agree with the TWINSPAN clusters). Ranked in order of importance the genera representing on average at least 5% of the subregional population were shown (each dot represents the relative abundance of the genus per station); trophic and age composition were calculated as averages of the composing stations; diversity indices give mean ± standard deviation. K1, K5 and H10 were not included as to their unstable position in multivariate outputs.*

2.4. Discussion.

2.4.1. Comparison with nematode communities worldwide.

In our attempt to compare the results with literature (de Bovée 1987; Dinet & Vivier 1979; Jensen 1988, 1992; Renaud-Mornant & Gourbault 1990; Rutgers van der Loeff & Lavaleye 1986; Thistle & Sherman 1985; Tietjen 1971, 1976, 1984, 1989; Vivier 1978 a,b), we were confronted with the fact that major interest went to hadal and abyssal depths and only a limited set of papers dealt with nematode zonation along the ocean margin (Soetaert *et al.*1995; Vanaverbeke *et al. subm, in press*).

Striking was that, on the one hand, the genera *Sabatieria*, *Microlaimus*, *Monhystera*, *Daptonema*, *Leptolaimus* and *Acantholaimus* and families Chromadoridae, Comesomatidae, Microlaimidae, Monhysteridae and Xyalidae from the high Antarctic Weddell Sea were shared among vast areas along shelves and slopes. The 10 most dominant families and 16 of the 23 genera with abundances higher than 1% in the Weddell Sea agreed with other deep-sea nematode assemblages in the Atlantic, Mediterranean and Arctic sectors. This is not only in agreement with what was noted before for the Atlantic and Mediterranean (Tietjen 1989; Vincx *et al.* 1994) but also stresses the broad geographical and latitudinal distribution of selected taxa, spanning an area from north to south.

Cosmopolitanism and eurybathy was found for several meiofaunal taxa (Nematoda: Vincx *et al.* 1990; Copepoda: Hicks & Coull 1983; Gastrotricha: Todaro *et al.*1996). Dispersal mechanisms such as vertical transport of sediments down the shelf to greater depths and accompanying horizontal movements by near-bottom currents in the nepheloid bottom layer must have enabled meiofauna to reach suitable habitats in geographically distant areas of the deep sea. Such mechanism, irrespective of physiological barriers of sudden temperature, oxygen and salinity changes was also proposed to explain the widespread distribution patterns of deep-sea nematodes, unlike the absence of pelagic larval stages and limited swimming ability of adults (Tietjen 1989; Jensen 1988, 1992; Thistle & Sherman 1985). The shelf and slope of the Weddell Sea connect with the deep Atlantic Ocean, hence enabling deep-sea dispersion. Furthermore, the Scotia Arc (island chain form South America to the Antarctic Peninsula) may have facilitated deep-sea immigration as well (Knox 1994). Evidence has, however, accumulated that the Southern Ocean shallow marine fauna evolved already since the Cretaceous or even earlier when the continents were still connected. As a consequence of isolation (continental drift, temperature drop, circum-Antarctic current systems, etc..), Antarctic fauna today rather evolved a circumpolar (throughout the Antarctic, Magellanic and sub-Antarctic islands), circumantarctic (throughout the Antarctic and Scotia Arc), or even endemic distribution both at the species and generic scale (*e.g.* species endemism typically ranges between 57 and 95%; genus endemism in, for example, isopods reaches 21%; references in Arntz & Gallardo 1994).

On the other hand, of the 23 genera present in numbers higher than 1% in the Weddell Sea, 30% were not found as abundant in the Atlantic (Vanaverbeke *et al. in press*), Arctic (Vanaverbeke *et al. subm*) and Mediterranean (Soetaert *et al.* 1995). They were *Southerniella*, *Paramonhystera*, *Gammarinema*, *Desmodora*, *Nudora*, *Paracanthonchus* and *Halichoanolaimus*. In figure 2.7. a comparison was made by means of a TWINSPAN-analysis on published nematode data of continuous zonations crossing shelf breaks, upper and deeper slopes. The shelf stations were ignored as no real inner shelf exists in Antarctica (*e.g.* it is replaced by the ice-shelf) and too few data were available from the transect studies. Thus, the 20 first ranked genera (other counts were treated as zero values) along depth transects in the Mediterranean Ligurian Sea (Soetaert *et al.*1995;280-1220 m;42-43°N 8-9°E), the North-East Atlantic Goban Spur (Vanaverbeke *et al. subm* a;206-2760 m;49-50°N 11-13°W), the Arctic Laptev Sea (Vanaverbeke *et al. subm* b;230-3237m; 77-79°N 114-122°E) and the Antarctic Weddell Sea (this study; 492-2080m;71-75°N 12-30°W) were used. Remarkable was the clear-cut division into the four geographical areas. Prominent taxa in the Weddell Sea such as *Molgolaimus*,

Dichromadora and desmodorids were sparsely distributed in other transects. Only the Mediterranean stations comprised similarly high quantities of the above mentioned genera, hence grouping this region with the Antarctic and separating already in a first division from Atlantic and Arctic sites.

Seemingly, generic similarity among nematodes at the continental margin was much less pronounced as in deeper stations of the continental rise and abyssal plain, where a few genera (usually *Theristus*, *Acantholaimus* + *Spiliphera*, *Halalaimus*, *Desmoscolex*, *Tricoma*, *Microlaimus*, *Syringolaimus* and *Sphaerolaimus*) dominated the assemblages (Tietjen 1989, Thistle & Sherman 1985, Vincx *et al.* 1994) leading to a clustering of all abyssal sites (Soetaert & Heip 1995) rather than grouping them on a geographical basis as was the case in the current appraisal. Soft evidence for this finding was already given by the latter authors, though the lack of sufficient data did not allow to give convincing proof. The most straightforward argument for this feature has to be searched in the fact that environmental properties of the transition zones connecting the shelves with the abyss are much more heterogeneous on a global scale than are the deep-sea sites *stricto sensu.* As a consequence of a less thick water column separating the bathyal sediments from the surface, buffering of production, sedimentation and erosion is less pronounced than in the abyss. Greater proximity to the continent, combined with steeper slopes and intenser water column activity caused by boundary currents conduct to a more pronounced variability in the shallowest portion of the deep sea (Wilson & Hessler 1987).

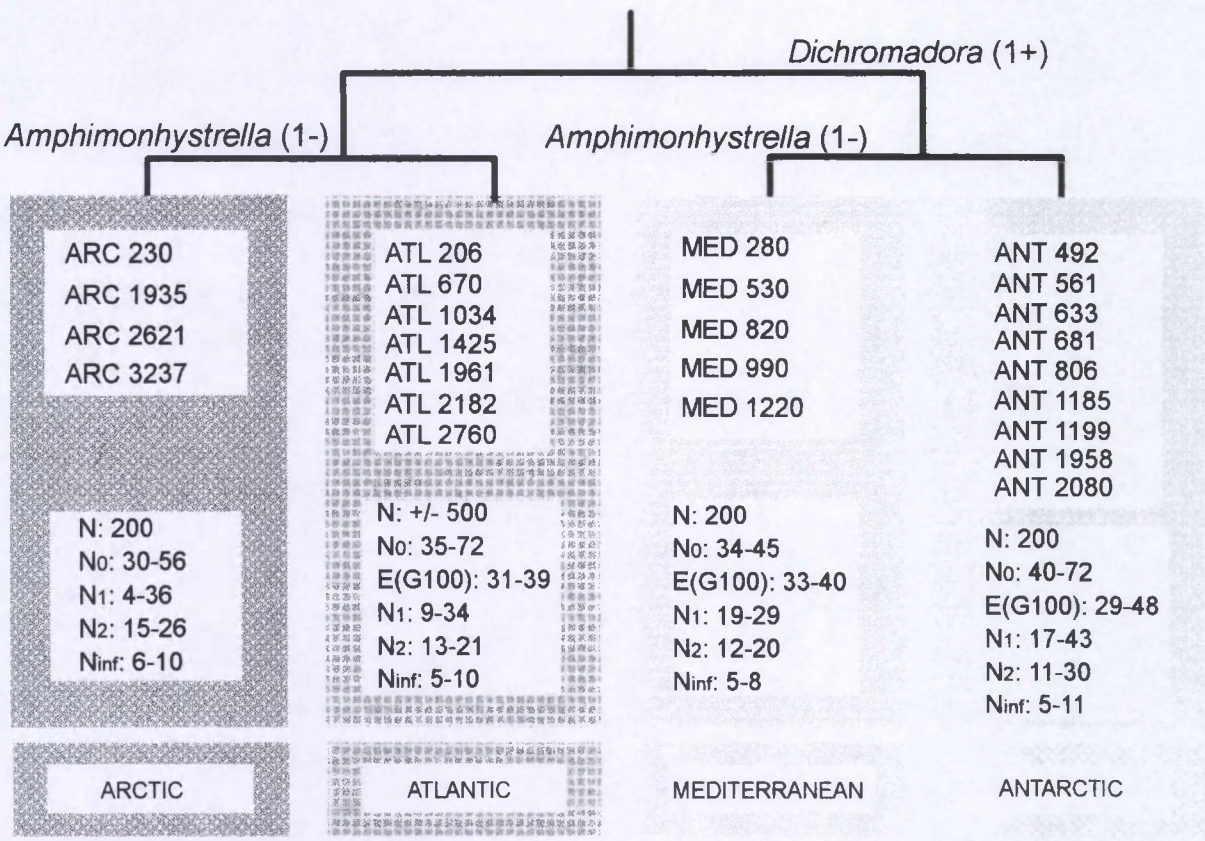

***Figure 2.7**.: Twinspan analysis on the 20 first ranked genera (non-transformed percentage data) in four transects along the continental margin, together with Hill's diversity numbers and if given the expected number of genera from Hurlbert's modification on Sanders rarefaction curves (ranges along the transect): ARC: Arctic Laptev Sea (Vanaverbeke et al. subm , ATL: Northeast Atlantic Goban Spur (Vanaverbeke et al. in press), MED: Mediterranean Ligurian Sea (Soetaert et al. 1995), ANT: Antarctic Weddell Sea (this study). The numbers indicate water depth along the transect; indicator species with their cutlevel are added; cutlevels used: 0; 1.7; 2.6; 4.8; 51.*

2.4.2. Comparison of diversity on a world-wide scale.

Deep-sea, soft-sediment communities are known to be unexpectedly rich, and within the deep-sea meiofauna, high diversity was reported for foraminifers (Gooday 1986), for harpacticoids (Coull 1972; Thistle 1983) and for nematodes (Tietjen 1976, 1984, 1989; Dinet & Vivier 1979; Soetaert *et al.* 1991; Vanreusel *et al* 1992; Vanaverbeke *et al.subm, in press*). Although pioneer studies have long recognized that there exist clear latitudinal gradients in species diversity, with a continuous decline in a poleward direction, today evidence suggests that this holds only for specific taxa (Clarke 1992) and is obscure or non-existing in the shallow sea (Gage 1996). Furthermore, Antarctic macrobenthic communities express a high diversity (Arntz *et al.* 1994; Brey *et al.* 1994).

Comparing nematode data on ocean-wide scales is difficult, primarily because of the high sample size dependence of many diversity indices (Soetaert *et al.* 1991). Therefore we restricted to the same depth transect studies mentioned above (Figure 2.7.), which, except for the Atlantic, used the same sample sizes (see N in lowermost columns). Yet, ranges of diversity (especially genus richness measures N_0 and EG_{100}) reached higher values in the Weddell Sea nematode communities than in any other transect.

Diversity of the high Antarctic meiobenthos, as summarized by genus richness of nematodes, seriously underestimates Weddell Sea diversity. Reasons for that are the constriction to one taxon (that of the nematodes) and the lack of species data (species numbers in the deep sea can reach a number of 35 per genus, Tietjen 1989). Furthermore, processing of 200 nematodes per station (7300 specimens in total) is by far not enough to get a reasonable estimate for Hill's N_0 and N_1, but is acceptable for higher-leveled indices and for the Shannon-Wiener index (Soetaert *et al.* 1991). Finally, it is often noted that diversity increases with depth (in general: Gage & May 1993, for meiofauna: Coull 1972; Tietjen 1976; Dinet & Vivier 1979; Boucher & Lambshead 1995). For example in the N Atlantic selected macrobenthic taxa exhibited a parabolic pattern of diversity with maxima at intermediate depths (2000-3000 m) and lesser values on the continental shelf, upper slope (< 1000 m) and abyss (> 4000m) (Rex *et al.* 1993; Paterson & Lambshead 1995).

In the light of former comparison and these arguments the idea is emerging that meiobenthic diversity might follow the usual trend of high diversity in Antarctic benthos.

2.4.3. Regional, subregional variability and zonation of the nematode communities (the scale of km to hundreds of km).

The distribution of the nematodes in regional (Kapp Norvegia, Halley Bay) and subregional (five biocoenoses) communities demonstrated a change in percent composition of the dominant genera and the establishment of habitat specific less common taxa. In the search for environmental control it was already highlighted that depth *per se* had no significant effect although it was indirectly active distinguishing between the several subregions and it might have contributed to isobathic distribution patterns of single genera such as *Batheurystomina, Theristus* and *Acantholaimus* (genera that were found from the shelf break on and in most cases recognized as real deep-sea colonizers) and *Sabatieria* (confined to less deep areas, often related to anoxic mineralization pathways) (Soetaert & Heip 1995).

With 22% of the genera being significantly correlated with sediment granulometry, this factor was the most important structuring force in the Weddell Sea, hence confirming many other studies on nematode ecology (Heip *et al.* 1985). High abundances of Chromadoridae, Microlaimidae and Desmodoridae indicated that most biotopes contained sandy substrates and related to pelagic sedimentation events. The influence was most obvious by the separation of the upper slope due to assemblages avoiding pellitic biotopes or 'preferring' the coarse, often gravelish sediments,

and paralleled patterns in higher meiofaunal taxa (Herman & Dahms 1992). The influence of substratum type was even more pronounced on the diversity of the nematode communities. Genus and trophic richness was higher with coarser sediment texture and a negative correlation existed with pellite content. This agreed with Snelgrove & Butman (1994) who denoted that sandy habitats have a higher number of microhabitats, allowing a higher diversity compared to clay-silt sediments.

Our results demonstrated also that 28 % of the genera were correlated with food. Trophic status, although greatly structured by the epistratum feeding mode, was not conspicuously different in this high Antarctic deep-sea biotope when compared to other deep seas (Soetaert & Heip 1995). The combination of sediment texture and food granulometry were, in changing relative importance, at the base of subregional variability: Halley shelf- sediments were fine and rich in fresh food, whereas downslope pellitic sediments contained reasonably high organic matter and bacterial concentrations; the coarse sediments on the upper slope were rich in silicate, and consisted often of gravelish particles with higher concentrations of older detritus, a characteristic even more pronounced on the shelf break and Norvegia shelf. Hence, the often gradual change from coarser, food rich sediments in the shallow towards finer (often muddy), less trophically rich bottoms in the deep sea, translated in a gradual replacement of epistrate to deposit feeders (Heip *et al.* 1985, Vincx *et al.* 1994, Soetaert & Heip 1995), was not found along the transects in the Weddell Sea.

Deep-sea nematode studies often united non-selective and selective deposit feeding into one functional group. The resulting category grazing on bacteria, fungi and unicellular algae (Jensen 1987) predominated thus deep-sea feeding life-styles (to more than 90%, Soetaert & Heip 1995). Pooling might have ecological significance when comparing with other faunal assemblages but masks adaptive features of the nematodes to certain environmental conditions.

An example is the prominence of epistrate feeders in downslope sediments of the Weddell Sea. Epistrate feeders were similarly highly abundant in the Norwegian Sea (Jensen 1988), in heterogeneous pelagic sediments of the Venezuela Basin (Tietjen 1984) and on the Hatteras abyssal plain (Tietjen 1989). They rasp off microbial coatings around foraminiferan tests, clumps of bacteria and other organic particles from sediment grains and pierce or swallow entire diatoms. However, the often high abundances of this nematode feeding group in deep sites invoke other food supplements in their diet. According to Jensen (1988) & Tietjen (1984, 1989) they were also related to planktonic foraminiferal deposition. In the Weddell Sea positive correlations were found with microbial (ATP) and protozoan biomass (flagellates). Protozoa are a food source that has been underestimated up to now, but raised a separate group (ciliate feeders) within the deposit feeders *sensu* Moens & Vincx (1997).
Selective deposit feeding or microvory was positively correlated with older material (with higher C:N ratios) and dominated the Norvegia shelf and Halley upper slope. Supposedly, the ongoing decomposition of organic matter was a substrate for the growth of many microorganisms (such as bacteria, fungi) and therefore an attractive medium for selective microvores at these sites (the highest C:N ratios were far below the threshold of 25 for biological mineralization and the food requirements, C:N 17, for animals, Tyson 1995),
Non-selective deposit feeding, on the other hand, was related with fresh organic matter (CPE) highly abundant on the Halley shelf. This trophic strategy, of which the prevailing occurrence in all habitats was often attributed to broad diets of different particle sizes (Wieser 1953), was mainly constructed by diatoms feeders, and merely points to a higher primary productivity with recent deposition, characteristic for the Halley shelf.
Hence, non-selectivity prevailed over selectivity in circumstances of excess fresh labile detritus, whereas the contrary held in sediments where selectivity was needed for distinguishing between particles in different stages of decomposition, the latter generally characterizing fine-grained deep-sea sediments.

Natural-history and evidence for any dietary specialization of nematodes is very poor and lacking in deep seas, and certainly not refined enough to explain food selection in more detail than is stated above. An interesting example in the Weddell Sea was the high occurrence of spicule/debris rich sediments (see below). Impossible to distinguish a trophic group with the current approaches such biotopes must have lead to specific adaptations within the interstitial fauna. Feeding on bryozoans has, for example, been noted for some oncholaimids by Stekhoven (in Jensen 1987).

2.4.4. Features inducing variability of sediment texture and food.

One of the underlying characteristics points to productivity. Production in the pelagial and delivery of food to the seabed have been put several times as main factors influencing the size and structure of the benthos (Pearson & Rosenberg 1987), and particularly the deep-sea benthos (Thiel 1975). The high standing stocks of meiofauna in the related study (Vanhove *et al.* 1995) similarly supported the importance of overhead production reaching immense quantities during the austral summer and competing with any region worldwide (to 2342 mg C m^{-2} d^{-1} in the coastal zone, Bathmann *et al.* 1991). It was stated that, in the trace of the primary production and subsequent sedimentation pulses during the austral summer, the benthos respond rapidly and efficiently to the episodic food supply, characteristic for polar environments. The settlement of large amounts of organic matter from different origin (*e.g.* 1.5 % of depositing matter in traps during the austral summer in the SE Weddell Sea is chl-a, 0.5 % POC, of which 60-90% originates from faecal pellets from diatoms and protozoan heterotrophic flagellates, ciliates, radiolarians and foraminifers, Nöthig 1988) might have led to the equal sharing of all feeding categories resulting in high trophic diversity along the transects.

A second important environmental clue might have been the hydrodynamic regime. The Weddell Sea gyre primarily demarcated the study area (Fahrbach *et al.* 1992; Hellmer & Bersch 1985). In the northernmost region, where the shelf was confined to a narrow strip of 60-65 km followed by a steep slope (angle 12°), cold water masses from near the shelf ice mixed with Warm Deep Water due to the influence of the strong Antarctic Coastal Current. Upwelling phenomena were reinforced by strong northeasterly wind gales predominating the environment prior to the sampling period (Rohardt *et al.* 1990). In the southernmost area, two distinct water masses (*e.g.* Eastern Shelf Water of -2°C to 500 m depth and Warm Deep Water of 0°C from 500-2000 m) gave rise to a transition zone between the shelf and oceanic domain. A broad shelf (about 120 km) and more gentle downward decline (slope angle 3°) characterized the region.

Sediment-dwelling macrofauna are particularly vulnerable to such disturbance (references in Gage 1996), and as the upper few mm of sediment may be completely stripped, it is expected that nematodes might be impacted as well. The influence of hydrodynamics was indeed obvious on the upper continental slope off Halley Bay, where high energetic conditions (current velocity could be as high as 50 cm s^{-1} along the eastern shelf, Bathmann *et al.* 1991) generated circumstances of lateral advection and resuspension in which bedload transport prevented sedimentation of finer fractions (Rabitti *et al.* 1990) and fresh phytodetritus (*e.g.* in H9 C:N ratios were highest and CPE content was among the lowest). The sediments were scarce in macro-infauna but supported discrete aggregations of porifers, holothurians and pycnogonids (Galéron *et al.* 1992, Gerdes *et al.* 1992).

Meiofaunal nematodes belonged to rare genera (examples were *Ixonema*, *Rhynchonema*, *Metadasynemella*, *Paramesonchium*, *Spirobolbolaimus*, *Chaetonema*, *Halanonchus*, *Coninckia*, *Trochamus*, *Rhips*, *Setosabatieria*, *Valvaelaimus* and *Pontonema*) and excluded ubiquitous genera such as *Halichoanolaimus* and *Calomicrolaimus*. A low affinity among the composing stations characterized these habitats. Long tails (to feed toward the surface and to avoid resuspension, Thistle & Sherman 1985), large body sizes and long setae (Tietjen 1976) were thought to be morphological adaptations to living in high-energy biotopes and were also found in

many of the fore-mentioned genera. Although such functional adaptations might be specific for rigorous current regimes, we cannot prove the ecological significance; the more that these hydrodynamically active biotopes had coarse-grained sediments. Adaptations of the kind described above are then merely related to the substrate *strictu senso*, than to the high-energetic feature of the environment (Thistle & Sherman 1985).

Energy flow regime positively influenced diversity as well (*e.g.* higher genus richness and trophic diversity were encountered on the shelf break and upper slope). This contrasted observations of depressed macrofaunal richness, as a consequence of reduced habitat heterogeneity in high current energetic sites (Gage 1996), but agreed with meiofaunal copepod diversity at sites marked by energetic hydrodynamics (Thistle 1983). Maybe the big suspension feeders in this region, such as huge sponges (Arntz *et al.* 1994), fulfilled a rôle as habitat stabilizers for the meiofauna, by reducing sediment agitation, but then to a level that particle suspension was still high enough to favour meiofaunal diversity maintenance.

Third, a characteristic macrofaunal assemblage with impoverished abundances and diversity, defined as the Near Ice-shelf Community (Galéron *et al.* 1992), draws the importance of ice-related processes as agents for structuring Antarctic benthos at the stations H1 and H2. Also Herman & Dahms (1992) recognized an assemblage within the higher meiofauna taxa close to the shelf-ice. However, although the stations were in common with those in the macrobenthic studies, the same communities prevailed also deeper down (at H4 and H5), a feature that came back in the Halley Bay-Kapp Norvegia comparison by Vanhove *et al.* (1995), and also within the nematode genera in the current appraisal. Therefore it looked not as a characteristic ice-shelf assemblage. We rather believe that similarity on the Halley shelf might have paralleled the findings of Galéron *et al.* (1992) namely that of a "replicate" of the shelf ice fauna in similar depths at greater distance on the continental shelf. Such refuge fauna may have favoured recolonization between glacial periods and this in cycles that lasted for the past two million years. Such observations lead to an explanation for the eurybathic zonational patterns of many macrobenthic animals (summarized by Brey *et al.* 1996). But also here we have no hard evidence as many nematode genera and families with eurybathic distributions in the Weddell Sea proved to have an eurytopic distribution in many other geographical sites as well. Examples were the Comesomatidae (*Sabatieria*), Xyalidae (*Daptonema*), Microlaimidae and Chromadoridae.

A hummocky seabed morphology on the continental shelf indicated for considerable impact of grounding icebergs in the eastern region of the Weddell Sea (Lien *et al.* 1989). The resulting plough marks (with average widths of 30-70 m and depths of 30 m) characterized the ice-rafted sediments as poorly sorted sands with many gravels and pebbles. In localities where the physical compaction was high, variations in grain size distribution lead to a down-core trend of increasing sediment density and decreasing water content (personal observation). *In situ* surveys demonstrated that iceberg grounding caused considerable damage to macrobenthic communities in Kapp Norvegia, affecting on spatial scales from tens of meters to many kilometers (Gutt *et al.* 1996). Similarly, the studies of Galéron *et al.* (1992), paralleling our investigations, indicated that the macrofaunal composition in all stations close to the ice edge were grouped due to reduced richness but similar composition, explained by the more frequent disturbance of this area by iceberg scouring and consequently the shorter time of existence of the community. This contrasted somewhat to our observations as trophic composition and diversity were highly similar between the Halley and Norvegia shelf. We have no certainty that sampling directly hit an iceberg scour, but with the background of high glacial disturbance in the area and with the finding of elevated gravel concentrations for example in K3 and K4, it is suggestive that some kind of response to iceberg activity was present. The translation into higher genus numbers and more juveniles in relation to nematode communities at similar depth in Halley Bay, could then merely direct to an ongoing recolonization process (Peck *et al. subm*).

Hydrodynamics and/or ice-berg related processes might have been at the origin of unstable positioning of the shelf break in multivariate outputs. Having faunal affinities with the shelf break in the NE Atlantic (e.g. *Sabatieria*, *Daptonema*, *Acantholaimus*, *Richtersia* and *Setosabatieria* were also found by Vanreusel *et al.* 1992 and Soetaert *et al.* 1995), the heterogeneous sediments contained the highest amounts of juveniles and were colonized by assemblages with the highest diversity. Of interest was also the greater proportion of predators (guts of *Halichoanolaimus* and *Gammanema* included undigested sclerotized elements of nematode copulatory apparatus of *Desmodorella* substantiating the predatory nature). Such characteristic has also been found in Mediterranean canyons and was attributed to the presence of labile organic matter (Soetaert *et al.* 1995). Station H6 must, indeed, have received high amounts of fresh deposits (low C:N ratio, high CPE, high ATP), supported by dominances of *Sabatieria*, which is often associated with anoxic mineralization pathways (same authors). The particular features in this station manifested already at the meiofaunal taxon level, where a peculiar composition augmented the number of taxa (Herman & Dahms 1992). Similarly, a distinct sponge association and high amounts of bryozoans (Barthel & Gutt 1992, Galéron *et al.* 1992) were found at this site, giving origin to a high diverse though low abundant macrofauna in the mixed substrates of gravel, sand, debris and spicules.

Finally, as already invoked earlier (*e.g.* positive impact under high energetic conditions), mesoscale variability within the nematode communities might also be derived from the type of macrofaunal assemblages. The benthos on the shelf of the eastern Weddell Sea, with respect to biomass and abundance, appears as a fairly rich fauna, with a considerable variability in the small- and large-scale distributions (Gerdes *et al.* 1992). The Eastern Shelf Community is highly diversified and dominated by suspension feeding sponges (Hexactinellida and Demospongia), bryozoans, echinoderms, crinoids and ophiurids (Hain 1990, Gutt 1991, Galéron *et al.* 1992, Hempel 1992). Many of these organisms produce thick mats of spicules and debris which may locally be over 1 meter thick (Dayton 1990). The resulting biogenic sediments provide an excellent substratum for different benthic organisms as they are composed of many interstitial spaces (Tyler 1995, Gerdes *et al.* 1992). Stations that were occupied by the Eastern Shelf Community included all these from Kapp Norvegia and the three upper slope stations off Halley Bay (although the latter group was situated on the border of the Southern and Eastern Shelf Community). The genus *Molgolaimus* seemed to discriminate for these environments, but many other genera were also found in high numbers, hence giving rise to diverse nematode assemblages. For example, K2-sediments were covered with thick spicule mats from hexactinellid sponges (Boldrin, unpublished results). *Molgolaimus*, *Sabatieria*, *Leptolaimus*, *Dichromadora*, *Desmodora* and *Cervonema* typified the communities and second highest genus and family numbers were found at this site.

The fauna on the Halley shelf might have been part of what Voss described as the Southern Shelf Community, harboring a more diverse group of motile pycnogonids, echinoids, asteroids, holothurians, peracarids, polychaetes and shrimps (Galéron *et al.* 1992). We could not clearly define a specific assemblage in this region, but nematode genera that easily adapted to the patchy distribution of this macrofauna -many of them being burrowers- must have colonized these sediments.

2.4.5. Small (m and cm) scale variability in the nematode communities.

Although the pooled X^2- tests proved for a great sampling accuracy with a random distribution of the nematodes among the replicates, a high degree of aggregation (~90 %) in the genus numbers between the stations of the entire Weddell Sea paralleled high variation in trophic structure and life history of the assemblages (*e.g.* variance:mean ratios illustrated often considerable amount of natural between-core variability for juveniles, females, deposit and epistratum feeders).

Furthermore, diversity indices often varied considerably among the stations within the subregional biocoenoses, and k-dominance and genus distribution curves of the various stations interspersed within the subregions. Patchiness in nematode communities is a common phenomenon in all kinds of habitats (Heip *et al.* 1985) and variability on a small scale is also apparent in deep-sea meiofauna (Thistle 1978; Thiel 1983; Eckman & Thistle 1988), though differences on a cm-scale (between replicate samples) are only minimal compared to km-scale (between stations) (Li *et al.* 1997). Similar mechanisms, as those mentioned in the paragraphs above were here acting, though on a much lower area. The complex of environmental properties such as sediment texture, microbial presence, food content and individual macrofaunal tubes and burrows might have created an intricate mosaic of local patches leading to this small-scale variability.

2.4.6. Application of theories to summarize the impact of ecosystem functioning in the Weddell Sea on biological diversity and distribution of the nematode assemblages.

A body of literature has arisen with mechanisms that regulate diversity patterns in the deep sea biota (see most recent review of Gage 1996). The co-ordinate of most theories, the Stability-Time Hypothesis of Sanders (1968) will be used as starting point to discuss observed patterns in nematode diversity on a global, regional, subregional and small scale in the Weddell Sea.

Briefly, this concept states *'Biologically accommodated communities resulting from past biological interactions, including competition, are realized in physically stable environments of long temporal continuity. The potentials of spatial heterogeneity can be achieved only under these same environmental conditions. In environments harboring physically controlled communities the physical conditions fluctuate widely and the animals are exposed to severe physiological stress. Physical instability in an environment prevents the establishment of diverse communities'.*

Given the extreme climate conditions in Antarctica it is perhaps not surprising that much of the biology of the marine organisms has been ascribed directly to the effect of low temperature. But they are not explicitly a barrier for deep-sea organisms as temperatures do not differ significantly between the oceans (Clarke 1988). Therefore it is doubtful that temperature in itself had a significant contribution to elevation of nematode diversity in the Antarctic Weddell Sea compared to the other geographical areas. One of the many features, however, distinguishing Antarctica from major other continents is the quaternary glaciation (Arntz *et al.* 1994). Only in north-polar marine environments glaciation was as extensive, conducting to a belief that both regions must have developed similar speciation. However, genus richness of the nematodes was distinctly higher in the Antarctic than in the Arctic (Jivaluk 1993; Vanaverbeke *et al. subm*). Such observation was already forthcoming in several macrobenthic taxa and was explained by the unique history of the Antarctic. Higher age and longer isolation must have enabled a highly diverse fauna to evolve (Brey *et al.* 1994).

Productivity might also have added to the difference between these two cold environments, as diversity, to a certain extent, increases with higher productivity (*cf.* productivity theory of Connell & Orias, reference in Sanders 1968). It was already stated earlier that primary production along the Antarctic continent can reach extremely high figures. In the Arctic, although being very low on an annual base (10 gC m^{-2} y^{-1}, Pfannkuche & Thiel 1987), primary production also reaches high values following the retreat of the ice edge (to 1000 mg C m^{-2} d^{-1}, same authors). Still this is

less than half of what can be expected in the Weddell Sea. The difference between these two regions cannot solely be at the origin of the observations, but sedimentation, horizontal advection, bioturbation, spatial heterogeneity and many other factors will have contributed as well.

Undoubtedly the nematode communities in the Weddell Sea can be classified between the two extreme hypothetical categories of physically disturbed against biologically accommodated communities of Sanders as follows:

(1) Populations in the physically stressed and unpredictable environments of the shelf off Kapp Norvegia (*e.g.* large-scale disturbance by iceberg activity) appear to have a broad adaptation to these conditions by maintaining a high degree of variability of opportunistic organisms (such as *Molgolaimus* and *Microlaimus* in the current study).
(2) Habitats on the Halley shelf and downslope were composed of fine sediments, rich in fresh food, harboring 'stable' nematode communities with a high affinity among the composing localities. The xyalid *Daptonema* was preferably found in such calm conditions. Diversity was still -though not distinctly- high and maintained by sporadic, small-scale, discrete disturbance events occurring against a background of relative constancy (Grassle & Morse-Porteous 1987). Community members must have specialized morphological adaptations or well-defined niches such that competition and predation are minimized. For example *Acantholaimus* species have very different types of mouth openings and buccal cavities indicating food resource partitioning in the upper sediment (Jensen 1988; Soetaert *et al.* 1995). *Sabatieria*, on the other hand, merely exhibits a vertical repartition so that species with similar food requirements and feeding behavior can co-exist in the same locality (Soetaert et al. 1995; Vanaverbeke *et al. in press*).
(3) The shelf break and upper slope were the most marked zoogeographical boundaries encountered along the transects. Dictated by very rapid and pronounced faunal changes with low affinity among the composing communities, the nematodes showed elevated diversity values and juvenile numbers. Having the common denominator disturbance (*e.g.* either by hydrodynamics or by iceberg activity) the shelf break and upper slope communities were conceivably more physically controlled.

In summary, the nematode communities in the Weddell Sea can be regarded as assemblages situated at some stage between biologically and physically controlled communities. However, the essence of Sanders theory is that long term environmental predictability has allowed a differentiation of many non-overlapping niches to develop in which many competitive species can co-occur. We agree that the factor '*long temporal continuity*' (or predictability) is the ultimate base for diversity maintenance but we want to nuance the saying that '*the potentials of spatial heterogeneity can be achieved only under these same environmental conditions. Physical instability in an environment prevents the establishment of diverse communities*'.

The theme of natural disturbance, as proposed by Dayton & Hessler (1972), should receive therefore more attention. Although this theory ('*High diversity in the stable deep-sea environment is allowed by predictable disturbance by the croppers, which reduces the importance of competitive exclusion and thus allows the continued coexistence of many species which share the same resources*') advanced to explain high diversity in the context of resource partitioning in a low food environment (*cf.* the deep sea), it sets forward that patterns of natural disturbance reduce the effects of competition.
Depending on the degree of disturbance, a more or less diverse fauna is developing. Small-scale disturbance against a background of relative constancy creates then elevated microhabitat heterogeneity in which many species co-exist. Larger scale disturbance, in contrast, can defaunate the affected habitat entirely, so that a complete recolonization is needed (*cf. In environments harboring physically controlled communities the physical conditions fluctuate widely and the animals are exposed to severe physiological stress. Physical instability in an environment prevents the establishment of diverse communities*').

The differential impact of small and large-scale disturbance certainly underlied nematode diversity in the Weddell Sea. Translated, for example, to the effect of iceberg scouring, present-day nematode diversity in affected regions is the result of severe iceberg activity, where no fauna survived the catastrophic disruption, and smaller disturbances (for example trampling of iceberg), where repeated small-scale patch mosaics in the biotope favour diversity maintenance. This approach was applied for explaining the finding of high patchiness and the mosaic of different successional stages (*e.g.* from recently disturbed to climax fauna) in sponge communities within the narrow shelf of the Weddell Sea (*pers. comm.*).

Lambshead & Hodda seeked to deduce the impact of disturbance by analyzing variance to mean ratios in the distribution patterns of nematode populations (1994). Conducting the method to our datasets (as was done in Table 7) we found in descending order of percentage aggregation: Halley shelf (42 %), Norvegia shelf (38 %), shelf break (33%), upper slope (27%) and downslope (20%). Following then the reasoning of these authors the high percentage aggregation on the Halley shelf could have been the result of biogenic disturbance from macrofaunal burrowers against a background of high productivity (cf. their STD site), whereas the comparable downslope communities agreed more with the physically undisturbed MAP-area. The latter sites experienced much less bioturbation activity due to lower concentrations of infaunal worms (Gerdes *et al.* 1992). Norvegia shelf, shelf break and upper slope must have experienced different intensity of disturbance, leading to a homogenization of environmental patches, hence gradually reducing faunal aggregation (Grassle 1989).

Pasting the three approaches the following characterization of the biocoenoses can be done: 1) Halley shelf: biologically controlled with highest percentage aggregation and lower diversity, maintained by sporadic, small-scale, discrete disturbances by macro-infauna against a background of a relatively constant high productivity; 2) downslope: biologically controlled with lowest percentage aggregation and lower diversity, maintained by reduced disturbances against a relatively constant environment; 3) Norvegia shelf: physically controlled with high levels of aggregation and elevated diversity, impacted by iceberg-activity; 4) shelf break: physically controlled with intermediate low aggregation and highest diversity, environmental disturbance was high; 5) upper slope: physically controlled with lowest levels of aggregation and highest diversity, substantial broadscale disturbance was induced by current regime.

Hence, the factors influencing diversity in the nematode assemblages of the Weddell Sea included climate (temperature), time (history), productivity, environmental stability, physical disturbance and spatial heterogeneity. In this approach we have much less, or not, been concerned with the possible biological control (*e.g.* competition, predation, etc.) and we are aware that we have taken a rather simple position to explain diversity.

2.5. Conclusive remarks.

Antarctic nematodes, in many ways, have elements in common with other communities along the continental margin, but typical polar conditions added to a slight shift in nematode features, in some instances drifting away from general patterns in other deep seas. However, the limitation of insufficient data to generalize our statements have to be borne in mind. Convincing evidence can for example only be reached after downloading the study to the species level. At least our results permit to state that we succeeded in our attempt to 1) deliver an extensive first database on nematode distribution in the high Antarctic, 2) integrate meio- and macrofaunal findings, 3) relate observations to different spatial scales, and finally 4) apply theoretical considerations from literature.

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CHAPTER 3.

On the vertical distribution of the Antarctic meiofauna in the sediment profile along the Weddell shelf /slope

3.1. Introduction.

Previous essays on the structure of the meiofauna in the Weddell illustrated the high importance of this benthic group compared to major deep-sea assemblages in the world (Herman & Dahms 1992,Vanhove *et al.* 1995, Vanhove *et al. subm.*). At Kapp Norvegia, in particular, meiofaunal standing stock averaged at 2000 individuals and 0.5 g dry weight per 10 cm^2 with a high dominance of nematodes (ranging between 83-97%). A distinct separation between communities opposing the shelf break with high abundance, biomass and diversity on the shelf and relatively lower values on the slope was observed (Vanhove *et al.* 1995).

The spatial structure of meiofaunal communities in soft sediments has been studied by various investigators for years, providing interpretations of their ultimate dependence on benthic surface conditions (Giere 1993). Patterns appeared to be strongly correlated with the oxygen and organic matter concentrations in the sediment. Similarly, in nearshore shallow Antarctic waters the distribution of meiofauna and nematode characteristics was sharply driven by a biogeochemical zonation within the substrate (Vanhove *et al., in press*). For the deep-sea environment 40 to 50 % of the metazoan meiofauna was retrieved from the top centimeter of the sediment, but many organisms happened to occur at depths of 10 cm as well (see most recent review by Vincx *et al.* 1994). In addition, vertical segregation in size dimensions and buccal morphology of the nematodes explained the coexistence of related taxa in the subsequent layers (Soetaert & Heip 1989, Soetaert *et al.* 1995). Factors promoting vertical gradients in deep-sea bottoms were linked with sediment *sensu stricto*, food availability and/or oxygen status (Thiel 1983, Lambshead *et al.* 1995, Shirayama & Horikoshi 1982, Carman *et al.* 1987, Vanreusel *et al.* 1995a,b).

The purpose of this paper is to detect trends in vertical zonation in abundance and biomass of the meiofauna and in diversity, genus and trophic composition of the nematodes at stations on the upper and lower side of the shelf break.

3.2. Material and methods.

Four stations were sampled during the austral summer in the frame of the third leg of the European Polarstern Study (EPOS K2, K3, K5, K6). The study site was situated at the continental margin off Kapp Norvegia (Weddell Sea) at depths between 405 and 2080 m (Figure 3.1., Table 3.1.). Meiobenthic samples for vertical distribution were obtained by forcing a hand core (3.6 cm diameter) into boxes from a multiboxcorer (MG) or multicorer (MUC). Hence, each of two replicates per station originated from a separate box or core of the device (sampling scheme cf. Dahms et al. 1990). Slicing was done per cm in the upper 5 centimeters; the subsequent 5 centimeters were treated as one bulk slice (5-10 cm). Samples were preserved in a warm 4% formaldehyde solution.

The procedure for organism processing was described in Herman & Dahms (1992) and Vanhove *et al.* (1995). In short, a 38 µm sieve was used; after counting the meiofaunal taxa, a random set of 100 nematodes from each slice sample was mounted in glycerin slides (Seinhorst 1959); when less nematodes were encountered, all specimens were collected. Identification to genus level

was done using the pictoral keys of Platt & Warwick (1988) and relevant deep-sea literature (Platt 1985, Bussau 1993, Gourbault & Boucher 1981, Soetaert & Vincx 1988). As nematodes from deep seas and in particular the Southern Ocean are very poorly described, no attempt was done to identify the nematodes to species level.

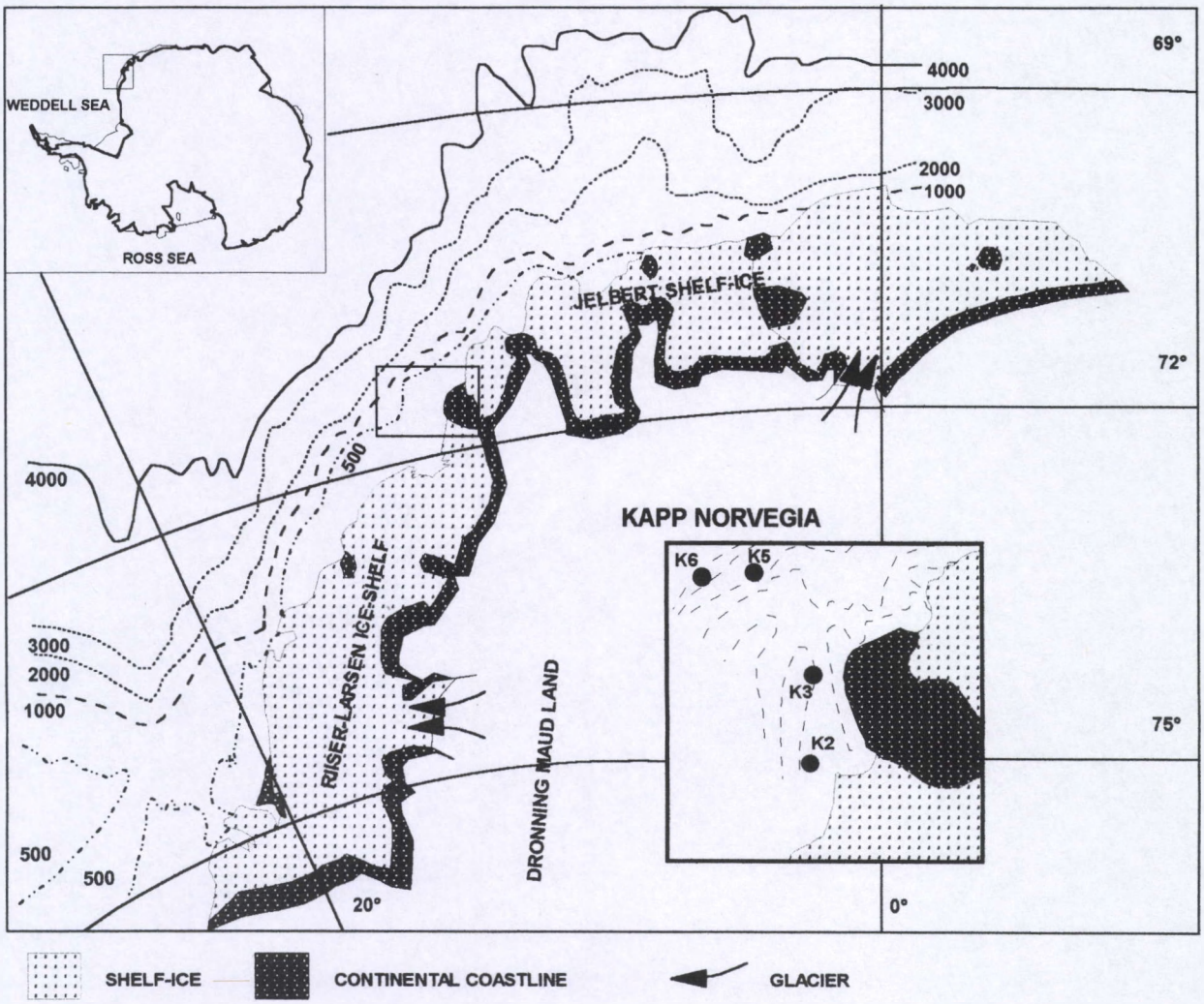

***Figure 3.1.**: Map showing the four study sites in the Weddell Sea off Kapp Norvegia.*

The nematodes were then classified in trophic groups following the commonly used feeding types 1A (selective deposit feeders), 1B (non-selective deposit feeders), 2A (epistratum feeders) and 2B (omnivores/predators) (Wieser 1953). The size (length and width) of each nematode specimen was measured to calculate volume and biomass dimensions with the adjusted method of Andrassy (Soetaert 1989):

$$\text{dry weight} = (W^2 * L * 1.13 * 0.25)/1.9$$

W: maximum body width
L: body length
1.9: empirical value
1.13: specific gravity
0.25: dry/wet weight ratio

Table 3.1.: *Station list: Station numbers are respectively adapted from Vanhove et al. (1995) and Arntz et al. (1990); MG: multiboxcorer; MUC: multicorer.*

STATION	original EPOS number	DATE	POSITION	DEPTH	GEAR
K2	277	16.02.89	71°39,8 °S 012°34,9 °W	405 m	MG
K3	278	17.02.89	71°29,3 °S 012°32,1 °W	537 m	MG
K5	294	20.02.89	71°06,2 °S 013°03,8 °W	1199 m	MUC
K6	295	21.02.89	71°07,9 °S 013°48,1 °W	2080 m	MUC

The environment was monitored by other participants of the multidisciplinary research group on the cruise. For the methods used the reader is referred to Arntz *et al.* 1990.
In short (Table 3.2.), the sediments consisted of silty sands in K2 (405 m), K3 (537 m) and K5 (1199 m) and sandy silts in K6 (2080 m), with the finer silt and clay fractions and porosity being progressively more important with water and sediment depth. Organic food (org. C and N) showed no obvious trend with depth, but higher C/N ratios indicated that organic matter was relatively older at K5. Although redox values (indicated by E_h) declined with sediment depth, the chemical status in the deepest layers was still highly oxidative in all samples. Most environmental variables were significant correlated with sediment depth (Spearman rank, $p < .05$).

Table 3.2.*: Environmental characteristics at the four study sites at Kapp Norvegia. For methods see Arntz et al. 1990*

	K2 (silty sand)			K3 (silty sand)			K5 (silty sand)			K6 (sandy silt)		
cm	**0-1**	**1-5**	**5-10**	**0-1**	**1-5**	**5-10**	**0-1**	**1-5**	**5-10**	**0-1**	**1-5**	**5-10**
Gravel (%)	2.0	10.3	37.0		34.5		17.2	13.0	8.6	2.7	0.3	0.9
Very coarse sand (%)	16.0	15.9	11.6		9.5		11.3	11.0	8.5	2.6	1.6	0.7
Sand (%)	63.7	59.7	49.6		60.5		53.4	52.9	36.4	28.3	26.6	14.1
Silt (%)	30.4	32.5			33.0		32.7	26.6		56.1	55.9	
Clay (%)	5.9	7.8			6.5		13.9	20.6		15.6	17.5	
Pellite[a] (%)	36.3	40.3			39.5		46.6	47.1		71.7	73.4	
Porosity (%)	62.9	58.6	40.7		63.4		60.4	56.7	57.4	79.4	71.8	48.4
OrgC (%)	0.47	0.53	0.59		0.68		0.24	0.21	0.29	0.49	0.51	0.39
OrgN (%)	0.06	0.06	0.07		0.07		0.02	0.02	0.02	0.07	0.06	0.05
C:N	8.4	9.2	8.6		9.3		11.5	10.7	13.2	7.3	8.0	8.4
Chl-a ($\mu g\ cm^{-2}$)	0.4						0.0			0.0		
Phaeopigments ($\mu g\ cm^{-2}$)	4.3						3.5			0.5		
ATP[b] ($mg\ m^{-2}$)	0.8	1.9	0.3		4.1		0.9	1.6	0.5	0.4	0.9	0.1
SiO_2 (µM)		334.1	276.5					297.2	334.9		267.9	
PO_4-P(µM)		16.9	4.4					6.4	8.1		6.9	
NO_2-N(µM)		0.6	0.9					0.9	2.0		0.3	
NO_3-N(µM)		40.8	12.0					13.2	12.9		61.0	
Eh (mV)	506	313	88				479	359	325	403	391	303

gravel: >2 mm very coarse sand: 2-1 mm sand: 1-0.063 mm silt: 0.063-0.004 mm clay:0.004-0.0005 mm
[a]pellite =silt + clay
[b]used as biomass estimate of bacteria in the sediment

Kruskal Wallis ANOVA (H and median test) (Siegel 1956) was performed on a number of variables to look respectively for significant differences between the stations. Meiofaunal variables were significantly correlated with the depth of the sediment slices (Spearman Rank, $p < .05$). Therefore the current approach can not be used adequately for environmental impact studies.
Hill's diversity numbers were calculated from the nematode genus composition of non-standardized sample sizes to describe the diversity of the nematode communities: N_0 (number of genera), N_1 = EXP(H'*ln2) with H': Shannon Wieners diversity index, N_2 = 1/D with D Simpsons dominance index, and N_{inf} = the inverse of the proportional abundance of the most common genus (Hill 1973).

3.3. Results.

For the classification of the genera see appendix 1
For raw data set see appendix 4

3.3.1. Abundance and biomass.

Abundance of total metazoan meiofauna at the four sampling stations varied from 861 ind. 10 cm^{-2} (Sta K5) to 7237 ind. 10 cm^{-2} (Sta K3) and total biomass from 179 µg dwt 10 cm^{-2} (Sta K5) to 1437 µg dwt 10 cm^{-2} (Sta K3). Nematodes, harpacticoid copepods (adults+ copepodites+ nauplii), polychaetes and kinorhynchs together contributed on average 99% of the total metazoan meiobenthos (Table 3.3.). The remaining taxa were mostly turbellarians, rotifers, loricifers, oligochaetes, tardigrades, ostracods and juvenile bivalves.

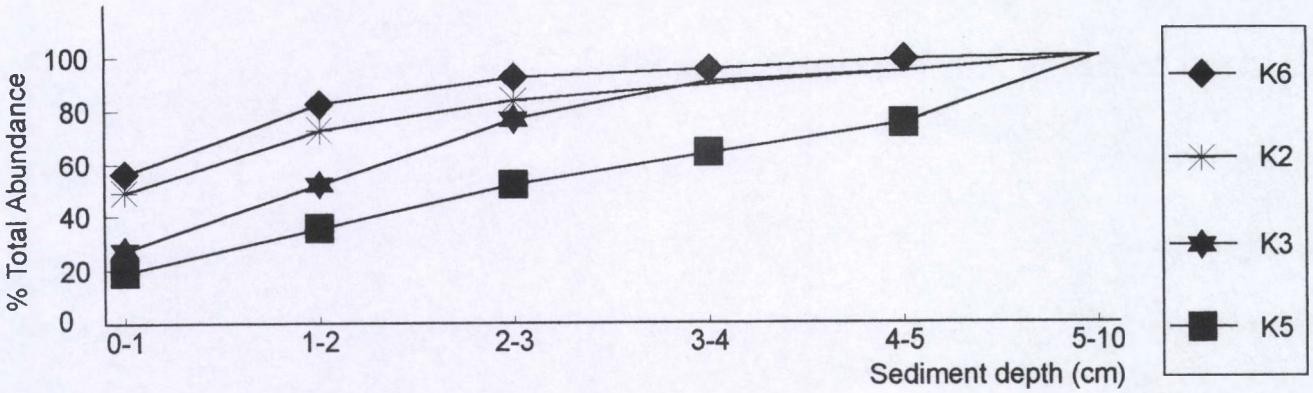

Figure 3.2.: *Cumulative density percentage curves of the depth penetration of meiofauna in the sediment profiles at the four stations off Kapp Norvegia*

In terms of vertical distribution, densities of the total meiobenthos were highest in the upper layer reaching 56 % of the total population in Sta K6 (Figure 3.2.), though at K3 and K5 relative abundances below the surface layer were still on average respectively 14 and 16 % per slice down to 10 cm depth. Total nematode density and biomass values were much higher on the shelf (Sta K2 and K3) compared to the slope (Sta K5 and K6) (Kruskal Wallis, $p < .001$).
Individual length (median over all measurements: 0.632-1.016 mm; mean: 0.790-1.150 mm) showed that nematodes had a longer habitus towards deeper horizons (Figure 3.3.), except for Sta K5. The lowermost sediment layers (5-10 cm) considered were not responding to this trend.

Table 3.3.: Absolute numbers of the major taxa and relative abundances of the remaining taxa; total numbers and total biomass. Counts are means of two replicates with a core of 10 cm² each (± 1 standard deviation for total density and biomass).

K2		0-1 cm	1-2 cm	2-3 cm	3-4 cm	4-5 cm	5-10 cm
Major taxa (no)							
	Nematodes	1388	708	321	186	146	168
	Harpacticoid copepods	78	10	5	2	0	2
	Nauplii	109	9	5	1	0	4
	Polychaetes	16	8	3	1	1	2
	Kinorhynchs	42	5	1	0	0	1
Others (%)		1.5	1.0	2.6	2.3	0.7	3.8
Total density : no		1388	708	321	186	146	168
SD		508.4	129.4	74.2	99.7		173.9
Total biomass: µg dwt		326	208	144	79	52	61
SD		33.8	27.5	137.7	92.1		42.1

K3		0-1 cm	1-2 cm	2-3 cm	3-4 cm	4-5 cm	5-10 cm
Major taxa (no)							
	Nematodes	1831	1740	1752	994	261	405
	Harpacticoid copepods	52	14	3	3	1	1
	Nauplii	48	8	4	3	0	1
	Polychaetes	13	9	8	1	3	0
	Kinorhynchs	46	13	3	1	0	0
Others (%)		0.8	0.4	0.0	0.3	0.8	0.5
Total density : no		1831	1740	1752	994	261	405
SD		549.4	1024.6	1079.0	912.9	220.6	
Total biomass: µg dwt		222	317	322	305	92	179
SD		100.2	274.4	154.3	213.1	61.5	

K5		0-1 cm	1-2 cm	2-3 cm	3-4 cm	4-5 cm	5-10 cm
Major taxa (no)							
	Nematodes	157	138	141	100	90	216
	Harpacticoid copepods	4	1	1	2	1	0
	Nauplii	1	1	0	1	0	1
	Polychaetes	1	0	0	1	4	0
	Kinorhynchs	0	0	1	0	0	0
Others (%)		0.6	0.4	0.3	0.5	0.5	0.0
Total density : no		157	138	141	100	90	216
SD		203.6	151.3	98.3	48.1	24.7	102.5
Total biomass: µg dwt		37	43	30	20	17	32
SD		47.5	43.3	14.4	12.7	4.7	15.4

K6		0-1 cm	1-2 cm	2-3 cm	3-4 cm	4-5 cm	5-10 cm
Major taxa (no)							
	Nematodes	732	346	134	37	49	16
	Harpacticoid copepods	18	4	1	1	3	0
	Nauplii	5	2	1	0	0	0
	Polychaetes	0	0	0	0	0	0
	Kinorhynchs	7	1	0	0	0	0
Others (%)		0.6	0.1	0.0	1.3	0.0	0.0
Total density : no		732	346	134	37	49	16
SD		268.0	93.3	58.7	37.5	10.6	2.1
Total biomass: µg dwt		78	58	27	11	8	1
SD		14.8	3.8	23.5	10.9	3.6	0.5

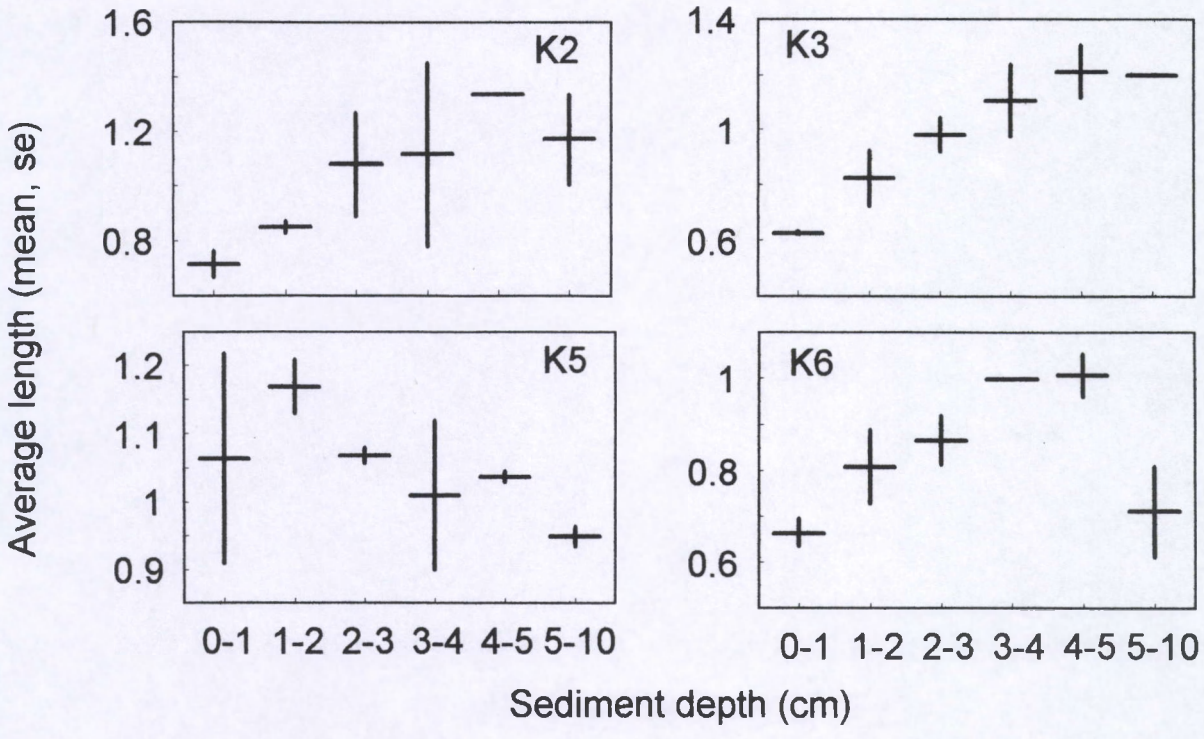

Figure 3.3.: *Length distribution of the nematodes in the sediment profiles of Kapp Norvegia (each value represents the mean ± standard error of approximately 100 measurements).*

3.3.2. Faunal composition.

84 nematode genera were found (Table 3.4.). *Molgolaimus* and *Sabatieria* together 42 % of the total nematode population and occurred in high percentages in Sta K3 (52 %) and K5 (58 %) (Figure 3.4.). In the deepermost station (K6) many other genera, such as *Dichromadora* (on average 12%), *Microlaimus* (9%), *Monhystera* (8%), *Acantholaimus* (7%, not presented) and *Leptolaimus* (6%, not presented), frequently represented the total population as well. *Sabatieria* still occurred in high abundances (11%) at this site, but *Molgolaimus* was on average only for 5% presented.

***Table 3.4**.: Trophic guilds and overall relative abundances of the genera over the four stations at Kapp Norvegia. Feeding types used are 1A: selective deposit feeders; 1B: non-selective deposit feeders; 2A: epistrate feeders; 2B: predators/omnivores (Wieser 1953).*

	1A	1B	2A	2B
Total %	45.0	27.6	25.0	2.8
Number of genera	32	21	22	9

		%			%			%
Molgolaimus	1A	27.34	*Pierrickia*	1B	0.45	*Axonolaimus*	1B	0.09
Sabatieria	1B	14.72	*Syringolaimus*	2B	0.45	*Chromadora*	2A	0.09
Microlaimus	2A	6.29	*Aponema*	1A	0.42	*Diplopeltoides*	1A	0.09
Dichromadora	2A	5.28	*Metadasynemella*	1A	0.42	*Gammanema*	1B	0.09
Monhystera	1B	3.45	*Metasphaerolaimus*	2B	0.42	*Linhystera*	1A	0.09
Pandolaimus	1B	3.27	*Theristus*	1B	0.42	*Longicyatholaimus*	2A	0.09
Leptolaimus	1A	3.15	*Prochromadorella*	2A	0.39	*Tarvaia*	1A	0.09
Acantholaimus	2A	2.64	*Gammanema*	2B	0.36	*Tricoma*	1A	0.09
Aegialoalaimus	1A	2.43	*Greeffiella*	1A	0.36	*Diplolaimella*	1B	0.06
Cervonema	1A	2.40	*Hapalomus*	1A	0.33	*Odontophora*	1B	0.06
Desmodora	2A	2.13	*Paranticoma*	2A	0.33	*Paralongicyatholaimus*	2A	0.06
Halalaimus	1A	1.98	*Anticoma*	1A	0.30	*Rhabdocoma*	1A	0.06
Daptonema	1B	1.92	*Mesacanthion*	2B	0.30	*Rhabdodemania*	2B	0.06
Desmoscolex	1A	1.89	*Pareudesmoscolex*	1A	0.30	*Thalassoalaimus*	1A	0.06
Nudora	2A	1.50	*Sphaerolaimus*	2B	0.27	*Anticyathus*	1B	0.03
Paracanthonchus	2A	1.47	*Elzalia*	1B	0.21	*Cephalanticoma*	2A	0.03
Paramonhystera	1B	1.02	*Pselionema*	1A	0.21	*Chitwoodia*	1A(?)	0.03
Southerniella	1A	0.99	*Wieseria*	1A	0.21	*Disconema*	1A	0.03
Halichoanolaimus	2B	0.87	*Linhomoeus*	2A	0.18	*Draconema*	1A	0.03
Cobbia	2A	0.78	*Metadesmolaimus*	1B	0.18	*Enoplolaimus*	2B	0.03
Actinonema	2A	0.75	*Neotonchus*	2A	0.18	*Megadesmolaimus*	1B	0.03
Amphimonhystrella	1B	0.69	*Litinium*	1A	0.15	*Nannolaimoides*	2A	0.03
Calomicrolaimus	2A	0.66	*Metalinhomoeus*	1B	0.15	*Nannolaimus*	1A	0.03
Camacolaimus	2A	0.63	*Alaimella*	1A	0.12	*Quadricoma*	1A	0.03
Diplopeltula	1A	0.63	*Minolaimus*	1A	0.12	*Rhynchonema*	1B	0.03
Campylaimus	1B	0.54	*Nemanema*	1A	0.12	*Viscosia*	2B	0.03
Oxystomina	1A	0.54	*Paralinhomoeus*	1B	0.12			
Chromadorita	2A	0.48	*Rhips*	2A	0.12			
Marylynnia	2A	0.48	*Ammotheristus*	1B	0.09			

Patterns vertically into the sediment showed that the intermediate levels (mainly 3-5 cm) were populated by dominant populations of *Molgolaimus* and *Sabatieria* (Figure 3.4.). This was especially so for Sta K5 where *Molgolaimus* numbers amounted to almost 60% of the nematode community in the 3-4 cm-slice.

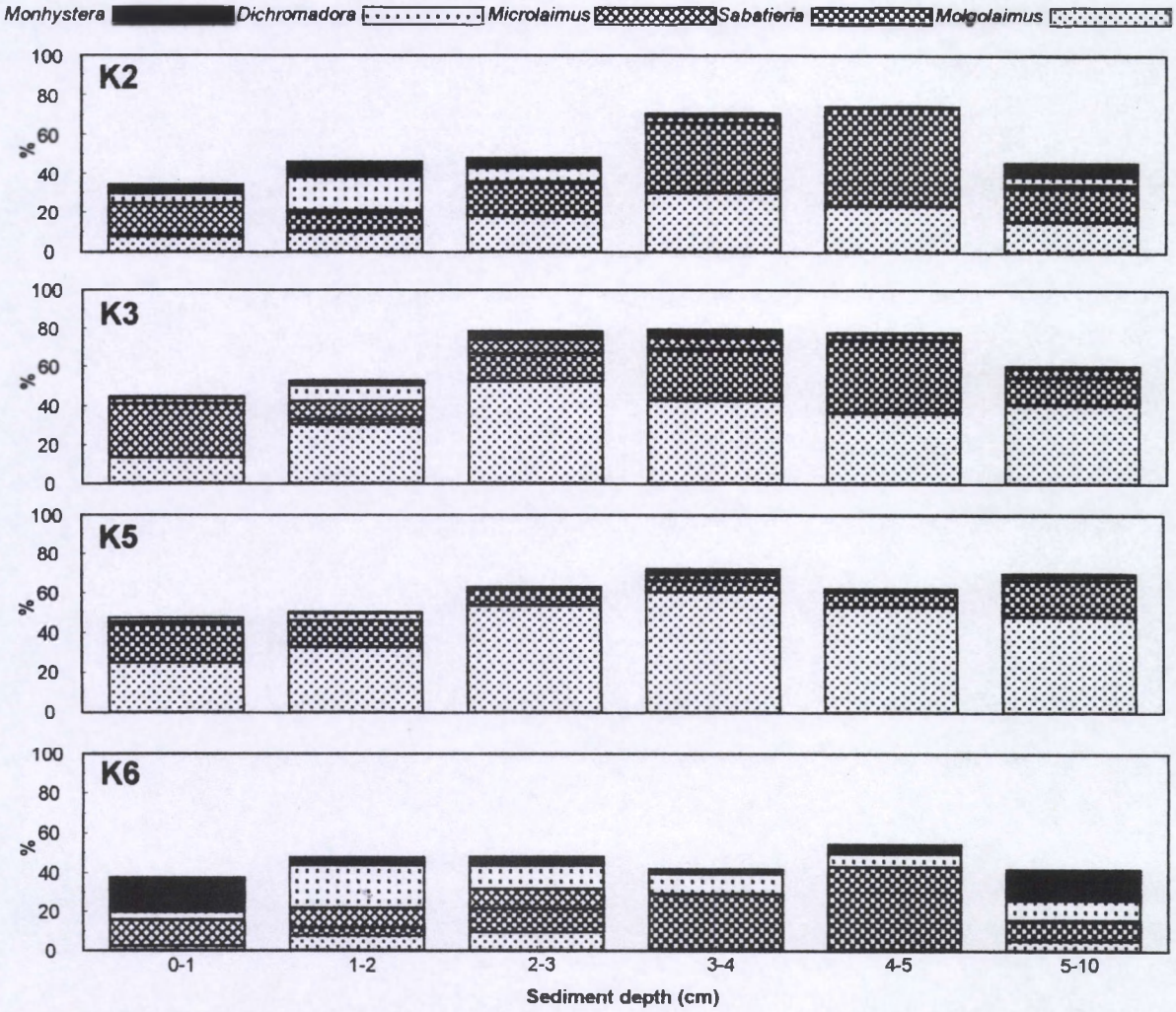

***Figure 3.4.**: Percentage comparison of the nematode genera in the sediment profiles of Kapp Norvegia. Only the 5 most abundant genera were presented.*

Figure 3.5., representing the contribution of each dominant genus per layer relatively to the entire core, showed that *Molgolaimus* at all stations had subsurface maxima between 1 and 4 cm. The same held for *Sabatieria*, but maxima were situated slightly deeper (*e.g.* 3-10 cm). *Dichromadora* in Sta K2 and K6 and *Acantholaimus* in K6 colonized mainly the sediments just below the surface (1-2 cm), whereas *Microlaimus*, *Monhystera* and *Leptolaimus* percentages declined almost continuously with depth, being mostly presented at the surface. The trends within the uppermost four sediment layers of the cores were, however, only significant for *Monhystera* (Median test, p = .005) and *Dichromadora* (Median test, p = .03).

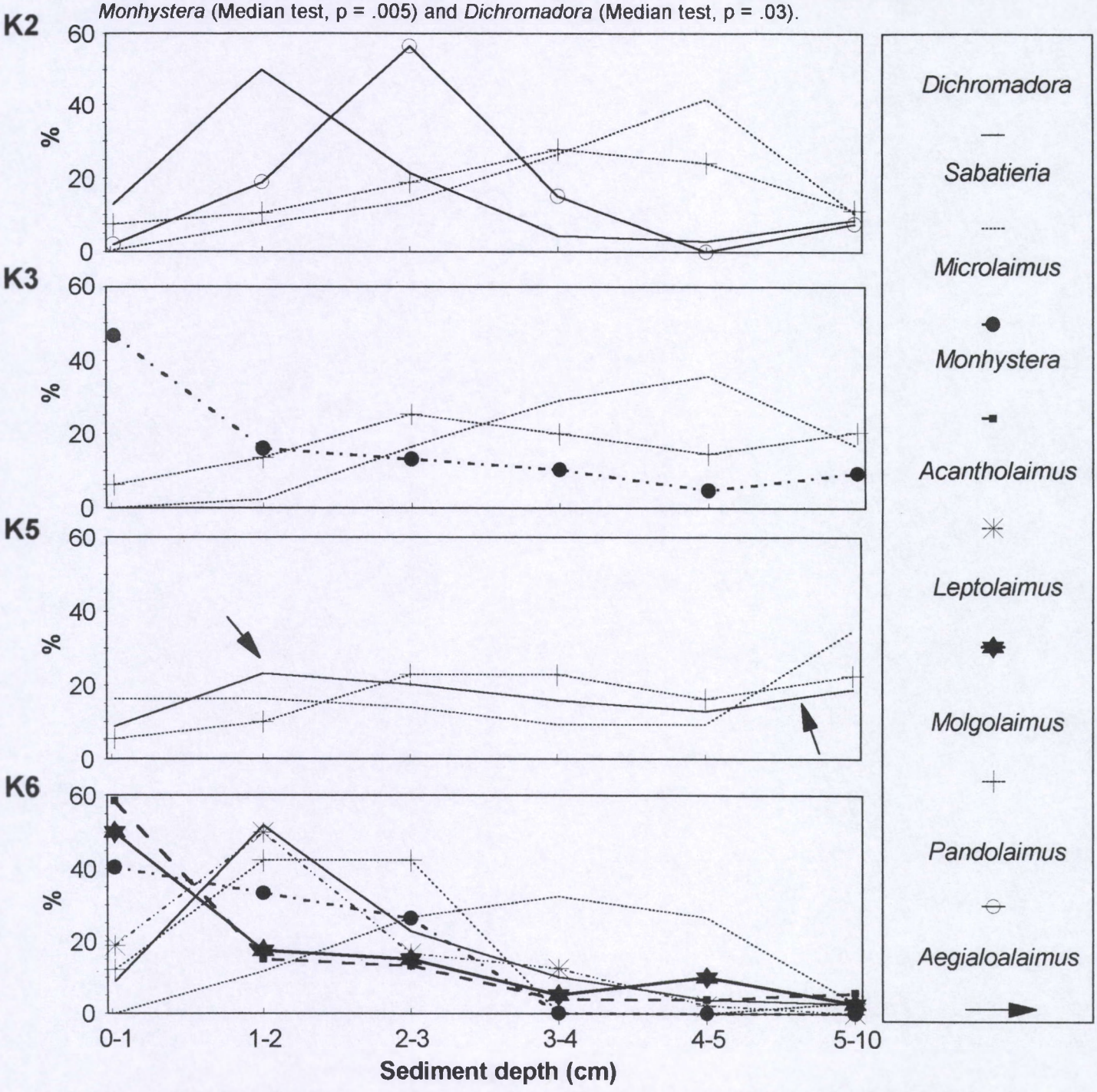

Figure 3.5.: *Vertical distribution patterns of the percentage composition of major genera (those with an overall relative abundance of 5% and more per station).*

Apart from the predators/omnivores (2B) all feeding categories were presented in high abundances. Epistratum feeders were relatively more frequent in the uppermost two layers (mainly due to *Microlaimus*, *Acantholaimus* and *Dichromadora*), whereas the non-selective deposit feeders augmented downcore in proportion to the other trophic guilds (mainly due to *Sabatieria*, *Monhystera*, *Daptonema* and *Pandolaimus*) (Figure 3.6.). The selective and predating feeding mode were associated with intermediate sediment layers, respectively due to *Molgolaimus* and *Aegialoalaimus* for the 1A-group and *Halichoanolaimus*, *Syringolaimus*, *Metasphaerolaimus*, *Sphaerolaimus* and *Gammanema* for the 2B-group.

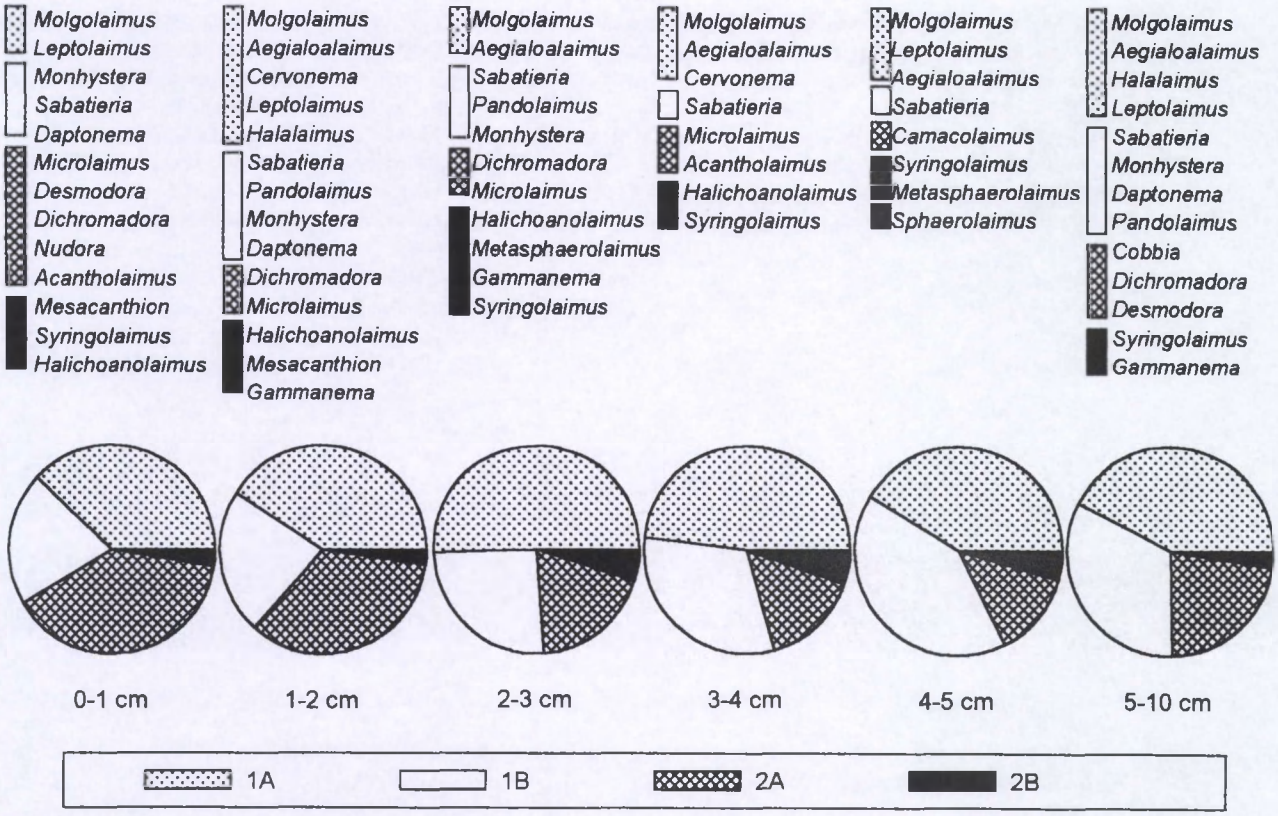

***Figure 3.6.**: Trophic composition of the nematodes in the sediments of Kapp Norvegia. Values are average percentages over the four stations. The genera mentioned on top of each pie were those with average relative abundances of at least 2.5 % per station for the feeding guilds 1A, 1B and 2A. The 2B-nematodes had percentages of at least 0.5%.*

Diversity patterns with depth (Figure 3.7.) were different for all stations. Sta. K2 was characterized by a continuous decline of all diversity numbers (except for the number of genera, N_0). Sta K3 and K6 exhibited subsurface maxima at 1-2 cm and 2-3 cm, respectively. In Sta. K5 diversity was more or less similar at all depth layers. The described patterns were generally consistent for all Hill's numbers and agreed with the observations in figure 4. The augmented value in the deepest depth interval was due to the pooling of 5 subsequent centimeter layers.

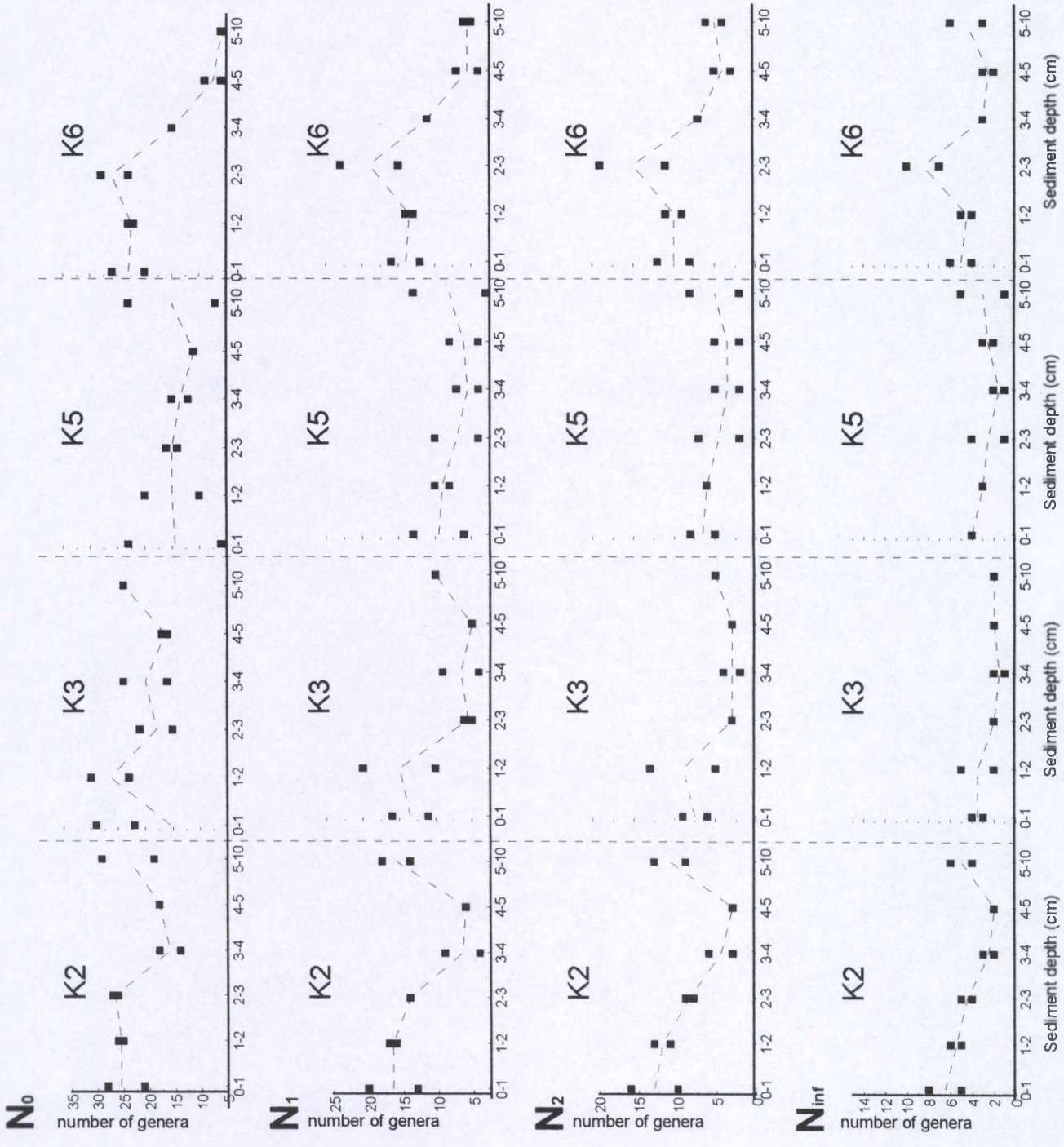

***Figure 3.7**: Diversity changes with depth for the four stations at Kapp Norvegia. The values represent the data of two replicates (two separate dots per sediment depth) and the average of two replicates (line in between). The diversity indices used were Hill's numbers.*

3.4. Discussion.

Integrated whole-core density and biomass values calculated for the four sediments off Kapp Norvegia reached higher levels compared to previous reports from this area, and therefore with over 7200 ind. 10 cm^{-2} augmented any other metazoan meiobenthos deep-sea density (see table in Vanhove *et al.* 1995 for comparison). The predominance of higher taxa such as nematodes, harpacticoid copepods, polychaetes and kinorhynchs agrees with former investigation in the southeastern Weddell Sea (Vanhove *et al.* 1995).
High abundances of genera like *Sabatieria, Molgolaimus* and *Microlaimus* on the shelf, and additionally *Dichromadora* on the slope, together with the observations of equal representation of epistratum feeders and deposit feeders and the low contribution of predators/omnivores respond to previous observations (Vanhove *et al. subm.*).

One of the basic characteristics of meiofauna distribution in the soft bottoms is given by their high contagious dispersion (Giere 1993), a feature highly occurring in the prominent nematode assemblages (Heip *et al.* 1985). Prime environmental regulators are generally situated in the small-scale variability of sediment texture (Snelgrove & Butman 1994) and food content (Blanchard 1990, Santos *et al.* 1995). As a consequence of these two environmental properties and based on evidence provided by Herman & Dahms (1992) and by Vanhove *et al.* (1995 and *subm*) heterogeneity in the meiofaunal communities in the Weddell Sea was found on several levels of organization and on different spatial scales. Similarly to what was shown in these reports will be projected to vertical patterns within the sediments of the rich shelf (in terms of numbers and biomass) and comparatively poorer slope sediments in the next sections.

3.4.1. Vertical zonation patterns of standing stock.

That meiofauna and nematodes do occur more frequently in the uppermost sediment layers has been demonstrated in all types of biotopes (Heip *et al.* 1985, Giere 1993). Evenso in the deep sea meiofaunal vertical distribution was often typified by maxima at the surface (most recent papers of Vincx *et al.* 1994, Vanreusel *et al.* 1995b, Radziejewska *et al.* 1996, Soetaert *et al. subm*). Relative subsurface abundances were lowest in the silts of the deepest site (Sta K6), but differed not very much from the silty sands of the shallowest station (Sta K2), whereas in the other two intermediate sandy bottoms (K3 and K5) meiofauna was more evenly presented in all depth layers. Gravel percentages in the upper five centimeters of the substrates interfered with sand and pellite concentrations, entailing differences between K2 / K6 (sand: 48 and 27%, pellite: 30 and 70%) and K3/ K5 (gravel: 35 and 16%) (Vanhove *et al* 1995) respectively. Presumably the differences in depth penetration in general, and more specifically between the stations K3 and K5, were enduced by differentiated attraction to trophically richer surface layers (for example chloroplastic equivalents were four times higher in K3 compared to K5, Vanhove *et al.* 1995). In literature, meiofaunal vertical zonation was generally related to the richer supply of oxygen and food at the surface as well and this was more profound in fine-grained sediments (Dinet & Vivier 1979, Shirayama & Horikoshi 1982, Thiel 1975,1983, Tietjen *et al.* 1989, Soetaert *et al.* 1991, Lambshead *et al.* 1995, Vanreusel *et al.* 1992, 1995 a,b, Radziejewska *et al.* 1996).

3.4.2. Vertical zonation patterns of body size.

A deeper-longer relationship was established in three of the four stations. This was consistent with nematode assemblages in shallow waters (Jensen 1983) and deep seas (Vivier 1978, Shirayama 1983, Soetaert 1989). Departure from this general deeper-longer trend was sometimes considerable (for example in Sta K5) and this sediment-mediated relationship did not cover nematode size spectra in the deepest layers.

Body elongation (*e.g.* by increasing the length/width ratio) in deeper sediment layers was believed to facilitate transepidermal uptake and diffusion of dissolved organic substances and oxygen (Giere 1993), and would be a functional adaptation to low levels of oxygen and particulate food (Jensen 1987). Soetaert & Heip (1989) proposed -although with some discretion- that body elongation could be as a consequence of sediment texture. The sediments becoming finer with depth were then preferentially colonized by smaller individuals at the top and larger

animals deeper down. The latter would be a question of larger mobility of longer nematodes, enabling them to penetrate into the more compact deeper layers. It is difficult to apply this hypothesis to our observations as insufficient environmental data were available. Similarly, the explanation of Shirayama (1983) that body elongation of nematodes towards deeper layers was attributed to differences in age structure could not be tested with the current approach as no sex or age categories were defined.

The method of describing nematode size distribution in the current approach is robust as data were obtained from the entire nematode community. The occasional presence or absence of large species certainly affected the overall pictures. Interestingly to this context was that Soetaert (1989) studied repartitioning of length with depth on nematode species level. This author found a significant increase with depth in length for about 20 % of the genera comprising of species from *Acantholaimus*, *Aegialoalaimus*, *Amphimonhystrella* and *Sabatieria*. Therefore body elongation with sediment depth in the deep-sea nematode communities of the Weddell Sea might be applicable to only a limited proportion of the constituents.

3.4.3. Vertical zonation patterns in genus and trophic composition.

Many genera in the sediments of Kapp Norvegia were confined to upper layers, and from about 2 (K3 and K5) to 3 cm (K2 and K6) on only a limited set, including *Molgolaimus* and *Sabatieria,* were still highly abundant. The most dominant genera could roughly be classified into two sorts of associations: (1) those being relatively more presented at the surface, namely *Microlaimus*, *Monhystera* and *Leptolaimus*, and (2) nematodes colonizing subsurface strata, immediately underneath the upper sediment layer, *Dichromadora* and *Acantholaimus,* or deeper in the sediment like *Molgolaimus* and *Sabatieria.*

The change in relative composition was accompanied by a slight shift in feeding types, the surface layers comprising 30-40 % epistratum feeders, the intermediate strata harboring mainly selective deposit feeders (50% of the genera had very small buccal cavities) and highest proportions of omnivorous predators (about 5%), and the two lowermost layers supporting predominantly non-selective deposit feeders (30-40%).

Gradients in nematode composition vertically in the sediment were studied by Vivier (1978), Thistle & Sherman (1985), Jensen (1988), Vanreusel *et al.* 1992, Soetaert *et al.* (1995) and Vanaverbeke *et al.* (*subm*). It was concluded that organic content and its nutritional value had a decisive key rôle for nematode distribution. In the present study redox potential and sediment texture looked as being the most important structuring force, though convincing proof was not given. *Sabatieria* abundance distribution was also parallel to C/N variation. In sediments with a continuous increase of C/N with depth (Sta K6) this genus was highly presented between 2 and 5 cm relatively to other horizons, and at sites where C/N values were discontinuously varying along the sediment core (Sta K2) *Sabatieria* peaked within the layer of highest C/N. The relatively high presence of *Sabatieria* in the deeper layers was associated with suboxic pathways in ocean margin sediments of the Mediterranean (Soetaert & Heip 1995). Higher C:N ratios are often indicative for degradation (Tyson 1995) and might therefore explain the coincident distribution patterns of *Sabatieria* with C/N ratios in our study. As *Molgolaimus* showed very similar distribution trends this genus might have responded in much the same way.

The relatively higher proportions of the epistratum feeding *Microlaimus*, *Dichromadora* and *Acantholaimus* in upper layers might be explained by higher levels of pigments and their degradation products (to a certain extent related to diatoms), microbial coatings on sand grains etc.. at these depths (Santos *et al.* 1995). Also on the Mediterranean shelf and slope *Acantholaimus* was preferably found in the upper layers of the sediment. Members of this genus exhibit many types of buccal cavities and mouth openings, and therefore resource partitioning within this genus must have been encouraged, just as in the Mediterranean and Norwegian Sea (Jensen 1988, Soetaert *et al.* 1995). Remarkable were again the relatively higher levels of this trophic group deeper down (5-10 cm). This could be indicative of the presence of abundant food

sources still occurring at these depths, and relate to the extreme high organic fluxes in this region (Bathmann *et al.* 1991). The deeper occurring epistratum feeders were mainly composed of similar genera as in the upper layers (*e.g. Desmodora*, *Dichromadora*) though *Cobbia* predominated with about 7% of the total nematode population at this depth. It may be that epistratum feeders altered their selectiveness for food sources at the surface compared to deeper layers. More precise analyses of the organic compounds and more detailed investigations are necessary to substantiate these hypotheses.

3.4.4. Vertical zonation patterns of diversity.

Vertical scaling of diversity in the sediment of Kapp Norvegia roughly differentiated between K2, with a continuous decline, Sta K3 and K6 with subsurface, and Sta K5 with more or less similar, though lowest diversity, at all depth layers. In most cases a drop in diversity occurred from 2 or 3 cm on, and might, as inferred in all discussion above, be associated with a refinement of the sediment grains, a downward chemical reduction and a decline of fresh food with depth. The smooth pattern at Sta K5 did not cover this explanation.
It was also found that the deepest depth interval exhibited augmented diversity. This was mainly attributed to the pooling of 5 subsequent centimeter layers. Seemingly some genera showed a vertical segregation in the deepest horizon to, hence differentiating between layers from 5 to 10 cm.

3.4.5. Comparison with observations in the spatial distribution of the meiofauna communities (Vanhove *et al* 1995, Vanhove *et al* . *subm*).

In many aspects the stations differed significantly from one another, and the contrast between the shelf (K2 and K3) and slope (K5 and K6), observed in spatial distribution patterns of standing stock and nematode structure, were not discernible anymore in differences between vertical distribution patterns.
Especially Sta K5 took a particular position separating from any of the three other sites. The combination of high gravel and pellite in the sediments, containing lower concentrations of organic matter (given by organic carbon and nitrogen) which besides were also relatively older (given by higher C:N ratios), supported a distinct meiofauna community with:
-) remarkably lower total core density and biomass, exhibiting a high deviation between the two replicates (Table 3.3.)
-) almost only nematodes (Table 3.3.)
-) a relatively even distribution of the higher meiofauna taxa, nematode genera and diversity numbers over the entire sediment profile (Figure 3.2., 3.5. and 3.7.),
-) a deviation from the general observed deeper-longer relation in nematode body size (Figure 3.3.), and
-) a low diverse nematode community dominated by *Molgolaimus* and *Sabatieria* (Figure 3.4. and 3.7.).

Although not discussed in Vanhove *et al.* 1995, Sta K5 was similarly less dense populated and dominated by nematodes, having an overall higher mean individual biomass (Vanhove *et al.* 1995). In addition, this station was also difficult to classify in the multivariate outputs, and the juveniles and trophic categories were significantly aggregated. Whole core values of diversity exhibited highest dominances (given by the very low N_{inf}) of all stations along the depth transects despite their highest N_0 (genus numbers) (the latter was mainly because of sample processing)(Vanhove *et al. subm*).

The reason for the outlying position of Sta K5 remains unclear. Being situated on a small ridge on the sharp declining upper slope off Kapp Norvegia (see herefore figure 1 in Vanhove *et al. subm*), it must have experienced a higher level of reworking of the sediments to depths of at least those that we investigated (10 cm). This might have been because of hydrodynamics, iceberg activity or macrofaunal impact (Vanhove *et al.* 1995) or a factor of unknown origin. The most likely it is the result of scouring activity as many gravels were found in the sediments. Huge

icebergs probably hitched the projected point of the slope, hence disturbing and decolonizing the sediments. Only nematodes (seemingly with large body sizes) like *Molgolaimus* an *Sabatieria* could successfully colonize these sediments.

3.5. Conclusive remarks.

In many aspects the stations differed significantly from one another in depth penetration patterns of the higher meiofauna taxa and more specifically of the nematodes. The structuring rôle of environmental variables like redox potential, grain size and food content was suggestive, confirming literature observations on meiofaunal distribution vertical in the sediment. However, the complexity of biotic and biogenic factors and the nature of our observations rendered interpretations of causative effects difficult-if not impossible. Due to the limitations inherent to deep-sea studies (where replication is often impossible) such type of impact studies are difficult to interpret.

3.6. Acknowledgements

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Meiofauna
in the seasonal varying
shallow water sediments of Signy Island

INTRODUCTION:

The environment of the low subtidal sampling site at Signy Island.

The study of marine ecology at Signy Island has a relatively long history. The following descriptions thus are a compilation of what is found in many papers. Only the topics that complement compressed information in the next two chapters are outlined and give a background-introduction on the ambit of the meiofauna research site.

Geography. Signy Island (60°42' S, 45°36'W) is one of the South Orkney Islands, which according to the biogeographical scheme of Hedgpeth (1969) belong to the subregion Western Antarctic, comprising of the Antarctic Peninsula and the Scotia Arc (Figure *α*.1). It is a small island of approximately 7 km long and 5 km at its widest point, with a total surface area of about 20 km^2.

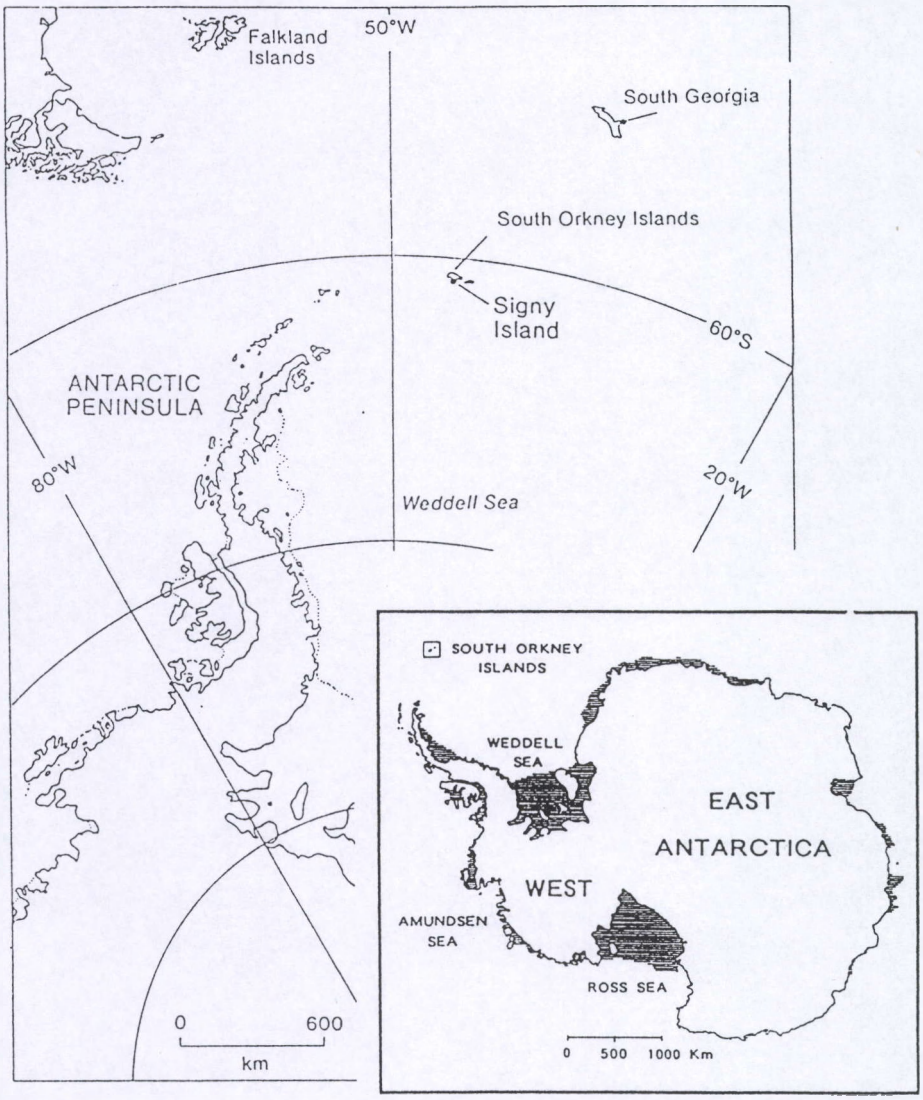

Figure *α* 1. : Map *showing the location of the South Orkney Islands and Signy Island in Antarctica.*

To facilitate sampling and because of the prevalence of soft bottoms the study site was chosen nearby the British Antarctic Survey's base at Factory Cove. This cove is a small inlet off Borge Bay which in itself covers about 2 km² with a maximum depth of 30 m and a mean of 10 m (Clarke *et al.* 1988, Figure 2). It has been a site of extensive biological research since the summer of 1961-62 (Holdgate 1967).

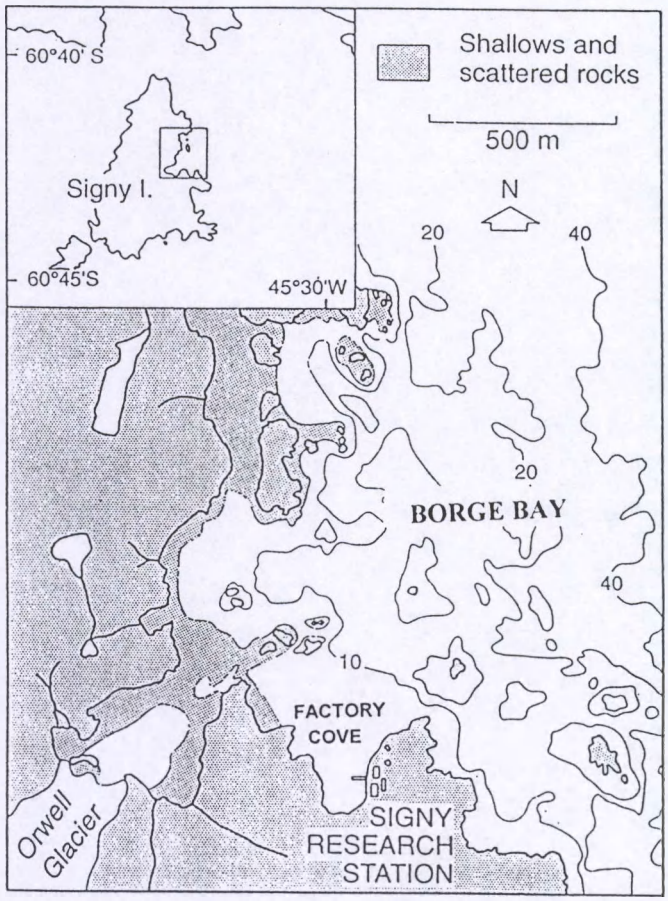

***Figure 2.**: Map showing the location of Borge Bay and Factory Cove at Signy Island, with indication of the British Antarctic Survey research station. Copy from Clarke & Leaky (1996).*

Temperature and ice cover. The seasonal variation in monthly mean seawater temperature at the sampling site is small, ranging from -1.4°C in winter to +1.64°C in summer. The geographical location of Signy Island (*e.g.* close to the northerly extent of the winter maximum), in contrast, results in an unpredictable pattern of sea-ice formation and disappearance leading to large year-to-year variation. The arrival of pack-ice is usually the factor which allows the surface of Factory Cove to freeze, with fast-ice up to 1 m thick for between 59 and 241 days (on average 140 days each year, mean of 38 years), and pack-ice may be present at almost any time when fast ice is absent. The average date of fast-ice formation is 1 June, and the average date of blow-out is 18 October (Clarke *et al.* 1988; Clarke & Leaky 1996).

Sources of organic inputs: The inshore marine environment around Signy Island is characterized by a distinct seasonal cycle of primary production (Whitaker 1982; Clarke *et al.* 1988). Phytoplankton activity is limited to a short summer bloom that usually begins in December, peaks in January and declines to winter levels by March. The phytoplankton bloom varies from year to year in intensity and duration and sometimes there appear late summer/early winter blooms as well (Clarke *et al.* 1988; Clarke & Leaky 1996, Figure α.3.). Data of primary production from literature are:

Author	primary production
Horne *et al.* 1969	130 g C m^{-2} y^{-1}
Whitaker 1977	80-290 g C m^{-2} y^{-1}
Tanner & Herbert 1981	250 mg C m^{-2} h^{-1} (2 g C m^{-2} d^{-1})
Whitaker 1982	86-289 g C m^{-2} y^{-1}
Clarke & Leaky 1996	46-98 g C m^{-2} y^{-1}

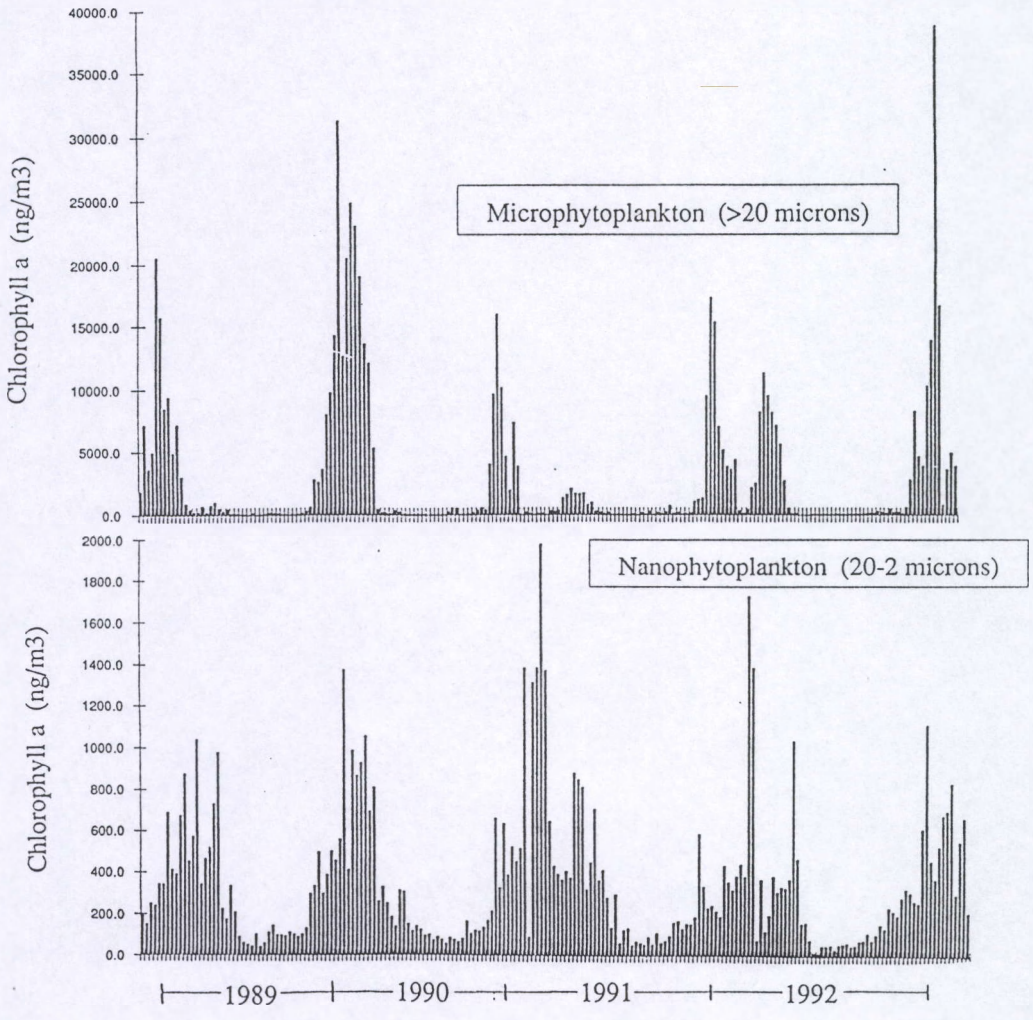

Figure α.3.: *Seasonal and interannual variation in the chlorophyll standing crop in two size classes of plankton, Borge Bay, Signy Island. Copy from Clarke & Leaky 1996.*

The bulk of the phytoplankton is microplankton and consist of larger diatoms, chains or globular clusters of cells, but include also autotrophic cryptomonads, silicoflagellates and ciliates, and heterotrophic bacteria, choanoflagellates, ciliates and dinoflagellates (Clarke & Leaky 1996).

Sea-ice microalgal primary production contributes only to a small fraction of the annual primary production of the region (1-2 g m^{-2} y^{-1}, Whitaker 1977). Similarly, under-ice primary production near Signy Island is small compared with that in the open-water period (Horne *et al.* 1969).

In situ production around Signy Island demonstrates significant rates of primary microphytobenthic productivity that compares favourably with planktonic productivity and bacterial turnover (White & Robins 1972; Gilbert 1991a), and during the ice-free period it can reach rates higher than phytoplankton production. The benthos shows a distinct bloom immediately after the sea-ice break out and prior to the phytoplankton growth (*e.g.* 700 mg C m^{-2} d^{-1} in December; 100 g C m^{-2} in summer; 8.4 mol C m^{-2} y^{-1} on annual base)(Gilbert 1991b).

Microalgal communities are composed of 44 species, of which 35 are diatoms. Most of the species observed in the sediments are pennates belonging to the genera *Achnanthes, Amphiphora, Amphora, Cocconeis, Diploneis, Fragilaria, Gyrosigma, Nitzschia, Navicula, Rhabdonema, Trachyneis* and centric forms from *Actinocyclus, Corethron, Coscinodiscus, Odontella* and *Thalassiosira* (Gilbert 1991 b).

Macroalgal production at Signy Island occurs through the growth of many (about 36) different species belonging to red, green and brown algae (for example annual net production of *Desmarestia anceps* ranged between 10.7 and 163.8 mmol O_2 g^{-1} DW y^{-1}). However, macroalgal biomass appears to be low (2.05 kg WW m^{-2}, Borge Bay) and no species grow at Outer Mooring. Detached macroalgae accumulate in deeper parts of the sea bed and at offshore sands, instead of stranding on beaches (probably because of a lack of sloping beaches in combination with wind and current directions (Richardson 1979; Brouwer 1997).

Substrates and associated fauna. The Bay represents a typical Antarctic near-shore environment and contains a range of habitats from invertebrate- rich rock faces to less populated bottom sediments. Most of the epifauna and -flora is limited to the sublittoral zone (free from ice abrasion), and biomass on boulders and rock faces is high (White & Robins 1972). A characteristic species at these sites is the limpit *Nacella concinna* (Picken 1980; Clarke 1990).

In addition, extensive areas of soft sediment can be found in Borge Bay, composed of glacially eroded quartz-micaschist (Hall 1986), supporting a high biomass of deposit feeding

-polychaetes (*Aglaophamus virginis, Cirratulis cerratus, Haploscoloplos kerguelensis, Rhodine loveni, Capitella capitata, Notoprocus oculatus antarcticus, Scoloplos marginatus meleani, Mosospio moorei, Tharyx epiocta, Pionosyllis comosa, Terebellida spp.*),
-amphipods (*Cheirimedon femoratus, Pontogenea rotundifrons, Tryphosella kergueleni, Pontogeniella brevicornis, Parharpinia rotundifrons, Lepidepecreum cingulatum, Monoculodes scabriculosus*),
-bivalve molluscs (*Laternula elliptica, Yoldia eightsii, Mysella charcoti*),
-isopods (*Serolis polita, Glyptonotus antarcticus*),
-gastropods (*Laevilacunaria antarctica*), ostracods, echinoderms and priapulids (references in Walker 1993).

Mean wet-weight macrofaunal biomass of soft substrates range from 790 to 307 g m^{-2} (Hardy 1972).

The investigation undertaken at Signy Island is a temporal study covering 18 months during 1991/1992. More details concerning the immediate environment and meiofauna sampling are given in chapter 4 and 5.

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CHAPTER 4.

The metazoan meiofauna in its biogeochemical environment : the case of an Antarctic coastal sediment

4.1. Introduction.

Generally subtidal meiofauna communities reach high standing stocks, and comprise a wide range of taxa, of which the nematodes are both numerous and ubiquitous. Nematodes are found in many different habitats and constitute a variety of trophic assemblages, among which herbivores, bacterivores, detritivores and predators dominate (Wieser 1953, Tietjen 1980, Jensen 1982).
The Southern Ocean nearshore is characterized by a high primary production during the austral summer (Whitaker 1982, Clarke *et al.* 1988, Clarke & Leaky 1996). Much of the diatom bloom sediments to the seabed, along with a minor supplement of sea-ice algae (Whitaker 1977, Palmisano *et al.* 1988). An additional source of primary production are *in situ* microbenthic communities - the productivity of which is closely linked to the occurrence of sea-ice (Gilbert 1991a,b). Overall, the organic input into the benthic system from these autochthonous sources is substantial (Nedwell *et al.* 1993).

Vertical transport of organic matter within sediment leads to steep oxygen and sulphide gradients. Furthermore, competition for food, physico-chemical factors and biological interactions may play rôles in determining which taxa of different orders may co-exist in the same depth strata. These organisms are generally confined to the upper few centimeters of the sediment (Giere 1993).

Here we report for the first time the density, taxonomic composition and feeding guild structure of the meiobenthic community of shallow nearshore sediments within the northern limit of the Antarctic pack ice (Stonehouse 1989). These data are related to a spectrum of environmental variables, including food and chemical regimes which are known to structure the meiofauna (Giere 1993). The sampling was done during the austral summer, when the occurrence of sea-ice did not hinder diving activities for sampling. Two sampling efforts at the same mooring point and separated as far as possible during our stay, were taken to give an idea of the summer situation in this benthic locality.

4.2. Material and Methods.

4.2.1. Area and period of investigation.

Sampling was undertaken at Factory Cove at Signy Island, South Orkney Islands, Antarctica (60° 43'S, 45° 38'W). Factory Cove is situated in Borge Bay (Figure 4.1.), for which a long-term data base of environmental variables, including sea water temperature, ice cover and chlorophyll standing crop, has been established (Whitaker 1982, Clarke *et al.* 1988, Leakey *et al.* 1994, Clarke & Leakey 1996). Abiotic and biotic samples were taken randomly within close proximity to each other from the sediment at a water depth of approximately 10 m at the Outer Mooring site, to the north-west of the cove, opposite the British Antarctic Survey research station. Coring was undertaken twice by SCUBA divers at the same mooring point during the second half of the austral summer. The two sample sets were assigned COVE 1 (Jan 26, 1994) and COVE 2 (Feb. 21, 1994).

4.2.2. Sampling regime.

For each of the two sampling efforts 5 replicate sediment cores for meiofauna investigations and 7 replicate cores for the analyses of the environmental variables were taken simultaneously and at the same site. The 'environmental cores' were separated as follows: 3 for interstitial nutrients, DOC and sediment texture, 3 for chloropigments, POM and inorganic carbon, and 1 for microbial food sources, including diatoms and bacteria.

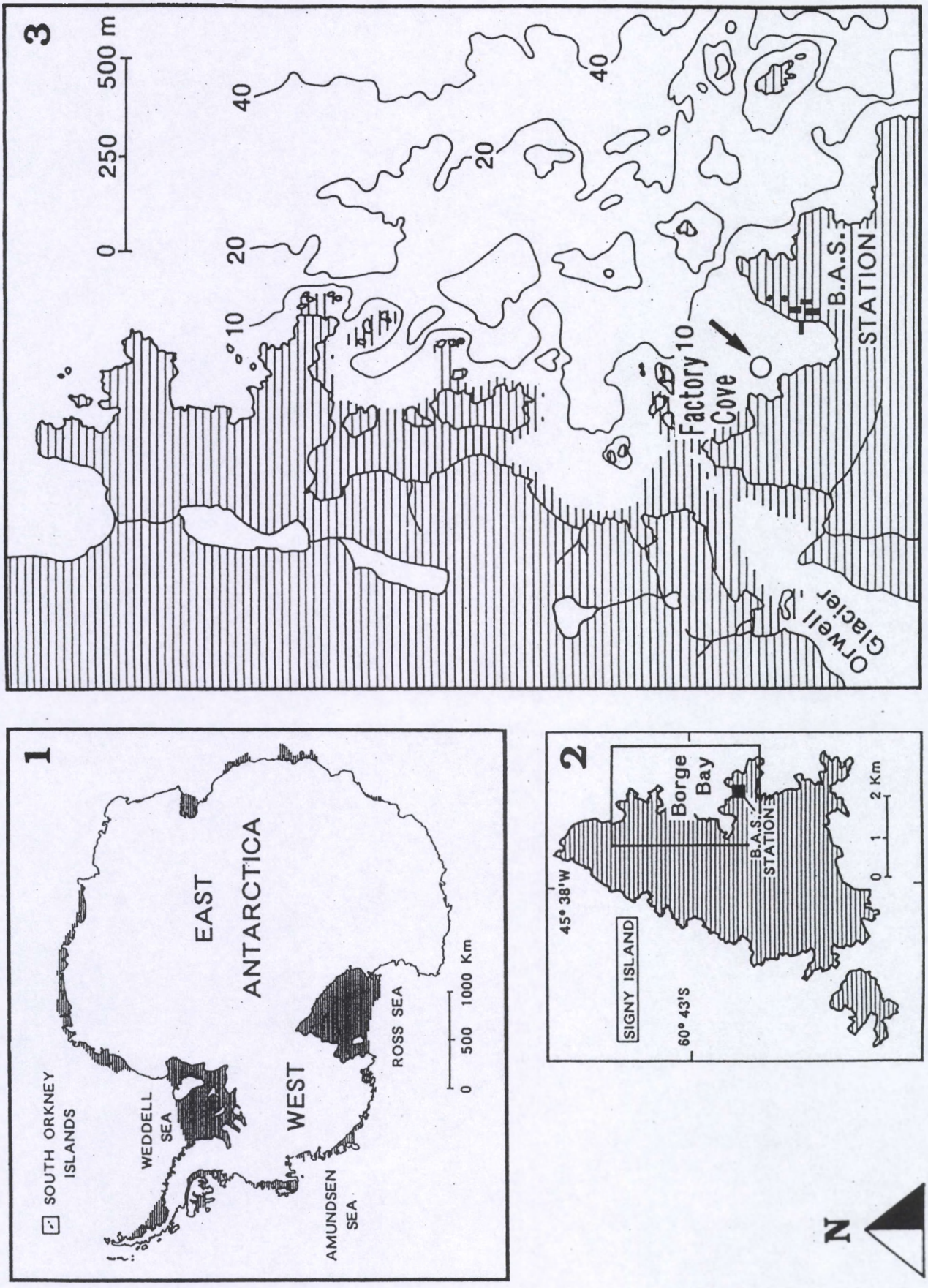

Figure 4.1. *: (1) Antarctica with location of (2) Signy Island, and (3) sampling site at Outer Mooring in Factory Cove (indicated with open circle).*

4.2.3. Meiofauna and nematodes.

Vertical cores of sediment were taken using perspex (plexiglass) tubes, with an internal diameter of 36 mm, to a depth of 5 cm. Meiofauna was extracted from the formalin (4%) preserved sediment slices of 1 cm by decantation, centrifugation and sieving on a 38µm sieve (Higgins & Thiel 1988). The metazoan meiofauna was counted after staining the samples with Rose Bengal, and samples were then subsequently treated for a quantitative analysis of the nematodes. Approximately 200 nematodes from each of the 5 replicates were picked randomly, transferred to an evaporation series of glycerol alcohol solutions, with a final pure, anhydrous glycerol as medium for the permanent mounts (cf. Seinhorst 1959). In the cases where less nematodes were encountered, all specimens were collected. The pictorial key to the nematode genera of Platt & Warwick (1988) was used for identification. The nematodes were classified into four feeding groups according to Wieser (1953), distinguishing selective (1A) and non-selective deposit feeders (1B), epistratum feeders (2A) and predators/omnivores (2B).

4.2.4. Environment.

Measurement of the physical and chemical environment. The temperature (0.5°C) and salinity (35‰) of the overlying 3 cm of water above the sediment column was measured immediately after sampling. No measurable differences were recorded between COVE 1 and COVE 2.
Triplicate samples were taken with separate plastic cores with an internal diameter of 60 mm for the analysis of pore water nutrients. Sediment was extruded from the core tubes in 1 cm slices under N_2 atmosphere and passed through Whatman GF/C filters. The pore water samples were frozen immediately at -40°C, and then stored at -20°C. Later the interstitial water was thawed and a first subsample was processed for the measurements of the concentrations of ammonia, nitrate, nitrite, phosphate and silicate with an A_{II} automatic chain (SAN^{plus} Segmented Flow Analyzer, SKALAR).

Dissolved organic matter (DOC) and sediment texture. Dissolved organic carbon was measured on a second subsample of the above mentioned interstitial water. Readings were done on a SKALAR (SK-12) DOC/TOC- analyzer.
The extruded sediment was dried for 24 h at 60 °C. A Coulter^R LS Particle Size Analyzer was used to characterize the granulometry of the sand fraction (61.7-900 µm) and the pellite (clay + silt) content (0.4-62 µm) of the total sediment.

Chloropigments. As a measure of microalgal biomass the concentrations of plant pigments (*i.e.* chlorophyll a, c and fucoxanthin) were determined using frozen (-20°C) 1 ml aliquots from sliced triplicate sediment cores (internal diameter 36 mm, slices of 1 cm over the 0-5 cm horizon). Total pigments were assayed on thawed aliquots filtered onto Whatman GF/F glass-fibre filters and extracted in 90% acetone on a Gilson HPLC-chain (fluorometrical and UV-visible detection) according to a slightly modified method of Mantoura & Llewellyn (1983).

Particulate organic matter (POM). The remaining sediment from the former procedure (chloropigments) was frozen at -20 °C and thawed when returned to Belgium. This sediment was then dried for 4 h at 110°C and split in two parts. The first was used for estimating total organic content (AFDW) by measuring weight loss after ignition at 550°C for 120 min.
The analysis of elemental total carbon (TC) and nitrogen (TN) was done on the second part using a Carlo Erba NA-1500 analyzer. To determine the amount of inorganic carbonates, the same samples were analyzed with the Carlo Erba NA-1500 analyzer, but after acidification with HCl. The difference between the two measurements was the amount of inorganic carbon.

Microbial food sources. Triplicate sediment samples were taken with a hypodermic syringe (approx. 1 ml sediment, distal ends removed) from each slice (1 cm over 0-5 cm) of a core with internal diameter of 36 mm for the enumeration of bacteria. They were preserved to a final concentration of 2 % filtered formaldehyde solution and stored at 4°C until further assessment at the laboratory. The sediment aliquots were diluted, homogenized, sonicated and filtered (Danovaro *et al.* 1994) before enumeration using acridine orange epifluorescence microscopy (Montagna 1982). Triplicate samples of the slices of the same core were frozen at -20°C and later thawed for diatom counting. Subsampling was performed by diluting the sediment with sterile deionized water, and then examining small volumes on a hemocytometer (Lund *et al.* 1958). The figures can not be used as an estimate for *in situ* benthic production of the entire diatom population (*i.e.* many cell frustules were distorted after freezing, and the prominent small *Fragilaria* species were difficult to see). But as the benthic chlorophyll is mostly covered by *in situ* diatom production (Gilbert 1991b), and the pennate forms were frequently encountered in the gut of many nematode specimens, the study provides useful data on an important trophic structuring force.

4.2.5. Data analysis.

Relation with the environment. The relationships between environmental variables and between the meiofauna/nematode structure and environmental factors were tested using the non-parametric Spearman rank correlation analysis (Sokal & Rohlf 1981).

Community study and analysis of the environmental data. ANOVA was used to determine whether the biotopes were significantly different according to meiofauna taxon densities, nematode genera (data recalculated to community densities) and environmental data. Multifactor ANOVA (MANOVA) was applied to test which factors might be important. The applied statistics covered analysis of vertical patterns in the sediment core and data point analysis (COVE 1 vs. COVE 2). The assumptions for applying these parametric tests (*i.e.* normal distribution of the variables, homogeneity of variances, independence of means and variances) were fulfilled after fourthroot (counts) or angular (percentages) transformations of the data. In cases with slight deviations from normality a more stringent probability level ($p \leq .01$) was used to infer differences were significant, and results were compared with the non-parametric Kruskal-Wallis and Mann-Whitney U tests on untransformed data.
Subsequent post hoc (Least Significant Difference, LSD) comparisons and contrast analyses were used on groups of sediment layers (Sokal & Rohlf 1981). Therefore, the data of each centimeter layer were averaged to new slice data of the upper (0-2 cm), middle (2-3 cm) and deeper (3-5) horizon.

Diversity. As a measure of diversity, Hill's diversity indices were calculated from the nematode genus composition of non-standardized sample sizes. This set of indices incorporates the widely used diversity measures. They differ in their tendency to include or to ignore the relatively rarer species (*i.c.* genus): the impact of dominance increases and the influence of species (*i.c.* genus) richness decreases with increasing order of the diversity numbers. N_0= number of genera; N_1 = exp (H') where H' = Shannon-Wiener diversity index; N_2 = the reciprocal of Simpson's dominance index; N_{inf}= the reciprocal of the relative abundance of the most abundant genus. When characterizing a community it is advisable to give diversity numbers of different order (Heip *et al.* 1988, Soetaert & Heip 1990).

4.3. Results.

For the classification of the genera see appendix 1
For raw data see appendix 5

4.3.1. Spatial heterogeneity in the environment and biota.

Spatial heterogeneity on a centimeter scale was often very high in the abiotic environment, and even higher in the colonizing biota. This heterogeneity is apparent both from the differences between sediment slices (vertical heterogeneity), but also from the standard deviations in Table 4.1. and 4.2. and Figure 4.3. (horizontal heterogeneity). As a result of this heterogeneity the probability levels of an ANOVA on the higher taxon densities indicated significant differences between the treatments (*e.g.* 5 replicates from each core slice per sampling effort) ($p = .03$). This was, however, exclusively as a result of variability in numbers of harpacticoids.
ANOVA on the environmental variables and nematode genus data indicated no significant differences between the treatments ($p > .05$).

4.3.2. Vertical gradients in the environment.

Sediment grain size. The sediment in the top 5 cm consisted of moderately sorted very fine sands (grain size 62-125 µm), with 20-30 % of the particles smaller than 63 µm (=pellite)(Table 4.1.). The grain size distribution was strongly left skewed, and leptokurtic. These results were similar throughout the sediment column and for both samplings.

***Table 4.1.** : Environmental data (mean ± SD, n=3) in the sediments of Factory Cove.*

COVE 1	0-1 cm	1-2 cm	2-3 cm	3-4 cm	4-5 cm
Chl-c (µg ml^{-1})	10 ± 1.4	12 ± 1.8	7 ± 1.5	3 ± 1.0	1 ± 0.1
Chl-a (µg ml^{-1})	94 ± 8.0	148 ± 35.2	117 ± 17.0	68 ± 21.7	18 ± 4.7
Fucoxanthins (µg ml^{-1})	34 ± 6.9	49 ± 7.6	29 ± 6.8	15 ± 6.4	3 ± 0.2
Diatoms (no x 10^6 ml^{-1})	57 ± 49.6	17 ± 8.5	20 ± 12.2	8 ± 1.5	8 ± 0.2
Bacteria (no x 10^9 ml^{-1})	25 ± 1.6	23 ± 0.5	11 ± 0.6	8 ± 0.3	7 ± 0.6
TC (mass %)	1.2 ± 0.28	0.9 ± 0.06	0.7 ± 0.06	0.4 ± 0.02	0.3 ± 0.02
DOC (mg l^{-1})	16.9	18.8	18.0	16.6	24.2
NH_4-N (mg l^{-1})	6.3 ± 2.04	8.8 ± 2.87	9.1 ± 0.01	21.8 ± 1.49	22.8 ± 4.16
NO_3-N (mg l^{-1})	0.5 ± 0.01	0.5 ± 0.15	0.1 ± 0.05	0.0 ± 0.01	0.1 ± 0.11
PO_4-P (mg l^{-1})	1.4 ± 0.68	1.7 ± 0.50	2.0 ± 0.32	1.6 ± 0.91	1.7 ± 0.40
Silicate (mg l^{-1})	1.4 ± 0.79	7.5 ± 1.71	6.8 ± 4.76	5.3 ± 6.16	10.3 ± 1.29
Pellite (%)	29 ± 2.6	25 ± 2.7	22 ± 0.8	20 ± 2.9	24 ± 2.8
Mean sand (µm)	118 ± 2.6	119 ± 1.8	121 ± 1.7	121 ± 3.0	119 ± 3.0
Median sand (µm)	115 ± 2.1	116 ± 1.7	117 ± 2.8	116 ± 3.9	114 ± 3.2
Modus sand (µm)	109 ± 3.3	111 ± 0.0	111 ± 0.0	110 ± 8.9	106 ± 5.7
COVE 2	**0-1 cm**	**1-2 cm**	**2-3 cm**	**3-4 cm**	**4-5 cm**
Chl-c (µg ml^{-1})	7 ± 0.2	2 ± 0.9	0 ± 0.0	0 ± 0.0	0 ± 0.1
Chl-a (µg ml^{-1})	91 ± 20.8	37 ± 11.6	9 ± 1.4	5 ± 0.7	6 ± 1.3
Fucoxanthins (µg ml^{-1})	21 ± 12.5	9 ± 3.1	2 ± 0.2	1 ± 0.1	1 ± 0.8
Diatoms (no x 10^6 ml^{-1})	20 ± 1.6	11 ± 5.9	10 ± 2.5	6 ± 1.6	4 ± 3.1
Bacteria (no x 10^9 ml^{-1})	20 ± 3.2	5 ± 0.5	2 ± 0.4	2 ± 0.5	2 ± 0.5
TC (mass %)	0.8 ± 0.11	0.3 ± 0.02	0.2 ± 0.02	0.3 ± 0.01	0.4 ± 0.05
NH_4-N (mg l^{-1})	6.4 ± 2.26	8.5 ± 2.28	14.1 ± 6.51	13.7 ± 4.05	13.4 ± 4.00
NO_3-N (mg l^{-1})	0.2 ± 0.11	0.1 ± 0.11	0.0 ± 0.00	0 ± 0.0	0.0 ± 0.00
PO_4-P (mg l^{-1})	0.9 ± 0.65	0.6 ± 0.17	0.9 ± 0.20	0.9 ± 0.13	0.8 ± 0.70
Silicate (mg l^{-1})	2.0 ± 0.67	6.6 ± 4.28	9.6 ± 1.21	7.0 ± 4.55	7.7 ± 4.31
Pellite (%)	26 ± 1.4	27 ± 0.3	30 ± 2.4	29 ± 2.6	28 ± 0.4
Mean sand (µm)	112 ± 1.1	108 ± 1.6	106 ± 0.6	101 ± 9.4	99 ± 13.3
Median sand (µm)	105 ± 0.3	101 ± 1.6	98 ± 0.9	98 ± 1.4	99 ± 0.4
Modus sand (µm)	95 ± 5.1	90 ± 0.0	82 ± 2.6	81 ± 0.0	82 ± 2.6

* the % pellite (silt + clay) is calculated on the total sand fraction (0.4-900 µm); other grain sizes are from the sand fraction only (61.7-900 µm)

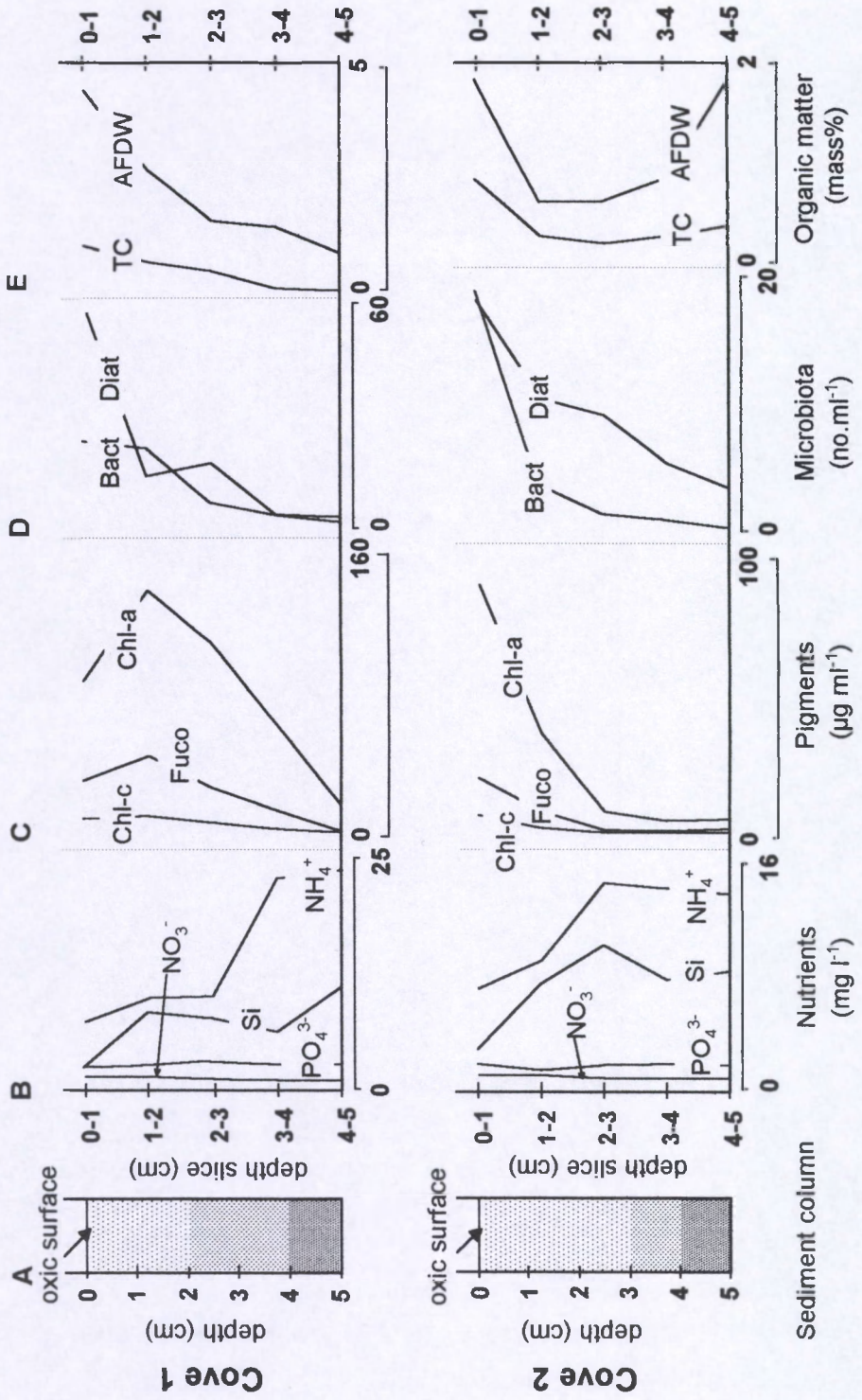

Figure 4.2. *: Vertical distribution of (A) the visual observed colour change in the sediment cores, and concentration profiles of (B) Nutrients (NO_3^-,PO_4^{3-}, Si, NH_4^+; mg l^{-1}), (C) Pigments (Chl-c: chlorophyll c, Fuco: fucoxanthins, Chl-a: chlorophyll a; µg ml^{-1}), (D) Microbiota (Bact: bacteria, Diat: diatoms ; no ml^{-1}), and (E) Organic matter (TC: total carbon, AFDW: total organic matter; mass %) in the two sediment samples of Factory Cove. Values are reported in table 4.1. Diatom numbers are to be multiplied by E+06, bacteria by E+09.*

Nutrients and oxidative/reductive state of the sediment. The sediments were strongly reduced. Maximum nutrient concentrations in the sediment slices (Figure 4.2.) were 36 µM for nitrate, 65 µM for phosphate-P and 1.6 µM for ammonia. Measurements in the water column immediately above the sediment, for COVE 1 and COVE 2 respectively, were 7.9 and 3.6 µM NO_3-N, 7.7 and 6.5 µM PO_4-P, 0.06 and 0.05 mM NH_4-N (results not presented). Conditions changed rapidly in the upper centimeters of the sediment, with a visual colour transition from a light brown, Fe-oxide-stained, surface (upper mm), to grey intermediate and black sulphide stained horizons. The latter coincided in COVE 1 with a sudden strong rise of NH_4^+-N in the same horizon (2-4 cm). In COVE 2 NH_4^+-N changed at 1-3 cm. From 4 cm on the sediments were black, very compacted and a pronounced odour of H_2S was recognizable.

Pigments and microbiota. The concentrations of chloropigments were generally very high and showed a decline below the 1-2 cm horizon in COVE 1. This was especially true for Chl-a with a 1-2 cm subsurface maximum of 148 µg ml^{-1}. In COVE 2 the peak values were found at the surface (91 µg ml^{-1}) and were followed by a steep decline towards 2-3 cm. Overall, pigment concentrations were 3-4 times higher in COVE 1.
An almost continuous decline with depth in the numbers of bacteria and diatoms was observed at both samplings. COVE 1-counts of microbiota were more than twice those of COVE 2-counts (resp. $74x10^9$ ml^{-1} and $31x10^9$ ml^{-1} for bacteria; resp. $11x10^6$ind.ml^{-1} and $51x10^6$ ind ml^{-1} for diatoms).

Particulate organic matter (POM). From the recordings of particulate matter it appeared that inorganic carbon, and TN concentrations were very low. The latter reached 0.2 % in upper cm, but decreased with more than 50 % at each subsequent layer in COVE 1 and was below detection level in COVE 2. Consequently, organic C:N atomic ratios were 9 to 12 in the upper three centimeters, and much higher deeper down in COVE 1, and could not be calculated for COVE 2.
The sediments had an organic loading of 2 and 4 % AFDW and 0 and 1 % organic carbon (TC), for COVE 1 and COVE 2, respectively. The concentrations of AFDW were always higher than TC, originating in methodological differences (AFDM:organic C is generally 2:1, Platt & Irwin 1973). Organic matter concentrations (AFDW and TC) decreased with depth in COVE 1, but increased again after a minimum concentration at 2-3 cm in the sediments of COVE 2.

Dissolved organic matter (DOC). DOC levels in the pore water were measured only in COVE 1, and reached 20 mg l^{-1}. The concentrations did not show a visible change with depth.

4.3.3. Meiofauna.

The metazoan meiofaunal densities were very different between the samples (Table 4.2.). In COVE 1 the average density was 13 170 ind 10 cm^{-2} with nematodes comprising 86 % of the total meiofauna. In COVE 2 meiofauna numbers dropped to one third of the population of COVE 1 (average of 4950 ind. 10 cm^{-2}), due mainly to much lower densities in the 1-2 cm-stratum. Harpacticoid copepods and nauplii represented in COVE 1, 11 % and in COVE 2, 16% of the total meiofauna population and ostracod abundances were respectively 3 and 22 %. Other taxa (*i.e.* amphipods, bivalves, halacarids, tardigrades and turbellarians) represented less than 1 % of the total meiofauna.
Vertical density patterns (Figure 4.3.) showed a subsurface peak at the 1-2 cm section in COVE 1 (average total density: 5893 ind. 10 cm^{-2}) and a consistent decline with depth in COVE 2, where about 75 % of the total meiofauna resided in the surface layer. These differences were almost exclusively the result of variations in the numbers of the nematodes. Harpacticoid copepods and ostracods were only numerous at the surface, whereas nematodes were distributed to greater depths. The sediments at depths lower than 5 cm contained very few meiofauna.

Table 4.2. *: Absolute numbers of the total meiofauna (ind. 10 cm^{-2} ± SD, N=5), abundance of the main meiofauna taxa relative to the total meiofauna, abundance of the main nematode genera relative to the total nematode numbers and relative percentage of feeding types of all genera of the nematode community. Numbers were calculated per sediment slice after standardization to total nematode numbers in meiofauna counts, 1A selective deposit feeders, 1B non-selective deposit feeders, 2A epistratum feeders, 2B predators/omnivores.*

COVE 1	0-1 cm	1-2 cm	2-3 cm	3-4 cm	4-5 cm
MAJOR MEIOFAUNA TAXA					
nematodes	78	94	89	84	86
harpacticoids	12	3	4	6	8
nauplii	8	2	4	6	2
ostracods	2	2	3	4	4
total meiofauna (no 10 cm^{-2})	5170	5893	1729	195	182
± SD	938.1	1182.6	1681.4	104.0	318.5
MAJOR NEMATODE GENERA					
Aponema (2A)	15	61	74	72	50
Chromadorita (2A)	6	2	1	1	3
Diplolaimella (1B)	0	0	1	0	0
Daptonema (1B)	48	14	5	8	22
Microlaimus (2A)	4	1	1	1	1
Neochromadora (2A)	22	20	14	12	22
COMMUNITY TROPHIC COMPOSITION					
1A	0	0	0	0	0
1B	53	16	10	14	25
2A	47	84	90	85	75
2B	0	0	0	0	0

COVE 2	0-1 cm	1-2 cm	2-3 cm	3-4 cm	4-5 cm
MAJOR MEIOFAUNA TAXA					
nematodes	73	86	84	51	16
harpacticoids	19	7	6	14	4
nauplii	7	5	6	8	2
ostracods	1	1	4	27	76
total meiofauna (no 10 cm$^{-2)}$	3693	921	226	51	55
± SD	1701.6	515.6	176.3	28.1	44.0
MAJOR NEMATODE GENERA					
Aponema (2A)	6	43	52	35	16
Chromadorita (2A)	1	1	0	0	1
Diplolaimella (1B)	0	5	1	0	1
Daptonema (1B)	80	30	8	23	65
Microlaimus (2A)	4	1	2	4	3
Neochromadora (2A)	8	14	14	8	10
COMMUNITY TROPHIC COMPOSITION					
1A	0	0	0	0	0
1B	81	38	28	52	56
2A	19	60	68	46	44
2B	0	2	4	2	0

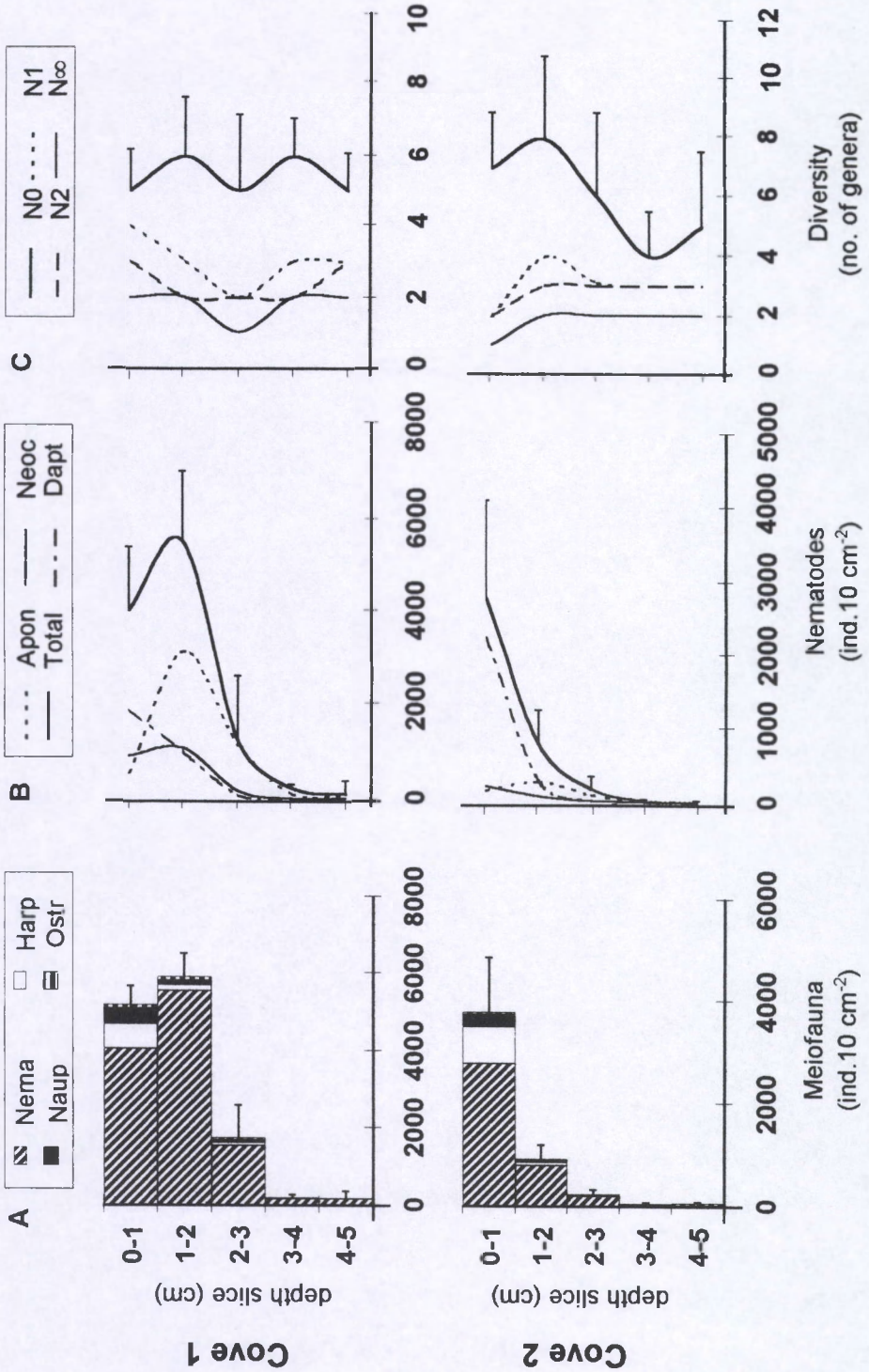

Figure 4.3. *: Vertical distribution patterns of (A) the dominant meiofauna taxa (Nema: nematodes, Harp: harpacticoid copepods, Naup: nauplii, Ostr: ostracods; ind. 10 cm^{-2}), (B) the main nematode genera (Apon: Aponema, Neoc: Neochromadora, Dapt: Daptonema) and Total: total nematodes (ind. 10 cm^{-2}), and (C) Hill's Diversity indices (no of genera). Note the difference in sample scale between COVE 1 and COVE 2. Error bars on plots are SDs of 5 replicates.*

4.3.4. Nematodes.

Taxonomic composition. A total of 19 genera in 11 families were identified. They belonged to the orders Enoplida, Chromadorida and Monhysterida. Only six genera were at all common (*Aponema*, *Chromadorita*, *Diplolaimella*, *Daptonema*, *Microlaimus*, *Neochromadora*) (Table 4.2.). The other 13 genera were scattered over the different replicates and represented together only 4 % of the total nematode community, with a mean of 0.3 % per genus (Table 4.3.). Most genera were monospecific. Apart from *Aponema torosus* the species have not been identified and many may be new to science. The relative abundances of the 6 dominant genera are listed in Table 4.2. *Aponema* and *Daptonema* were numerically highly dominant in COVE 1 (respectively 5288 ind. 10 cm^{-2}, 46% and 2839 ind. 10 cm^{-2}, 25%). In COVE 2 mainly *Daptonema* was found, with numbers of 2413 ind. 10 cm^{-2}, 65%) (Figure 4.3.). All genera but *Diplolaimella* were numerically much more abundant in COVE 1.

Table 4.3. *: Relative abundances (%) of the less dominant (those not mentioned in table 4.2) nematode genera. Figures are the total numbers of specimens per genus encountered on the total set of identifications of COVE1 and COVE2. Mean : average abundance per genus; the feeding category according to Wieser (1953) was added.*

		COVE 1	COVE 2
Eleutherolaimus	1B	0.8	0.6
Pomponema	2B	0.1	0.1
Sabatieria	1B	2.9	1.2
Sphaerolaimus	2B	0.1	1.0
Prochromadorella	2A	0.1	0.4
Leptolaimus	1A	0.1	0.0
Odontophora	1B	0.1	0.2
Promonhystera	1B	0.0	0.1
Onchium	2A	0.0	0.1
Paramonhystera	1B	0.0	0.1
Steineria	1B	0.0	0.1
Viscosia	2B	0.0	0.1
Pseudosteineria	1B	0.0	0.1
MEAN		0.3	0.3

Vertical zonation patterns (Figure 4.3.) showed a subsurface peak of *Aponema* at 1-2 cm representing about 65 % and 60 % of its total population in COVE 1 and COVE 2, respectively. A steep linear decline with depth of *Daptonema* was noted in both sample sets. About 70 % (COVE 1) and 90 % (COVE 2) of the *Daptonema* resided in the upper sediment horizon. *Neochromadora* abundances revealed a slight increase in the 1-2 cm slice in COVE 1 (towards 1087 ind.10 cm^{-2}), whereas a continuous decline was observed in COVE 2. Almost the entire population of the major genera was confined to the top 2 centimeters of the sediment (COVE 1: 83 %, COVE 2: 95 %).
The percentages in Table 4.2. show that the superficial layer was dominated by *Daptonema* (48%) in COVE 1, whereas deeper in the sediment a consistent dominance of *Aponema* was recorded (over 60%). *Daptonema* abundances again became more important in the deepest layer (22%). Furthermore *Neochromadora* kept an average of about 18 % throughout the sediment column.
This was to a certain degree confirmed in COVE 2 where *Daptonema* constituted 80 % and 65 %, at the surface and deepest layer respectively; *Aponema* dominated again the central sediment column with a mean of 43%.

Diversity. The genus diversity of the nematode communities (as expressed by Hill's diversity index) was very low (Figure 4.3.). The N_0, equivalent to numbers of genera and averaged over 5 replicates, fluctuated around 5 through the sediment core in COVE 1, whereas in COVE 2 higher numbers were observed in the upper layers, maximized in the second layer. The indices of higher (N_1, N_2, N_{inf}) order averaged 2 (range between 1 and 4) troughout the profiles of both samplings.

4.3.5. Spearman rank correlation analysis.

Major environmental factors showed a similar strong depth profile (Figure 4.2.), and the meiofauna taxon densities, as well as the nematode genus densities and trophic composition were significantly correlated with the depth of the sediment slices (Spearman Rank, $p < .01$).

4.3.6. Analysis of variance of community structure and environmental data.

Because of the extremely low number of taxa which dominated the samples, the data for meiofauna taxon densities and nematode genera were reduced using a 4%-rule. Thus taxa which comprised less than 4% of the total (over all the slice and date replicates) were eliminated. This technique meant that errant taxa did not disturb the general patterns.
A MANOVA test showed that differences between depths for all the data (environmental, meiofauna taxon densities, nematode genus densities and relative abundances) were significant as were differences between the two sample sets ($p < .05$). The middle layer (2-3 cm) formed the transition horizon, and was not different from the upper and deeper groups (multivariate contrast : $p > .05$). Therefore, in the following discussion we consider only the 0-2 (upper) and 3-5 (deeper) horizons.

Depth Variation. A clear difference ($p < .001$) between the upper (0-2 cm) and deeper (3-5 cm) horizon was observed for pellite content, chloropigments, ammonia and nitrate, diatoms, bacteria and TC in COVE 1 (Figure 4.4.). This was confirmed for COVE 2, albeit to a lesser degree: pellite and diatoms were not significantly different between the strata.
When contrasting the meiofauna results in a similar way (Figure 4.5.), again evidence was given for a highly significant difference between the upper two strata and the deeper sediment layers for all taxa in COVE 1, and for nematodes, harpacticoids and nauplii in COVE 2 (Contrast analysis 0-2 vs 3-5, $p < .001$). The differences were less pronounced for the ostracods. Finally, the densities of the major nematode genera differed significantly between 0-2 and 3-5 cm, except for *Diplolaimella* in COVE 1.

Sample comparison. Despite the remarkable similarity in general picture of the environment (Figure 4.2.), a significant difference was found between the sediment texture, chemistry and food (LSD : $p < .01$). Silicate and TC concentrations showed no obvious difference between the two sample sets.

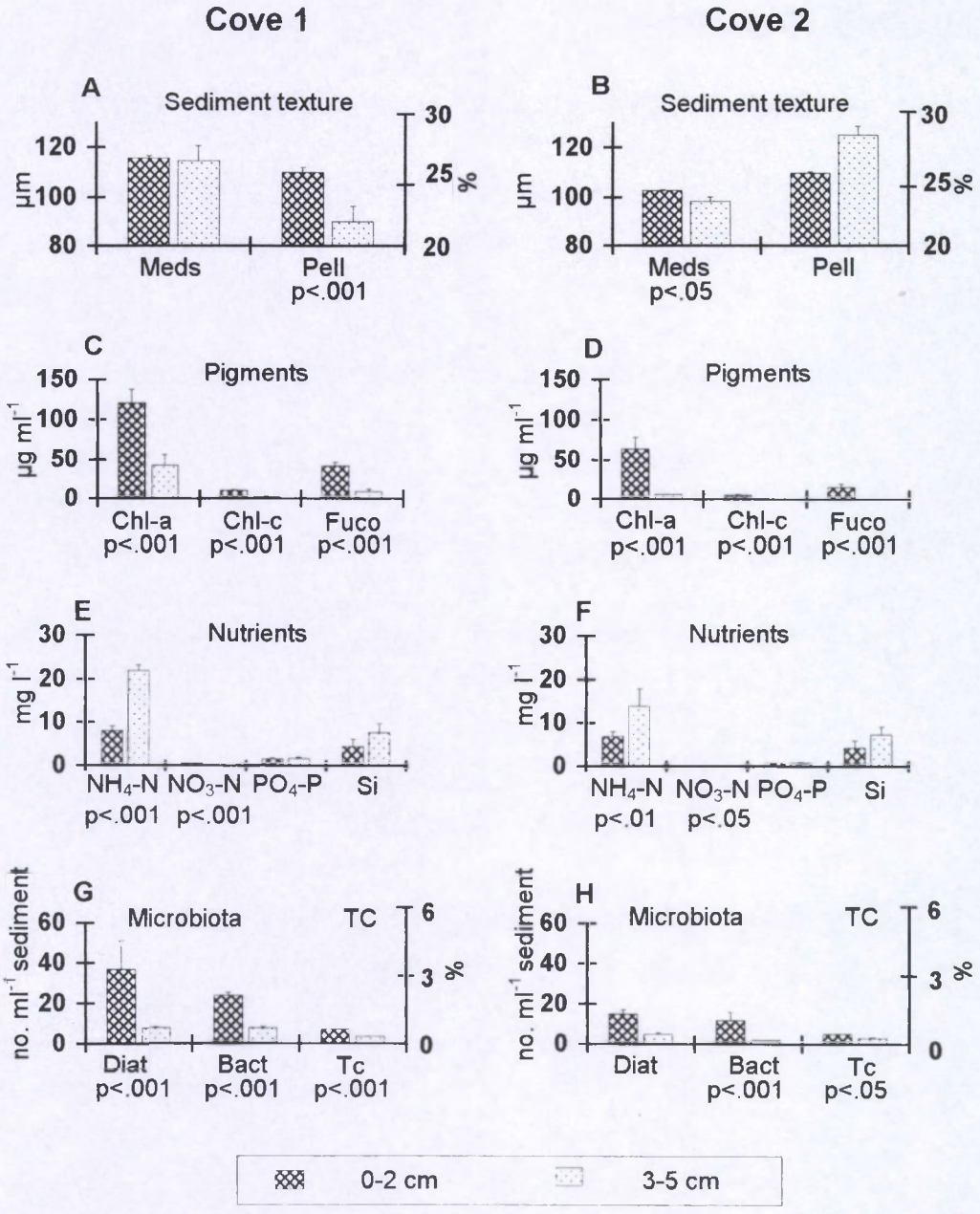

Figure 4.4 *: Comparison of two sediment layers (0-2 cm and 3-5 cm) for COVE 1 and COVE 2: (A & B) Sediment texture (Meds: median sand in µm, Pell: percentage pellite); (C & D) Pigments (Chl-a: chlorophyll a, Chl-c: chlorophyll c, Fuco: fucoxanthins; µg ml^{-1}); (E & F) Nutrients (NH_4-N, NO_3-N, PO_4-P, Si; mg l^{-1}); (G & H) Microbiota and TC (Diat: diatoms, Bact: bacteria; no ml^{-1}, TC: % total carbon). The data represent mean+standard error of resp. 0-1 to 1-2 cm (= 0-2 cm), and 3-4 to 4-5 cm (= 3-5 cm) (n=6). The significant p-levels of the MANOVA contrast analyses for depth comparisons are added underneath each graph. Diatom numbers are to be multiplied by E+06, bacteria by E+09.*

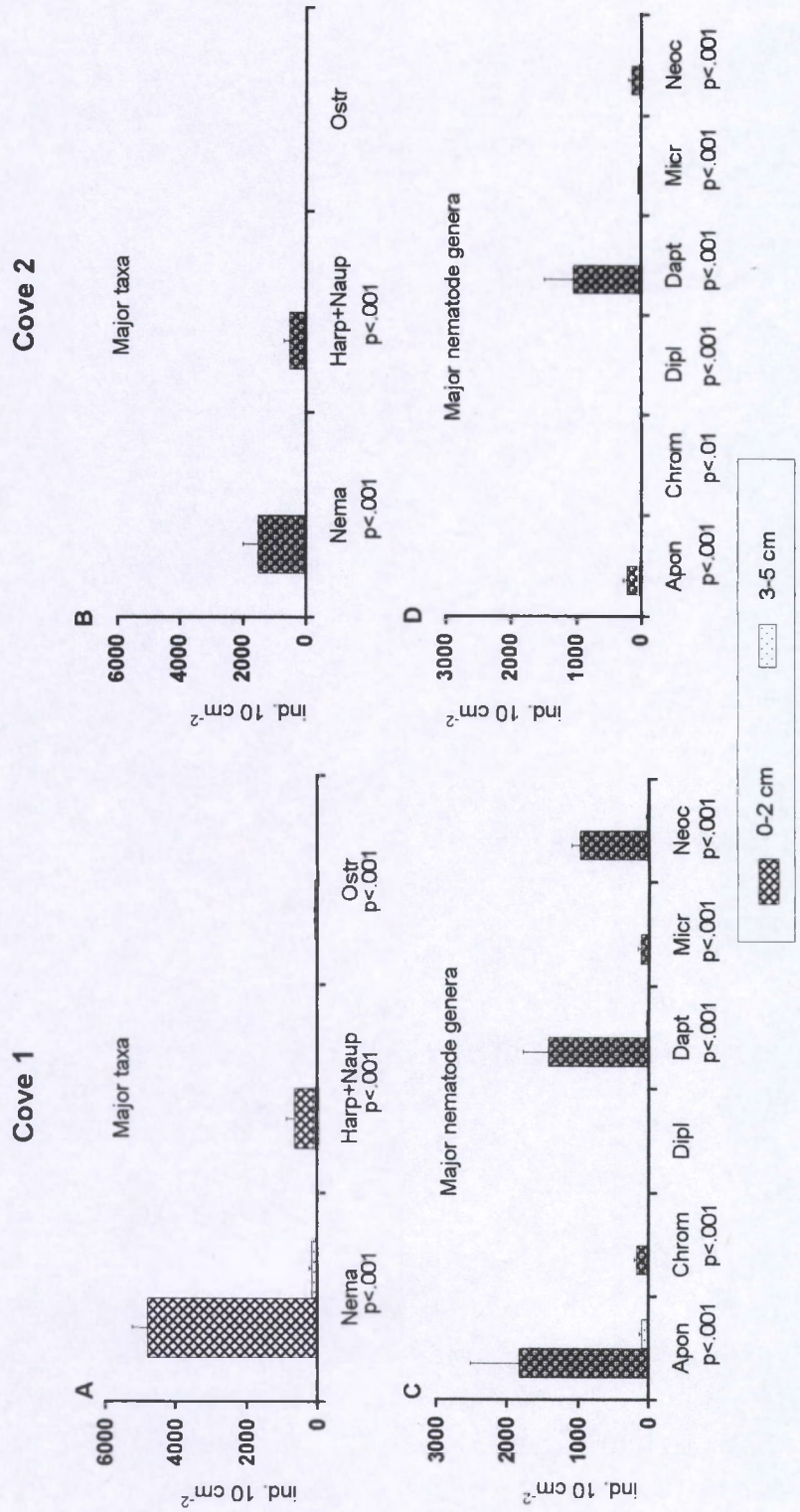

***Figure 4.5** : Comparison of two sediment layers (0-2 cm and 3-5 cm) for COVE 1 and COVE 2: (A & B) Major meiofauna taxa (Nema: total nematodes, Harp+Naup: harpacticoid copepods+nauplii, Ostr: ostracods); (C & D) Major nematode genera (Apon: Aponema, Chrom: Chromadorita, Dipl: Diplolaimella, Dapt: Daptonema, Micr: Microlaimus, Neoc: Neochromadora. The data represent mean (ind. 10 cm^{-2}) + standard error of resp. 0-1 to 1-2 cm (= 0-2 cm) and 3-4 to 4-5 cm (= 3-5 cm), n=10. The significant p-levels of the MANOVA contrast analyses for depth comparisons are added underneath each graph.*

Nematode numbers were mainly responsible for the differences between COVE 1 and 2 (Table 4.4.). This was much stronger at the sediment surface (0-2 cm, $p < .001$) than deeper down ($p < .05$), and mainly due to *Aponema*, *Chromadorita*, *Diplolaimella* and *Neochromadora*. Genus composition in the deeper strata of both sample sets was comparable (Contrast analysis, $p > .01$).

Table 4.4. *: Post hoc (LSD-analysis) and planned (contrast analysis) probability levels of the MANOVA on sample differences (COVE 1 vs COVE 2) among the meiobenthic and nematode numbers. No signs means that p >.05.*

	post hoc (LSD)	contrast analysis 0-2 cm	3-5 cm
MEIOFAUNA			
nematodes	***	***	*
harpacticoids and nauplii			
ostracods			*
NEMATODE ABSOLUTE NUMBERS			
Aponema	***	***	
Chromadorita	***	***	
Diplolaimella	***	***	
Daptonema			
Microlaimus			
Neochromadora	***	***	

$p \leq .05$ *
$.05 < p \leq .01$ **
$.01 < p \leq .001$ ***

4.3.7. Trophic composition.

The non-selective deposit feeders and epistratum grazers (group 1B and 2A) dominated (Table 4.2.). Together they comprised almost 100 % of the nematode population, mainly due to the high occurrences of *Aponema*, *Neochromadora* for 2A, and the high abundances of *Daptonema* and smaller amounts of *Sabatieria*, *Eleutherolaimus* for 1B. The predators/omnivores (2B, mainly *Sphaerolaimus*) were only scantily represented at 0-2 %, and the selective detritivores were, apart from some specimens of *Leptolaimus*, completely absent. Furthermore, the 2A and 1B feeding categories were equally represented in the upper layer (about 50 % each), and epistratum feeders alone in the rest of the sediment (about 80%) in COVE 1. In COVE 2 the non-selective deposit feeders dominated the upper layer (80%), whereas a combination of both feeding categories was found beneath the surface horizon. The total core percentages gave a dominance of epistratum feeders in COVE 1 (76%) and a predominance of non-selective deposit feeders and epistratum feeders (resp. 51 and 48%) in COVE 2. However, when absolute numbers were calculated a clear shift from epistratum feeders in COVE 1 towards non-selective deposit feeders in COVE 2 occurred (COVE 1, 2A: 8161, 1B: 2894 ind.10 cm^{-2}, COVE 2, 2A: 1115, 1B: 2488 ind.10 cm^{-2}).

4.4. Discussion.

4.4.1. Comparison with other meiobenthic studies.

Rudnick *et al.* (1985) summarized the studies which have estimated meiofaunal abundance in shallow inshore waters. The total numbers of metazoan meiofauna ranged between 0.01-27.3 x 10^6 m^{-2}, and averaged around 3 x 10^6 m^{-2} (Table 4.5.A). Major differences were primarily attributed to methodology. For comparison we list the only 3 studies from a total of about 50 that considered similar sediment types (*i.e.* sands and silty sands) and used similar techniques (*i.e.* sampling by diving, sieving on lower mesh size of at most 0.074 mm and using formalin with Rose Bengal). The results from Signy were also compared to the densities encountered in boreal and (sub)antarctic sediments (Table 4.5.B). Meiofaunal standing stock in the sediments of Factory Cove exceeded, together with stocks in Narrangansett Bay (N-Atlantic), greatly those from other sites world-wide.
The nematode community composition encountered had a strong similarity with the communities found in other shallow subtidal fine sands (Heip *et al.* 1985), and especially in the fine sediments of the German and Dutch Bight of the North Sea, with a dominance of Chromadoridae (*e.g. Neochromadora*, *Prochromadorella*, *Dichromadora*, *Chromadorita*), Microlaimidae (*e.g. Aponema*, *Microlaimus*), Comesomatidae (*e.g. Sabatieria*), and Xyalidae (*e.g. Daptonema*)(Juario 1975, Vanreusel 1990).

***Table 4.5.** : Comparison of meiobenthic densities at Factory Cove with A. data from Rudnick et al. 1985, and B. other polar localities.*

A.

Locality	Depth (m)	Abundance mean (range) (x 10^6 m^{-2})
Signy Island (this study)	7-9	Total : 9.0 (4.9-13.2) Nematodes : 7.5 (3.7-11.4) Harpacticoids : 1.3 (1.1-1.5)
SITES WORLD-WIDE		
Summary of data reviewed by Rudnick *et al.* (1985)	1-230	Total : 2.9 (< 0.01-27.3) Nematodes : 1.6 (< 0.01-23.3) Harpacticoids : 0.1 (< 0.01-2.0)
Studies with comparable methodology:		
- Niantic River	7	Total : 2.2 (1.2-5.0) Nematodes : 2.0 (1.0-4.8) Harpacticoids : 0.2 (0.05-0.30)
- Long Island Sound	14	Nematodes : 1.4 (0.5-2.7)
- Narragansett Bay (silt/clay)	7	TotalF : 17.0 (8.1-41.8) Foraminifers: 3.6 (0.8-14.5) Total : 13.4 Nematodes : 11.8 (5.7-23.3) Harpacticoids : 0.7 (0.3-2.0)

TotalF: total meiofauna including foraminifers
Total: total meiofauna excluding foraminifers (=metazoan meiofauna)

B.

Locality	Reference	Abundance range (mean) (no 10 cm^{-2})
Antarctic - Signy Island	this study	4900-13200 (summer mean : 9000)
Subantarctic -Kerguelen Islands	Bouvy 1988 de Bovée & Soyer 1975	1054-15478 (annual mean : 4560) 21-4873 (891)
Boreal - N. Baltic - W. Greenland	Elmgren 1975; Elmgren *et al.* 1983 Wittoeck 1991	2355-7878 fine sand : 15 m : 2014 (summer value) very fine sand : 10 m : 4829 (")

4.4.2. Relation of the meiofauna variables with the benthic environment.

Low genus numbers found in Factory Cove are deviating from the general trend of high diverse marine benthos assemblages in Antarctica (Arntz *et al.* 1994), but tend to agree with the observations from nematode communities in fine sands, demonstrating markedly dominances of a few nematode taxa (*e.g.* H' of about 1-2 bits ind^{-1}) (Heip *et al.* 1985, Vincx 1989). Superimposed, structural characteristics such as high abundances with low diversity are also typically encountered in advanced stages of organic eutrophication (*e.g.* beyond the ecotone point as quoted by the model of Pearson & Rosenberg 1978). At this stage only a few opportunistic species can survive the lowering of oxic conditions and elevation of sulphide, hence living at high abundances, and revealing increased biomasses (Pearson & Rosenberg 1978, Heip 1995).

As a result of the phytoplankton bloom in the water column and *in situ* microphytobenthic production the fine sands of Factory Cove contained excess food during the austral summer: 1) particulate organic carbon (2 and 4% AFDW at the surface) was consistent with the Factory Cove annual records from Nedwell *et al.* 1993, and the range measured by Bouvy 1988 and Platt 1979 in the subantarctic) and, 2) pigment content reached a maximum of 1300 to 325 mg Chl-a m^{-2} for COVE 1 and COVE 2, respectively. The latter was similar to the summer readings of Gilbert (1991c) at the same locality in former years, whereas the extreme from COVE 1 could have been the result of an intense episodic bloom. High chlorophyll records were also found at other polar sites (*e.g.* in comparable bottom types at similar depths) (Matheke & Horner 1974, Dayton *et al.* 1986).

Organic matter might represent an important environmental cue for meiofaunal distribution. However, only fresh organic substances and labile DOM fractions, for example from bacterial decomposition of algae and exudation from viable bacteria, are utilized by the meiofauna (Tietjen & Lee 1975, Tietjen 1980, Admiraal *et al.* 1983, Heip *et al.* 1985, Bouvy 1988), hence structuring their distribution (Montagna *et al.* 1983, Blanchard 1990, Santos *et al.* 1995). By using a C:Chl-a ratio of 40:1 (de Jonge 1980), a sediment specific gravity of 2g cm^{-3} and a water content of 30% (Walker 1993), the percentage of the POC pool attributed to pigments, from *in situ* benthic production and the deposition of phytoplankton, was 25 to 47%. In addition, surface C:N ratios in COVE 1 were well below the threshold of biological mineralization (C:N 25) and the food requirements for animals (C:N 17) (Tyson 1995). Both aspects are indicative of a nutritive environment, confirming the findings of Walker (1993) that 4 to 9 % of the total organic carbon in the sediments of Factory Cove are bioavailable through the entire summer season. This is, however, not in agreement with the low concentrations of DOC (20 mg l^{-1}). Presumably this is an artefact in our measurements as in a set of about 60 sediment samples from the same site between 1991 and 1995, DOC content ranged between 130 and 4460 mg C l^{-1} (unpublished data). This agrees with the available dissolved carbon concentrations in the microbiological assay of Walker (1993).

4.4.3. Nematode trophic composition at Factory Cove.

The sediments were mainly populated by epistratum- and non-selective deposit feeders, most probably grazing on a mixture of diatoms, bacteria and organic matter. This was in agreement with the trophic composition of nematodes in fine, littoral sands, rich in deposits (Heip *et al.* 1985), and the observations made in the subantarctic Kerguelen Islands (de Bovée 1975). Selective deposit-feeding, *sensu* Wieser (1953), seemed not to be common, and predator/omnivore nematodes might have been outcompeted by deposit-feeding meiofauna-predacious macrofauna (Kennedy 1993).
Generalizing about feeding mode, by using the often applied classification of Wieser might, however, be premature and misleading (Romeyn & Bouwman 1983, Giere 1993, Heip *et al.* 1985). *Aponema* had a small buccal cavity with very small teeth, and therefore it could be reasonably classified as a selective deposit-feeder (1A). *Daptonema* could be assigned as a 2A type, partly because many frustules of diatoms and/or their fragments were detected in the alimentary duct. The occurrence of a cuticularised ridge (third denticle type *sensu* Lorenzen 1978) implies that diatoms can be pierced or scraped from the sediment (Jensen 1982). In addition, *Daptonema* can use continuously different feeding strategies according to the availability of food, sometimes within a very short time scale (Moens & Vincx 1997). This could not be inferred from our data, as their densities at Factory Cove did not vary much between the two months unlike the big shifts in microbiota standing stocks and pigment concentrations.

4.4.4. Sample differences.

Small scale variability (*e.g.* within sample variance) in meiofauna distribution is often high and is likely resulting from macrobenthic activity, turbulence, heterogeneous distribution of seasonal organic input and decaying material (Findlay 1981, Sun *et al.* 1993, Ndaro *et al.* 1995). More strikingly, however, was the marked difference between the two sampling sets with a scale much bigger than the scale of the replicates. This was especially obvious at the sediment surface (upper 2 cm). The deviation between the two sampling sets could have been caused by either temporal and/or spatial separation. The sediment texture was significantly different between the two samplings. As faunal distribution is commonly caused by grain size (Snelgrove & Butman 1994), these differences might have been at the base of the variation in food and chemistry, and therefore the result of spatial heterogeneity in the meiobenthos. However, 1) differences in median and mean grain sizes were minute and well within the range of very fine sediments, and 2) pellite concentrations were only significant different in deeper layers, where meiofauna was not as abundant. In contrast, the profound shifts in meiobenthic density, genus composition and trophic structure between COVE 1 (January 26) and COVE 2 (February 21), in accordance with the pronounced change of sedimentary food content (indicated by microbenthic densities, organic matter and pigment concentrations), merely suggest a temporal response to the seasonal signals of the Antarctic environment.

4.4.5. Vertical zonation patterns.

Vertical scaling of samples allows the possibility of detecting particular spatial strata within the sediment column of different benthic assemblages. The meiofaunal organisms at Factory Cove were generally confined to the surface showing a strong contrast between the upper (0-2 cm) and the compact deep (3-5 cm) layers.
Meiofauna are often restricted to the upper layers of fine sediments heavy in detritus (Giere 1993) and vertical zonation is typically controlled by the oxygen regime in the sediments (Higgins & Thiel 1988).

As a result of the high input of organic matter during the summer, the sediments of Factory Cove were strongly reduced, even close to the surface. The lack of suitable facilities in Antarctica meant that the redox potential discontinuity zone (RPD) could not be defined exactly, but should be situated between 0 and -3 cm, indicated by the visible colour change to grey. Dissolved O_2 in these sediments never penetrates deeper than 2 mm (Nedwell & Walker 1995). Below the oxic surface layer, a 'suboxic zone' (Sørensen & Jørgensen 1987) with oxidized compounds (such as NO_3, PO_4) prevailed, followed by sulphidic black sediment (> 10 mmol ml^{-1} sulphide, Walker 1993).

The meiofauna showed a higher depth penetration in COVE 1 (*e.g.* maximum numbers were found in the subsurface layer), compared to COVE 2, with highest abundances at the surface. This coincided with a deeper location of the NH_4-cline (*e.g.* between 2 and 4 cm in COVE 1 and 1 and 3 cm in COVE 2) and higher levels of the compounds NO_3 and PO_4. In addition, as sulphide concentrations increase steeply from about 3 cm (Walker 1993), the importance of the oxygen/sulphide regime to meiofaunal vertical distribution in Factory Cove is well documented.
Meiofaunal depth distribution was, however, not limited by the disappearance of free oxygen below the sediment surface. A factor that could have triggered the depth penetration below this oxic layer is food availability. According to Heip (1995) 89% of benthic secondary production would be limited to the sediment surface in the case of high amounts of fresh non-reworked phytoplankton detritus deposition.

Fresh chloropigments, organic matter and micro-organisms in Factory Cove were strongly concentrated in the upper layer with C:N ratios much lower in the upper 3 cm compared to deeper layers (the increase in C:N ratios with depth could be ascribed to a decrease in the contribution of diatoms to the POM pool). Yet it is acceptable to state that the meiofauna at Factory Cove was attracted to better food conditions in the surface layers.

Structuring by food availability was not only mirrored by the difference in abundance between upper and deeper layers, but also enduced a selectivity among the genera and trophic guilds of the nematode assemblages between the two sampling sets. COVE 1 was the richest sediment in terms of food content-probably associated by a recent settlement of an intense algal bloom. The epistratum feeding *Aponema* dominated these sediments. Seemingly *Aponema* acted as an opportunistic genus taking advantage of the high availability of freshly deposited or *in situ* benthic diatoms. The densities dropped significantly when fresh food was not in excess anymore (*e.g.* in COVE 2). *Daptonema*, on the other hand, took profit of all kinds of microbial food (fresh and older), sufficient in the surface layers of both sample sets. With its non-selective behaviour this genus seemed not to be restricted to recent deposited food, hence keeping the densities stable between COVE 1 and COVE 2.
Such selective utilization of sources of organic matter (*e.g.* fresh phytodetritus and benthic primary production versus older detritus) was also recognized by Rudnick (1989) who found a selective preference of meiobenthos for certain depth horizons according to the type of available food.

4.5. Conclusion.

The meiofauna in the sediments of Factory Cove is characterized by a high standing stock and low diversity, and is sharply distributed along a distinct chemical driven vertical zonation of food. These structural features agree with characteristics of fine sediment communities in advanced stages of eutrophication. This must have originated from the typical high input of organic sources during the Antarctic summer season.

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CHAPTER 5.

The seasonal varying biotope of Signy Island : implications for meiofaunal structure

5.1. Introduction.

Studies of temporal fluctuations in shallow water meiobenthos in temperate (North Sea: Juario 1975; Boucher 1980,1983; Warwick & Buchanan 1971; Mediterranean: de Bovée & Soyer 1974; Guidi-Guilvard & Buscail 1995; Rhode Island: Rudnick *et al.* 1985) and subpolar (Alaska: Fleeger *et al.* 1989; Kerguelen Islands: de Bovée *et al.* 1983; Bouvy 1988; Bouvy & Soyer 1989) regions found that abundance and biomass vary seasonally over the year. Environmental factors that were proposed to structure the meiofaunal patterns included temperature (Juario 1975; Bouvy & Soyer 1989), physico-chemical regime (Guidi-Guilvard & Buscail 1995) and trophic dynamics of the environment (Rudnick *et al.* 1985). However, the regulation of abundance within a given site was sometimes poorly understood, despite the predictable trends in the environment (Fleeger *et al.* 1989).

Nematodes, a significant (often main) component of the meiofauna, prey on microalgae and bacteria, bioturbate the sediment (with burrowing activities), enhance recycling of bacterial material, and return accumulated nutrients to the ecosystem (Heip *et al.* 1985). Despite their importance, information on annual variation in abundance and composition within this taxon remained scarce, and is, to our knowledge, limited to temperate regions (Juario 1975; Boucher 1980, 1983; Vincx 1989).

The current question arises how does the interstitial fauna behave throughout the Antarctic seasons, and how do populations react to extreme ecological situations and events typical for the Antarctic ecosystem. Among these events, the low temperature and the marked seasonal organic input of the blooms into the sediment are the most probable ecological regulators for the structure and functioning of the entire Antarctic food web (Clarke 1988).

In agreement with the fragmentary knowledge on the ecology of Antarctic meiofauna, investigations on the seasonal variations of number, biomass and composition are lacking. Previous work on the influence of biogeochemical benthic features on meiofaunal structure in the nearshore marine ecosystem at Signy Island demonstrated that very high standing stock, low diversity and shallow depth penetration in the sediment column may have occurred because of the high nutritive and reductive character of the benthic environment (Vanhove *et al.* in press). The temporal dimension could, however, not realistically be interpreted in the sampling design (*e.g.* as the study was carried out during the austral summer only).

This first year-round study on the ecology of meiofauna in the Antarctics, covering two austral winters and the intervening summer from April 1991 to November 1992 is designed to answer the following two questions: (1) what is the seasonal pattern of meiofauna community size and structure, and (2) how strong is the influence of the temporal changing environment on the structural characteristics of the meiofauna taxa, and on the biomass, generic, trophic and age composition of the nematodes.

A priori we expect that the metazoan meiofauna will experience a fundamental temporal change in the trace of environmental variability. Yet this study will confirm the assertion of Clarke (1988) that all levels of the Southern Ocean food web are influenced profoundly by the seasonality of the primary production.

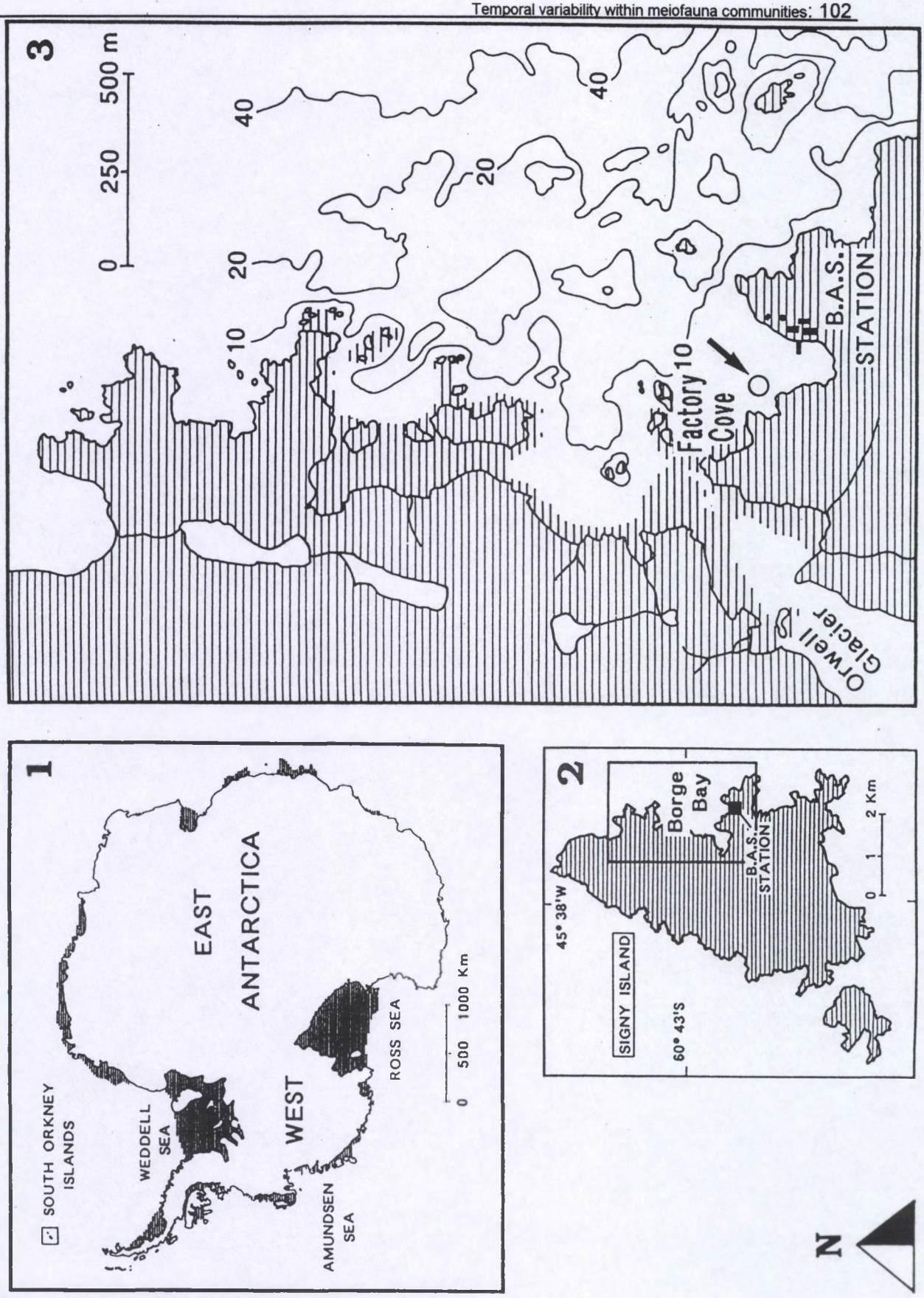

Figure 5.1. *: Map situating the South Orkney Islands (1), Signy Island (2) and the sampling site at Outer Mooring Point, Factory Cove (open circle in (3)).*

5.2. Material and methods.

5.2.1. Area and period of investigation.

As part of an integrated British research programme, the metazoan meiofauna and the surrounding sediments were studied at Signy Island, South Orkney Islands, Antarctica (60°43' S, 45°-38' W, Figure 5.1.). The pelagic off this site has been extensively monitored, revealing a long-term dataset of sea water temperature, ice cover, macronutrients and chlorophyll standing crop (Whitaker 1982; Clarke *et al.* 1988; Leakey *et al.* 1994; Clarke & Leaky 1996).

A fixed station at 10 m depth near Outer Mooring in Factory Cove was chosen at which from April 27, 1991 till November 10, 1992 (Table 5.1.), duplicate cores (internal diameter 3.6 cm, total length 10 cm) were taken for meiofauna enumerations and identifications, and one core (internal diameter 3.6 cm, total length 10 cm) for the analysis of sediment texture and particulate organic matter (carbon and nitrogen). A fourth core (internal diameter 6.0 cm) for chloropigment (Chl-a, Chl-c, Fucoxanthin, β-carotene) or dissolved organic carbon (DOC) content was taken during the first 11 months of the time series. Sampling was done randomly with the cores within close proximity to each other. In open-water periods (summer) samples were taken by SCUBA diving from an inflatable boat at the buoy marked site; in winter this happened through a hole cut in the fast-ice. Although regular fortnightly samples have been taken, coverage was not even, reflecting the difficulty of sampling when, for example, unconsolidated pack-ice prevented both boating and snow-mobile travelling.

To simplify discussions the year is divided into four 'artificial' Antarctic seasons. Early Summer-October, November and December-is the time coinciding with melting processes of sea-ice, usually introducing the spring blooms. Late Summer-January, February, March- a time of long days of sunlight, relatively storm free, and a marine environment relatively clear of ice. Early Winter-April, May, June- could be assigned fall as well, a transition period to winter with an accompanying decrease of period of sunlight, inclement weather, and inceasing sea-ice concentrations. Late Winter-July, August, September- a season essentially of darkness, solid ice-cover, and extremely low productivity.

The temperature and ice conditions in Factory Cove during the period of this study were outlined in detail by Clarke & Leaky (1996). In short temperature varied between -2.0 °C (Jul '92) and +0.2 °C (Feb '92). Although the annual range was very small, the integrated thermal environment (degree-days above -1.5°C) influenced, together with many other factors sea-ice formation and break-up. The sea-ice was, apart from being highly seasonal, very variable from year-to-year as well. In 1991 fast-ice started to form in May and grew in thickness and strength to a maximum of 100 cm in late October, until sea temperatures started to rise. During early summer, when ice had lost in dimensions and strength, a strong storm resulted in all the local fast-ice blowing out to sea in the second half of December, rather than melting *in situ*. In 1992 a somewhat similar scenario was observed, though sea-ice was less thick (*e.g.* max. 80 cm) and duration was much shorter (*e.g.* from 23rd May till October). The periods of sea-ice cover were indicated on the graphs of annual variability (see results).

5.2.2. Meiofauna and nematodes.

Meiofauna was extracted from the formalin (buffered; 70°C; 4 % final concentration) preserved, bulk sediment samples by decantation, centrifugation, passing through a 1 mm sieve and retaining on a 38µm screen, according to Higgins & Thiel (1988). The metazoan meiofauna was counted after staining with Rose Bengal. In the case of very high meiofauna abundances (observed by the high numbers of specimens from the entire sample in a single quadrat of the count dish), subsampling was done by pipetting three aliquots of 25 ml from a homogenized 250 ml sediment/water sample (indicated in Table 5.4.). The entire samples were then manipulated for the biomass measurements and identifications of the nematodes. Approximately 200 randomly chosen specimens were picked out and mounted in glycerine slides (cf. Seinhorst 1959). The weights were determined from dimensions of length and width, using the adjusted method of Andrassy (Soetaert 1989):

dry weight = $(W^2*L*1.13*0.25)/1.9$

W: maximum body width
L: body length
1.9: empirical value
1.13: specific gravity
0.25: dry/wet weight ratio

Identifications were done based on the pictoral key to the nematode genera of Platt & Warwick (1988). The nematodes were classified into four feeding groups according to Wieser (1953), distinguishing selective (1A) and non-selective deposit feeders (1B), epistratum feeders (2A) and predator/omnivores (2B).

5.2.3. The benthic environment.

Samples for sediment texture were vertical sliced into 0-2, 2-5 and 5-10 cm horizons, ovendried for 10 h at 60°C before storage, and redried for 24 h at 60° C prior to analysis. A Coulter® LS Particle Size Analyzer was used to characterize the granulometry of the sand fraction (61.7-900 µm), and pellite (silt + clay) content (0.4-62 µm), sorting coefficient and skewness of the total sediment (0.4-900 µm).

A subsample of each sediment slice was used for the determination of total organic matter (elemental total carbon and nitrogen, TC and TN) on a Carlo Erba NA-1500 analyzer. To determine the amount of inorganic carbonates, the same samples were analyzed with the Carlo Erba NA-1500 analyzer, but after acidification with HCl. The difference between the two measurements was the amount of inorganic carbon. Mineral carbon represented a negligible fraction of the total carbon and ammonium nitrogen was the dominant form of mineral nitrogen (Vanhove *et al . in press*).

As a measure of microalgal biomass the concentrations of plant pigments (*e.g.* chlorophyll a and c, β-carotenes and fucoxanthin) were determined using the upper 0.5 cm from vertical sliced sediment cores (frozen at -80° C, stored at -20° C). Measurements were essayed on thawed aliquots filtered onto Whatman glass-fiber filters and extracted in 90% acetone on a Gilson HPLC-chain (fluorometrical and UV-visible detection) according to a slightly modified method of Mantoura & Llewellyn (1983). Dissolved organic carbon was measured on pore waters extracted under N_2 atmosphere of entire thawed sediment cores and measured on a SKALAR (SK-12) DOC/TOC-analyzer.

5.2.4. Data analysis.

The matrices of taxon densities (amphipods, bivalves, harpacticoid copepods, nematodes, ostracods and turbellarians), total density, total biomass, median individual biomass and percentages of the dominant genera were each analyzed by means of a 1-way ANOVA to determine whether there were significant differences between the samples (time scale of about two weeks), months and seasons, and within the seasons (early winter 1991, late winter 1991, early summer 1991, late summer 1992, early winter 1992, late winter 1992, early summer 1992). Between sample variance (mean of two replicates) of the population densities and biomass was significant higher than within sample variance (between replica's) at the 5% significance level (Kruskal Wallis test, Siegel 1956).

Hill's diversity indices were calculated from the nematode genus composition (Hill 1973). This set of indices incorporates the Shannon-Wiener diversity index (*e.g.* N_1 is the inversed natural logarithm of this index) and Simpson's dominance index (*e.g.* N_2 is the reciprocal of this index). N_0 is equal to the number of genera in the sample and N_{+inf} is the reciprocal of the proportional abundance of the commonest genus. The indices differ in their tendency to include or to ignore the relatively rarer genera (Heip *et al.* 1988).

Environmental impact was tested with a Spearman Rank correlation analysis (Sokal & Rohlf 1981) on meiofaunal variables (density of amphipods, bivalves, harpacticoid copepods, nematodes, ostracods, turbellarians, total meiofauna), and nematode parameters (median individual and total biomass, genus, trophic and age composition, diversity numbers), sediment features (total organic carbon and nitrogen, sediment texture, chloropigments, dissolved organic carbon), sediment trap data (chlorophyll, phaeopigments, dry mass, ash and AFDM, carbon and nitrogen), and water column variables (temperature, ice-cover, micro and nano Chl-a and respective phaeopigments). The latter two sets of variables were disposable from British Antarctic Survey (*pers. comm.*, A. Clarke).

For all statistical analyses, the .05 significance level was used as the rejection value by convention.

5.3. Results.

For the classification of the genera see appendix 1
For raw data see:
Appendix 6: Temporal variability within meiofauna communities.
Appendix 8: Nematode size measurements, Signy.

5.3.1. Environment.

The sediments consisted of moderately sorted, very fine sands (62-125 µm), with little shifting of particle sizes (median grain size range: 73-95 µm; standard deviation: 0.71-1.00; both of total sediment) and a mean organic loading of 0.5 %C and 0.03 %N. Dissolved organic carbon (DOC) varied between 340 and 1040 mg l^{-1} (Table 5.1.).

***Table 5.1.**: Dissolved organic carbon (mg l^{-1}) and chloropigment concentrations (µg g^{-1}) in the sediments of Factory Cove : mean of 2 replicates ± SD.*

Sampling date	DOC	Chl-a	Fucoxanthins	Chl-c	β-carotenes
27/4/91	1037 ± 571.0				
14/5/91		26 ± 2.6	13 ± 2.6	7 ± 1.1	9 ± 1.7
28/5/91	528 ± 118.2				
11/6/91		31 ± 13.3	14 ± 5.1	10 ± 8.3	10 ± 3.4
26/6/91	630 ± 365.4				
12/7/91		18 ± 4.5	7 ± 1.4	4 ± 4.2	5 ± 1.0
28/7/91	938 ± 1048.0				
10/8/91		28 ± 2.6	13 ± 1.2	7 ± 0.7	9 ± 0.8
23/8/91	639 ± 248.6				
5/9/91		3 ± 0.3	2 ± 0.0	1 ± 0.1	1 ± 0.0
20/9/91	342 ± 182.7				
4/10/91		14 ± 14.1	6 ± 5.8	4 ± 3.5	4 ± 3.9
17/10/91	851 ± 768.5				
14/11/91	594 ± 56.4				
28/11/91		27 ± 6.1	12 ± 2.5	8 ± 2.0	8 ± 1.7
13/12/91	919 ± 591.2				
27/12/91		23 ± 20.4	13 ± 6.3	8 ± 4.2	9 ± 4.2
10/1/91	598 ± 663.7				
22/1/91		58 ± 16.2	28 ± 7.8	16 ± 3.4	19 ± 5.2
9/2/91	786 ± 693.3				
26/2/91		49 ± 33.5	26 ± 11.6	13 ± 6.5	18 ± 7.8

Seasonality in the organic carbon and nitrogen readings from upper (0-2 cm), middle (2-5 cm) and deeper (5-10 cm) sediment horizons showed-although not very clear, and especially in the upper layers- low carbon values during the ice-covered period (0.3-0.5 %), and apart from the late winter of 1992, peaks (0.9-1.1 %) were closely associated with the disappearance of the fast-ice (Figure 5.2.). Chloropigment variation (Table 5.1.) synchronized organic matter fluxes: being fairly stable from May till August (austral winter values of about 30 µg Chl-a g^{-1} sediment), the concentrations suddenly decreased with an order of magnitude at the middle of the ice-covered period (Sep 1991), and then gradually increased again to a maximum of 60 µg Chl-a in summer (Jan 1992). Albeit DOC concentrations were very variable during the entire monitored period, a very low value in Sep 1991 (342 mg l^{-1}) paralleled late winter minima of the other trophic sources (Table 5.1.).

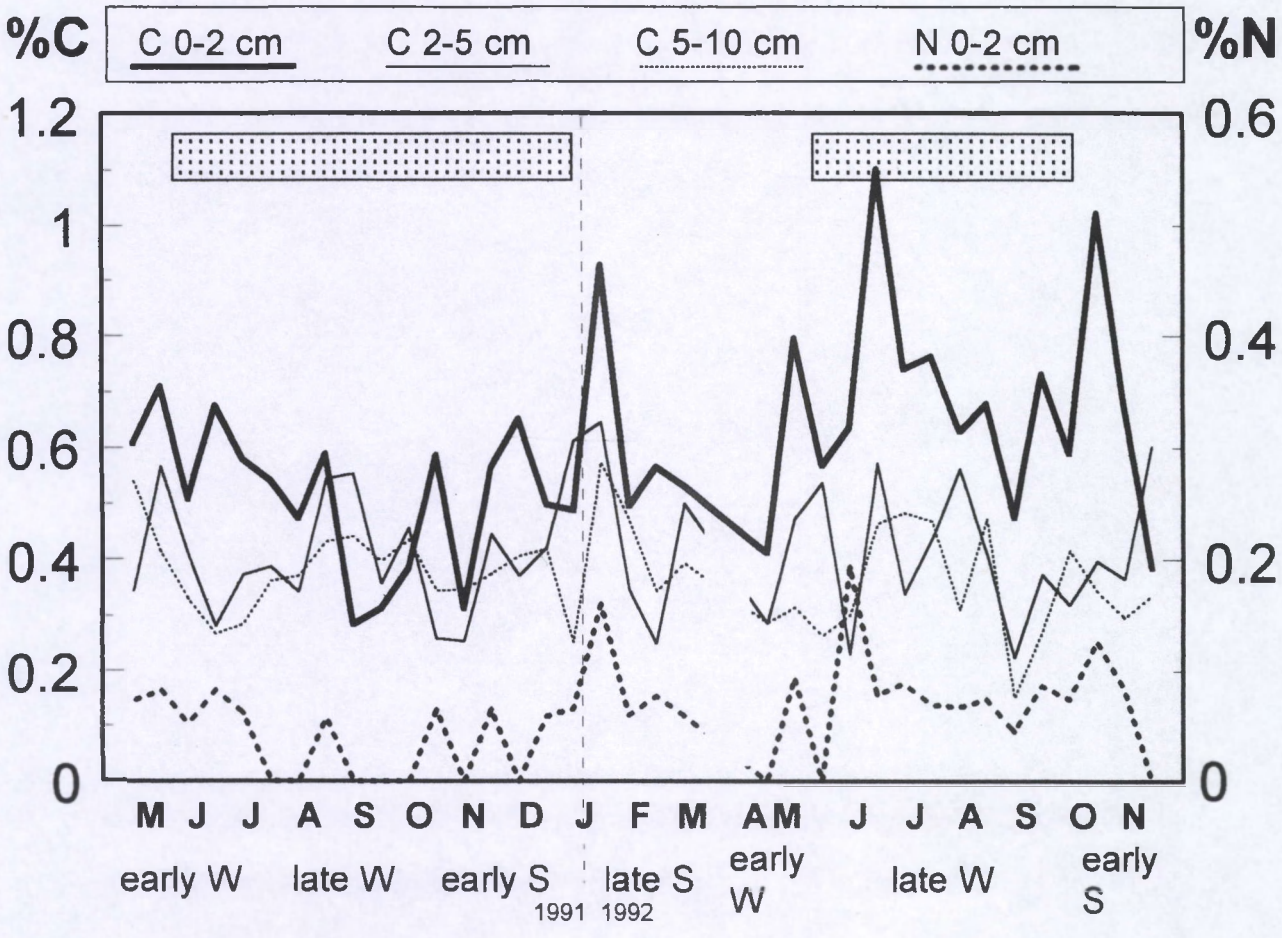

Figure 5.2. *: Variation in organic carbon (mass %) in the 0-2 (bold line), 2-5 (asterisk) and 5-10 (open circle) cm core sections and organic nitrogen (mass %) in the 0-2 cm horizon; S, Summer; W, Winter; the periods of ice cover are represented by the two rectangles*

5.3.2. Meiofaunal composition and nematode biomass.

Nematodes (on average 82%), followed by harpacticoid copepods, ostracods and turbellarians were most abundant among a low total of 10 higher taxa (Table 5.2.). Others were bivalves and amphipods, occurring in low proportions, and a remainder of polychaetes, gastrotrichs and halacarids, with only a few specimens per 10 cm^2.

Table 5.2.: Meiofaunal taxon number, relative proportion of nematodes, harpacticoids, ostracods and turbellarians during the sampling period.The values are averaged over two replicates. The asterisks indicate where a subsampling was performed.

		Taxon number	% Nem	% Harp	% Ostr	% Turb
27/4/91 *		7.0	84	11	5	0.3
14/5/91 *		6.5	92	4	4	0.1
28/5/91 *	early Winter	7.0	93	5	2	0.3
11/6/91 *		6.0	90	5	4	0.0
26/6/91 *		7.5	90	6	3	0.2
12/7/91 *		6.0	80	11	8	0.0
28/7/91 *		7.0	84	11	4	0.0
10/8/91 *		4.0	85	12	4	0.0
23/8/91 *	late Winter	4.5	81	11	7	0.0
5/9/91		7.0	58	38	4	0.0
20/9/91 *		7.0	85	9	4	0.3
4/10/91 *		7.0	82	7	10	0.2
17/10/91 *		6.5	87	8	4	0.1
14/11/91 *		7.0	89	7	4	0.2
28/11/91 *	early Summer	6.5	75	17	7	0.5
13/12/91		6.0	86	8	6	0.0
27/12/91 *		6.5	73	22	4	0.5
10/1/92 *		7.5	77	17	4	0.5
22/1/92 *		9.5	85	10	4	0.2
9/2/92	late Summer	8.5	62	31	6	0.3
26/2/92 *		8.0	78	18	4	0.0
16/4/92		5.0	68	29	3	0.1
4/5/92 *		5.0	90	4	7	0.0
15/5/92 *	early Winter	6.0	87	8	4	0.1
29/5/92 *		5.5	65	18	16	0.0
13/6/92 *		5.0	83	11	6	0.0
1/7/92 *		4.0	84	12	4	0.0
16/7/92 *		4.0	83	5	12	0.0
28/7/92 *		5.0	90	5	5	0.0
15/8/92	late Winter	4.5	91	3	6	0.0
27/8/92 *		5.0	73	10	17	0.0
11/9/92		6.5	86	6	7	0.1
28/9/92 *		4.5	67	11	22	0.0
7/10/92 *		4.5	96	1	3	0.0
27/10/92 *	early Summer	5.5	76	14	9	0.0
10/11/92 *		5.5	78	12	10	0.0

The total meiofaunal density fluctuated between 0.7 and 18.8 10^6 ind. m^{-2} (average 6.2 10^6) and total biomass between 0.2 and 13.3 g dwt m^{-2} (average 1.4 g m^{-2}; 0.6 gC m^{-2}) (Figure 5.3A & B). The median coefficient of variation for total density among the replicates was only 9%. In contrast to total biomass ($p > .05$), total density was significantly different between the samples (≈ weeks) and months (both $p < .001$). This was mainly due to harpacticoid copepods (adults + nauplii) and nematodes.

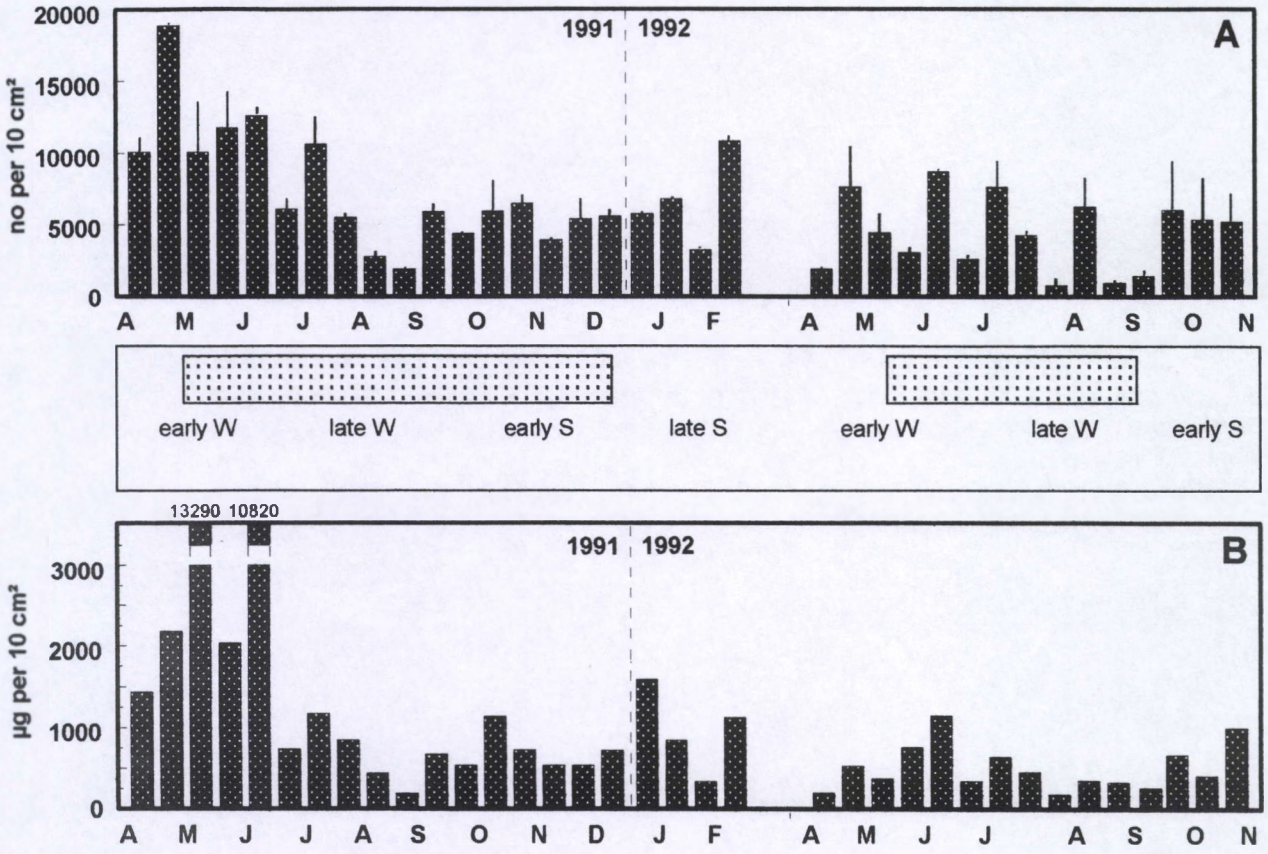

Figure 5.3. *: A : Total density (no 10 cm^{-2} ± SD, n=2) and total biomass (µg 10 cm^{-2}) with indication of fast ice (rectangles in center); S, Summer; W, Winter.*

Seasonality. Early winter (May-Jun) recordings of total density and biomass in 1991 were very high and distinct from other seasons (respectively, $p < .05$ and $< .001$). They declined sharply to a minimum in the middle of the ice-covered period ($p < .05$)(Figure 5.3A & B). A new though less obvious increase was enregistered at the start of the summer (early summer records of density and biomass were not significant different from the other seasons), followed by the establishment of a 'dynamically fluctuating equilibrium' slightly above 5000 individuals and 500 µg dwt per 10 cm². By the complete disappearance of fast-ice (Dec 1991) strongly oscillating values characterized the meiofauna communities in Jan and Feb.

During the second year total density did not obscure a clear temporal pattern ($p > .05$). Seasonality in total biomass was less pronounced than in the previous year, though again higher values in early winter, followed by a decline in late winter, and a rise at the start of the summer were visible ($p < .01$).

As a consequence of their high relative contribution to total numbers, nematodes strongly followed the pattern of total density (Figure 5.4A), though parallel trends between the two years were stronger. The harpacticoid copepod pattern (juveniles and adults combined, Figure 5.4B) was sinusoid. Maxima of adult copepods were situated on Apr 27 of 1991 and on Feb 26, Jun 13 of 1992. Nauplii and copepodites were present throughout the year, but occurred in highest proportions during the summer season (*e.g.* Dec 27 until Feb 26 1991/92) (separate graphs not depicted). The ostracods exhibited no obvious temporal patterns at all, mainly as to the high variability between the replicates (Figure 5.4C) (*e.g.* the coefficient of variation ranged between 2 and 106%, with an average of 44%). Turbellarians, again, showed a sinusoid distribution with a minimum in mid-winter and highest values in ice-free periods (Figure 5.4D).

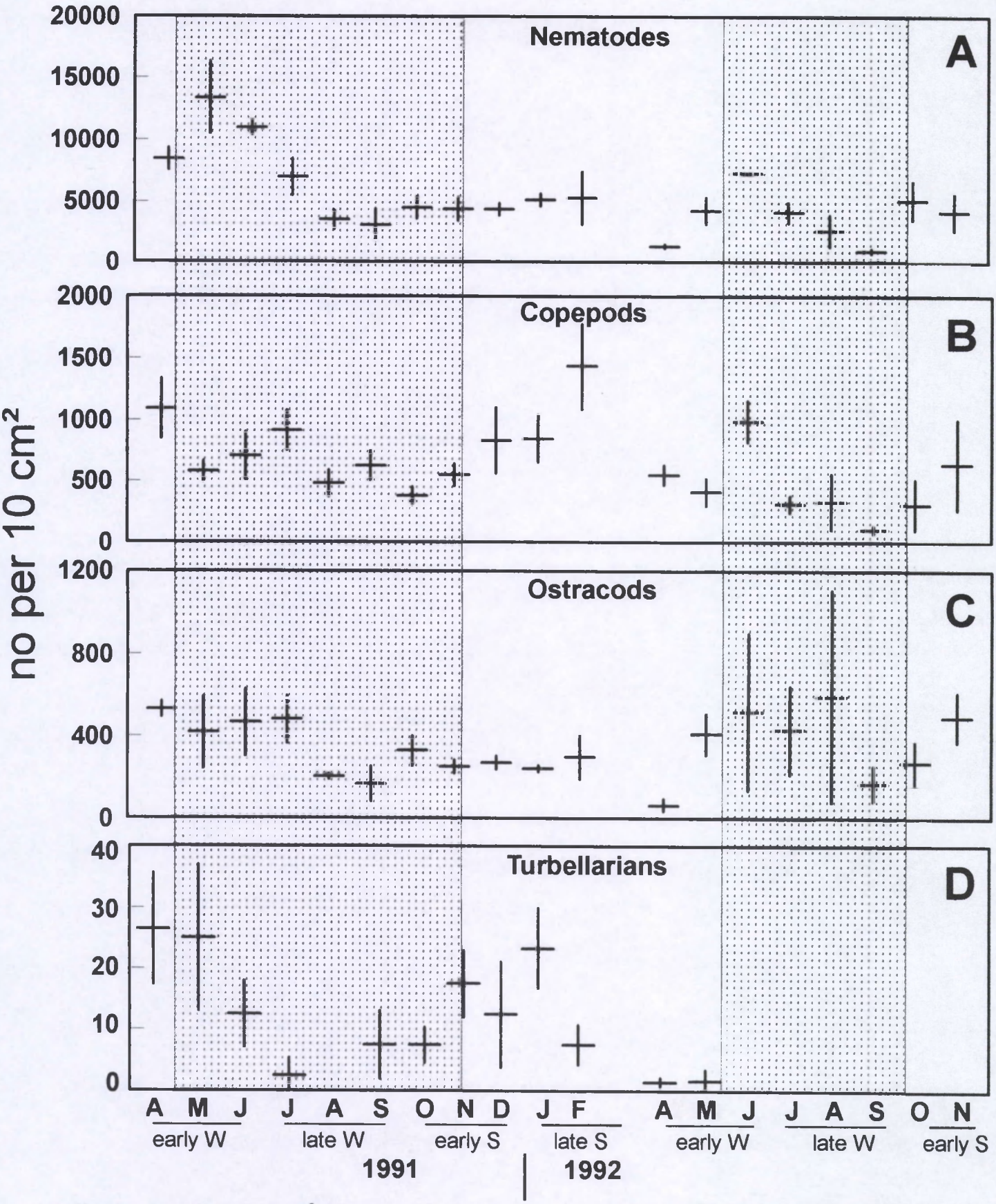

Figure 5.4. *: Abundance (no 10 cm^{-2} ± SD, n= the pooled number of replicates per month) of the 4 major taxa (nematodes, harpacticoid copepods, ostracds, turbellarians); scale of ordinate varies with taxon; S, Summer; W, Winter; the shaded areas represent the period of ice cover.*

***Table 5.3.**: Summary of the probability levels of the 1-way ANOVA on differences in meiofauna within the Antarctic seasons : total density, taxon densities, individual nematode biomass, total nematode biomass.*

	1991			1992			
	Early winter N=5	Late winter N= 6	Early summer N=6	Late summer N=4	Early winter N=5	Late winter N=7	Early summer N=3
Meiofauna							
Total density	0.03 *	0.001 * * *	0.270	0.000 * * *	0.018 *	0.001 * * *	0.860
harpacticoids				* *	*		
nauplii		* *				* * *	
nematodes	*	* *		* * *	* *	* * *	
ostracods		* * *					
turbellarians		*					
Nematodes							
Individual biomass	0.013 * *	0.813	0.520	0.260	0.010 * *	0.050 *	0.440
Total biomass	0.002 * *	0.007 * *	0.200	0.002 * *	0.020 *	0.004 * *	0.590

Variability in density and biomass was generally high in winter ($p < .05$, Table 5.3.), and highest in late summer ($p < .000$ and .002 for total density and biomass respectively), indicating that temporal variability occurred at a small time-interval of a few weeks during these seasons. Only in the early summer of both years these differences were not significant ($p > .05$).

The individual nematode biomass (mean and median; Figure 5.5.) varied between 0.1 and 1.4 µg dwt. Significant differences were found between the samples (≈ on a scale of weeks) (ANOVA, $p < .05$), but changes were not significant anymore between the months ($p > .05$), and less pronounced between the seasons ($p < .05$). This was mainly because of distinct values in early winter of both years (May-June) and late summer (Jan) of the second year, where episodic large sizes prevailed ($p < .05$, Table 5.3.).

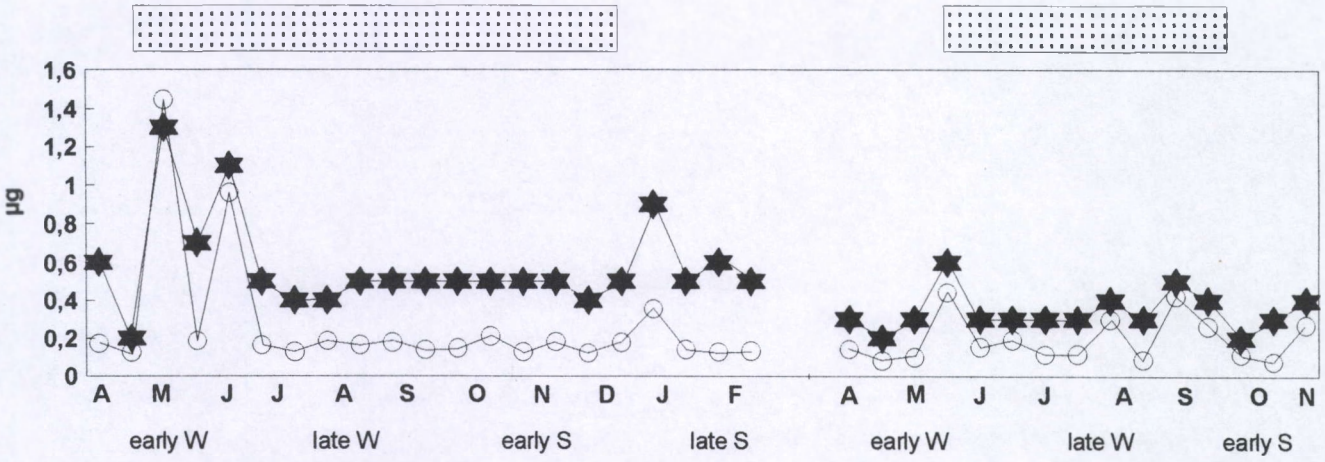

***Figure 5.5.** : Mean (asterisk) and median (circles) individual nematode biomass (µg dwt ind^{-1}) during the course of the study. Each point represents the average of about 400 measurements (pooled replicate data); S, Summer; W, Winter; the periods of ice cover are added.*

Relation with the environment. Correlation analyses (Table 5.4.) revealed that meiofaunal variables were not related to the detrital sources in the sediment and only weakly to median grain size (*e.g.* only turbellarians and taxon numbers). Scattered positive relations were observed with food in sediment traps (*e.g.* bivalves, turbellarians, harpacticoid copepods and total density), and more consistent positive relationships were recognized with the temperature of the seawater, and pigment concentrations in the water column (*e.g.* harpacticoid copepods, ostracods, turbellarians, total density and total biomass were mainly correlated with nano chl-a).

Table 5.4. *: Probability levels of the Spearman rank correlation between meiofauna and respectively sediment (Chl-a, fucoxanthin, Chl-c, β-carotene, organic carbon and nitrogen, median particle size, skewness, pellite), sediment trap (chlorophyll, phaeopigments, dry mass, ash free dry mass, carbon and nitrogen) and water column (temperature, micro Chl-a, micro phaeopigments, nano Chl-a and nano phaeopigments); N=10-20; only the environmental variables with significant p-levels were retained; sediment trap and water column data were obtained from Clarke (BAS, Cambridge).*

	Sediment	**Sediment trap**				**Water column**			
	med	Chl	Phaeo	dwt	ash	t°	micro Chl-a	micro phaeo	nano Chl-a
Amphipods									
Bivalves				+	+				
Harpacticoids : total				+	+	+			+
Ostracods						+			+
Turbellarians	- -	+	+			+ +	+ + +		+ + +
Taxa	-								
Total density (cf nematodes)				+	+ +	+ +		+	+ +
Total biomass nematodes						+			+ +
$p \leq .05$	*	$.05 < p \leq .01$			**	$.01 < p \leq .001$			***

5.3.3. Nematodes.

A total of 28 genera were recognized on 14 581 nematodes (on average 197 per replicate) collected fortnightly over 18 months during 1991/1992. A list of these genera ranked in descending order of dominance is given in Table 5.5. Only six genera -*Daptonema, Aponema, Neochromadora, Sabatieria, Microlaimus* and *Chromadorita* - proved to be highly abundant (higher than 2 %), together comprising 97 % of the total nematode population. The dominance structure prevailed during the entire time transect (Figure 5.6.).

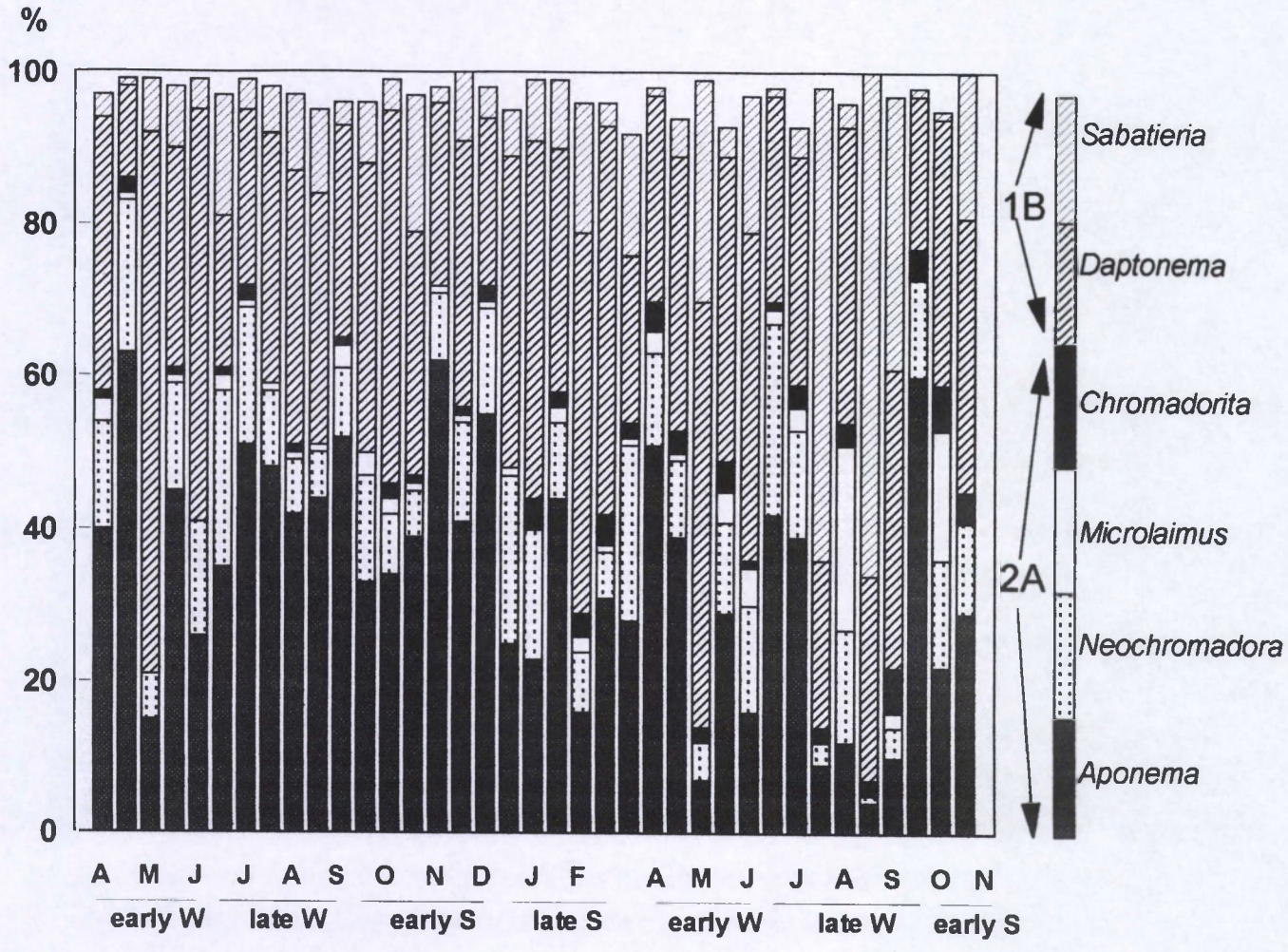

Figure 5.6. *: Comparison of the relative composition (mean % of two cores) of the six predominant nematode genera (Aponema, Daptonema, Neochromadora, Microlaimus, Sabatieria, Chromadorita) in the sediments of Signy Island during the course of the temporal study; S, Summer; W, Winter.*

***Table 5.5.**: Ranking of the nematode genera retrieved in the sediments of Factory Cove during the sampling period.*

		%
Daptonema	**1B**	**34.96**
Aponema	**2A**	**34.12**
Neochromadora	**2A**	**12.05**
Sabatieria	**1B**	**11.55**
Microlaimus	**2A**	**2.49**
Chromadorita	**2A**	**2.08**
Sphaerolaimus	**2B**	**0.62**
Dichromadora	**2A**	**0.61**
Prochromadorella	**2A**	**0.50**
Promonhystera	**1B**	**0.44**
Eleutherolaimus	**1B**	**0.29**
Calomicrolaimus	**2A**	**0.05**
Desmodora	**2A**	**0.05**
Leptolaimus	**1A**	**0.04**
Desmoscolex	**1A**	**0.02**
Molgolaimus	**2A**	**0.02**
Camacolaimus	**2A**	**0.02**
Odontophora	**1B**	**0.02**
Southerniella	**1A**	**0.01**
Oxystomina	**1A**	**0.01**
Ascolaimus	**1B**	**0.01**
Marylynnia	**2A**	**0.01**
Terschellingia	**1A**	**0.01**
Epsilonematodae spec.	**1A**	**0.01**
Paramesonchium	**2A**	**0.01**
Gammanema	**2B**	**0.01**
Syringolaimus	**2B**	**0.01**
Paracanthonchus	**2A**	**0.00**
		100

Most of the genera looked monospecific, except for *Sabatieria* and *Microlaimus*. Identifications were, however, hampered because the systematic criteria for putting a name to the species were not completely fulfilled (*e.g.* length measurements and ratios like body length/diameter, body length/oesophagus length, body length/tail length were not conform with any of the described species in literature). Therefore, many species may be new to science. Tentative names were:

1. *Daptonema* spec.nov: a species with shared characteristics from *Daptonema*, *Gonionchus* and *Metadesmolaimus*
2. *Aponema torosus*
3. *Neochromadora* cf *poecilosoma* or *poecilosomoides*
4. *Sabatieria* aff. *breviseta*, pulchra-group (recognized characteristics were: conspicious precloacal supplements, cuticularized bar on cuncus of gubernaculum, ventro-sublateral pair of cervical setae, anterior group of more closely situated precloacal supplements)

All further discussions were restricted to the generic level of organization.

A trophic study revealed that 51 % of all nematodes were epistrate feeders (2A group) and 47 % non-selective deposit feeders (1B group). The remainder was almost entirely composed of omnivores (2B group), mainly due to *Sphaerolaimus*. Selective deposit feeders (group 1A) were only scantily represented by *Leptolaimus*, *Desmoscolex*, *Southerniella*, *Oxystomina*, *Terschellingia* and Epsilonematidae gen. (Table 5.5.).

Seasonality. The numerical abundance of the above cited predominant nematode genera expressed as a percentage of the total was highly variable during the course of the time study (Figure 5.6.). This was confirmed when recalculated to population densities as well (Figure 5.7.). No clear seasonal trend was discernible, as within short periods (≈ weeks) genus densities of *Aponema*, *Daptonema*, *Microlaimus* and *Chromadorita* augmented to episodic peaks irrespective of season (ANOVA, $p < .05$). Only *Sabatieria*, and to a lesser degree *Neochromadora*, deviated slightly from this heterogeneous trend by revealing a sinusoid density profile during the first year (ANOVA on differences between monthly absolute and relative numbers of these two genera, $p < .05$).

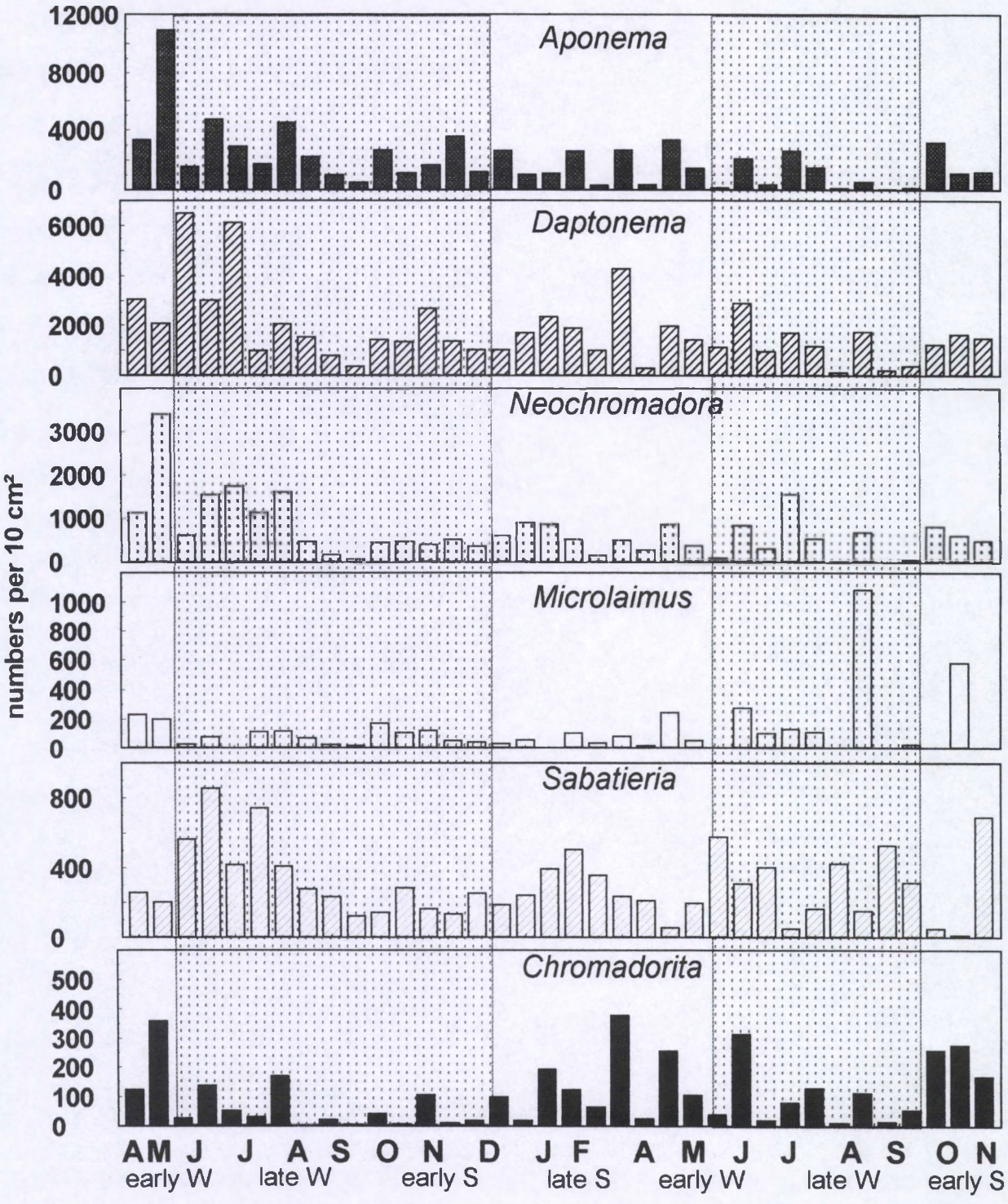

Figure 5.7.: *Temporal variability of the population numbers (mean no of two 10 cm² cores) of the six predominant genera (Aponema, Daptonema, Neochromadora, Microlaimus, Sabatieria, Chromadorita) in the sediments of Signy Island; S, Summer; W, Winter; the shaded area represents the period of sea-ice cover.*

The average densities per month of the four feeding types were given in figure 5.8. As the abundances of selective deposit feeders (1A) and predators/omnivores (2B) were anomalously low, their densities were poorly visible in the graphs. The other two trophic categories (epistrate and non-selective deposit feeders) switched in ranking over the annual cycles, with the epistrate feeders (2A) generally prevailing over the non-selective deposit feeders (1B). Both trophic types showed heterogeneous peaks without clear seasonal trend. Strikingly, at the start of the time series, the densities of epistrate feeders exceeded any other number over the entire sampling period.

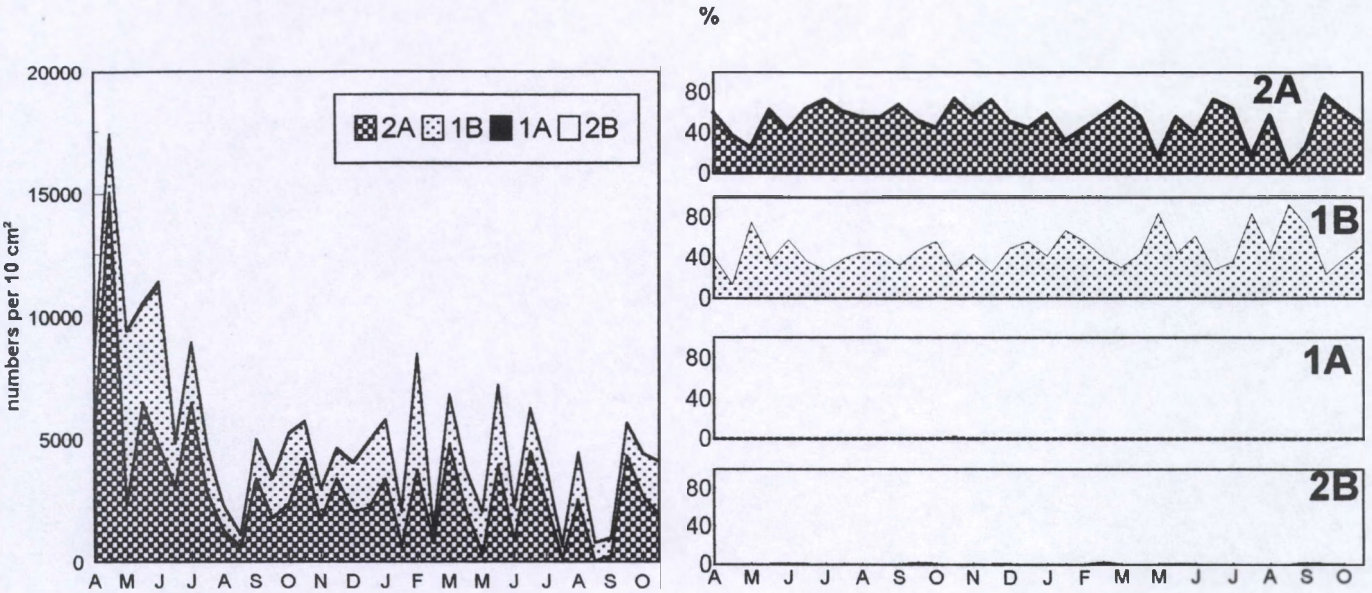

***Figure 5.8.** : Absolute (no 10 cm^{-2}) and relative (%) variation in trophic composition of the nematode communities during the time course of the study; 2A: epistrate feeder, 1B: non-selective deposit feeder, 1A: selective deposit feeder, 2B: predator/omnivore; data presented are the mean of two sediment cores.*

The nematode community was also examined according to life stage/sex 'cohorts' (*e.g.* juveniles, non-gravid and gravid females, males) (Figure 5.9.). The four categories were encountered throughout the year and juveniles dominated within the range of 14-59 % (mean : 42 %). Their numbers tended to be low in May/Jun 1991 and were followed by a minimum in total nematode density in Aug/Sep (Figure 5.4A). Maxima in gravid females (specimens with eggs in uterus) (*e.g.* during Aug 23 and Nov 14) were also followed by maxima in juveniles (*e.g.* during Sep 20 and Dec 13).

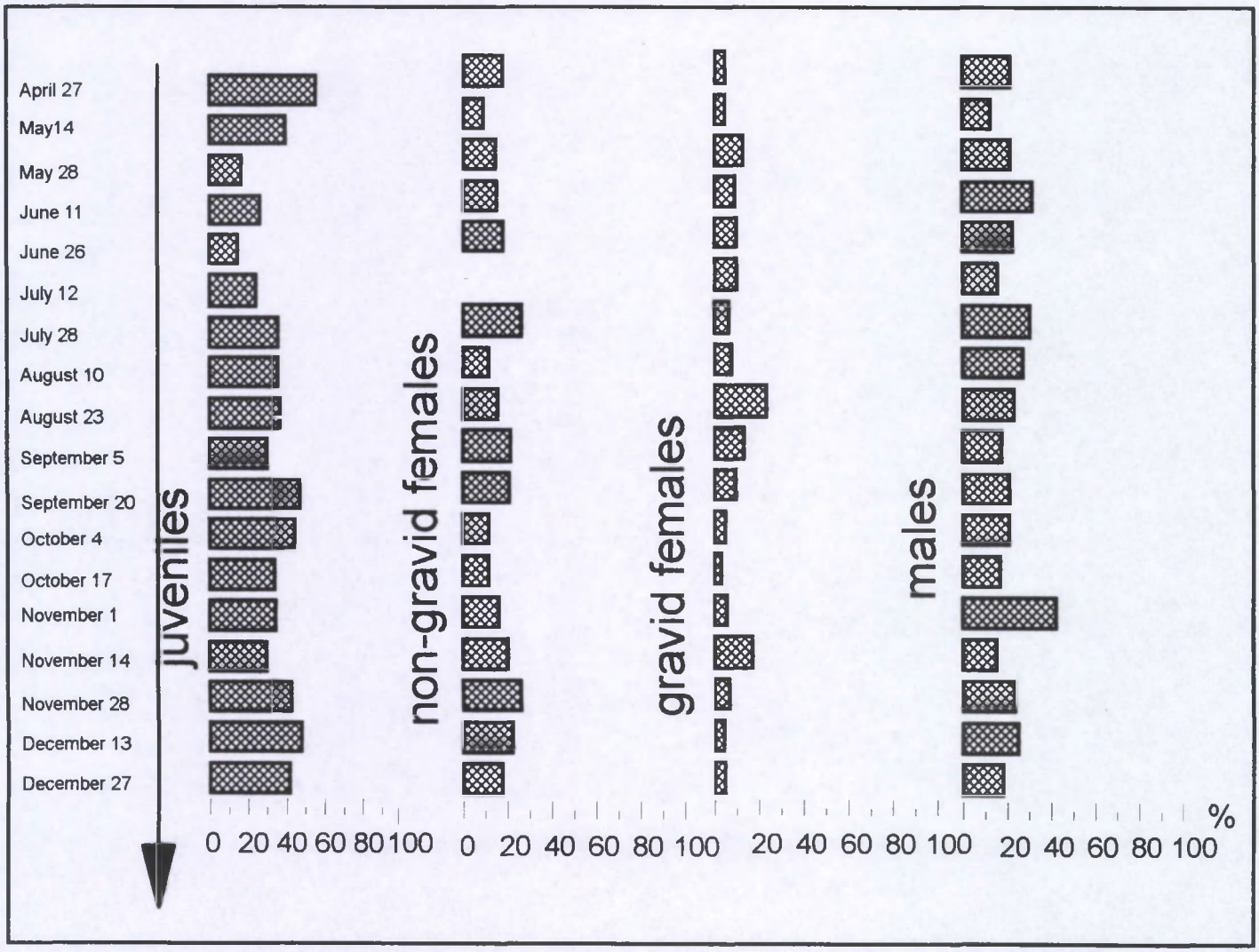

Figure 5.9. *: Relative frequency distribution (%) of four cohorts (juveniles, non-gravid females, gravid females, males) within the total nematode community during a nine month period in 1991. Data presented are the mean of two replicate cores.*

Downloading of the 'cohort' analysis to the six numerically predominant genera (Figure 5.10.) similarly showed rather unclear fortnightly population patterns with high heterogeneity on a small time scale. The only consistent observation was that the percentage juveniles were lower during winter (for *Aponema*: May, *Daptonema*: May/Jun, *Neochromadora*: May/Jun, *Sabatieria*: Jul, *Chromadorina* and *Microlaimus* difficult to see). In addition, *Neochromadora* appeared to have a more sinusoid seasonal cycle with a distinct recruitment period in early and late summer (Oct/Nov). Some similarity occurred with *Sabatieria*, though the relatively low presence of gravid females disabled the recognition of clear seasonal patterns in the life history.

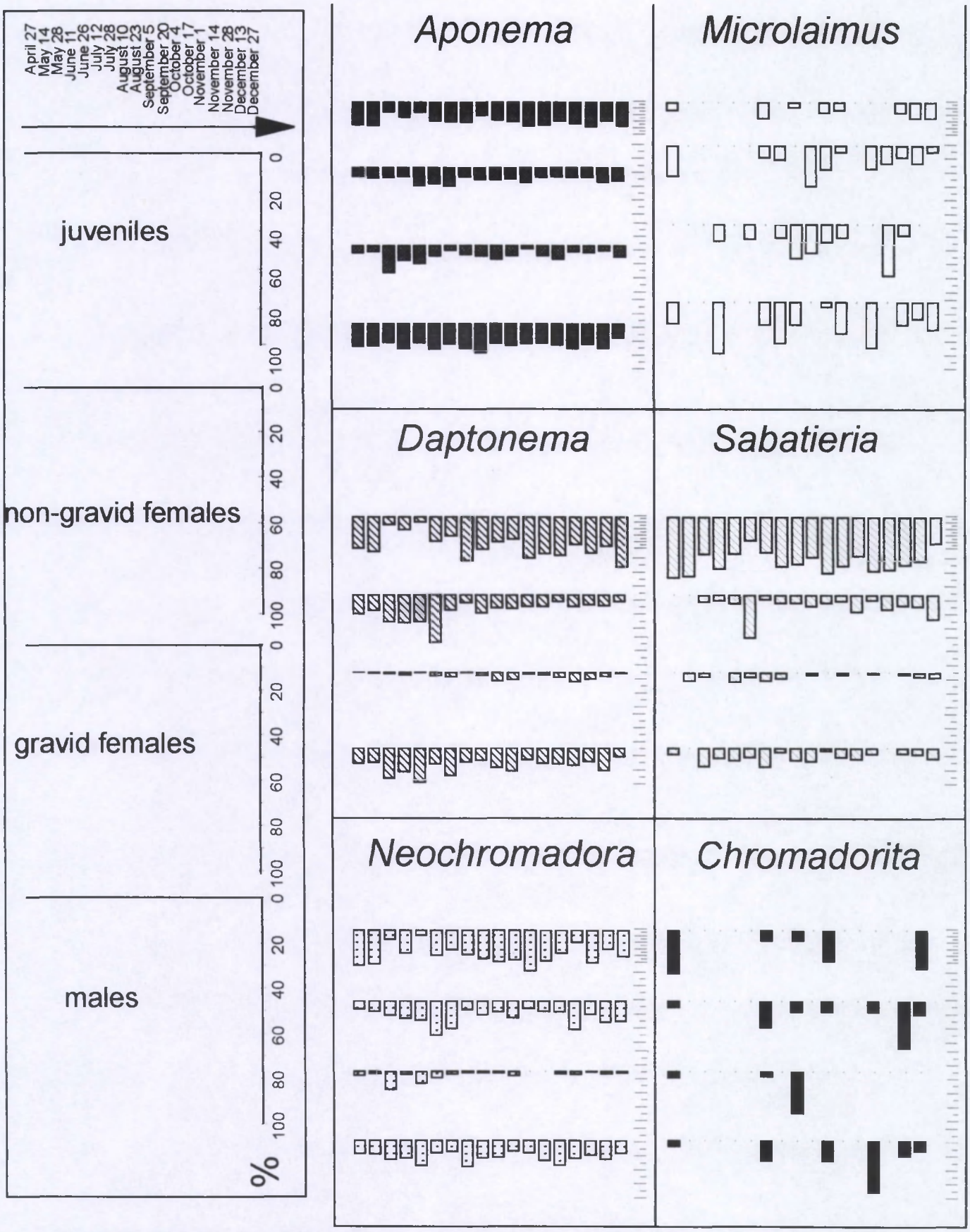

Figure 5.10. *: Relative frequency distribution (%) of four cohorts (juveniles, non-gravid females, gravid females, males) within the six predominant genera (Aponema, Daptonema, Neochromadora, Microlaimus, Sabatieria, Chromadorita) during a nine month period in 1991. Data presented are the mean of two replicate cores.*

Diversity, as determined by Hill's diversity numbers (Figure 5.11.), indicated for very fluctuating genus richness (N_0 between 9 and 14) towards rather stable dominance diversity (N_{inf} between 1 and 4) on a temporal scale. No seasonality was apparent.

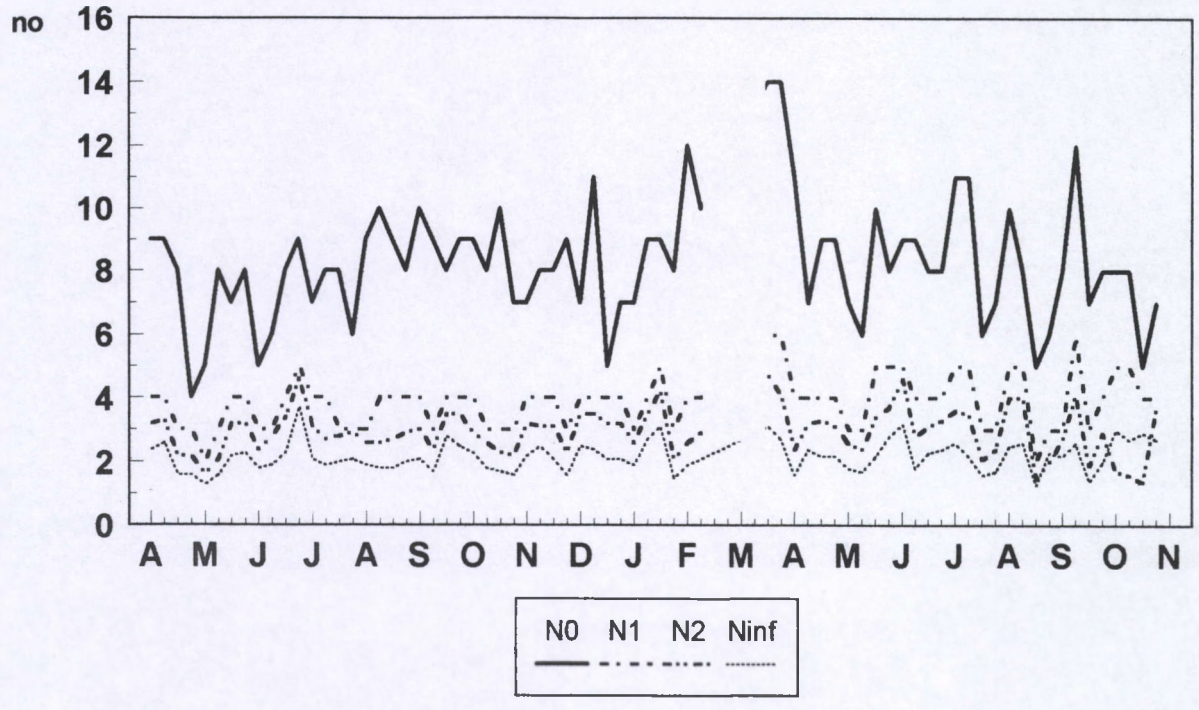

Figure 5.11: *Hill's diversity numbers of order 0, 1, 2 and ∞, on about 200 randomly nematodes per core replicate for all replicates of the time series 1991/1992. Values on the y-axis are numbers of genera.*

Relation with the environment. Probability levels of the Spearman rank correlation between nematode genera and the sedimentary environment (first set of environmental variables in Table 5.6) showed scattered observations (*e.g.* negative correlations between *Microlaimus* and pigments, positive correlations between *Neochromadora, Chromadorita* and particulate organic matter, and a positive association of *Microlaimus* with median grain size). Juvenile relationships with the benthic environment were completely blurred (p always > .05), whereas males of *Neochromadora* and *Microlaimus* corresponded positively with chl-a, and gravid females (indicated as fem+) of *Aponema* and *Daptonema* were negatively related with organic matter. Diversity numbers and trophic categories were related with organic matter.

When relating the same nematode variables with sediment trap and water column data striking highly significant correlations were obtained mainly between the epistrate feeding *Microlaimus, Chromadorita, Neochromadora* and organic matter caught in the sediment trap. These associations had a negative sign for the first and a positive sign for the other two genera. Also *Daptonema* was positively related with food particles in the sediment trap and water column, in contrast to the lack of any relation of this genus with benthic food.

Table 5.6. *: Probability levels of the Spearman Rank correlation between nematode variables and respectively sediment (median grain size, chl-a, chl-c, fucoxanthin, β-carotene, dissolved organic carbon, particulate organic carbon and nitrogen), sediment trap (phaeopigments, dry mass, ash free dry mass, carbon and nitrogen), and water column (micro chl-a, micro phaeopigments, nano phaeopigments); N=10-20; only the variables with significant p-levels were retained; sediment trap and water column data were obtained from Clarke (BAS, Cambridge).*

		Sediment									Sediment trap					Water column			
		med	Chl-a	Chl-c	Fuco	B-car	DOC	OrgC	OrgN	C:N	Phaeo	dwt	ash	C	N	microchla	nanochla	microphae	nanophae
Numbers																			
Daptonema												+	+				+		
Microlaimus			-	-	-	-													
Chromadorita								+			+	+ + +	+ + +	+	+			+	+
Percentages																			
Aponema					-	-													
Neochromadora								+	+										
Microlaimus		+	-	-	-	-						+							
Chromadorita																			
Percentages																			
Aponema	fem+						-		-	+			-						
Daptonema	fem+																		
Neochromadora	fem+											+ +	+ +	+					
	male		+ +																
Microlaimus	fem+																-	:	
	male		+																
Chromadorita	male									+									
Diversity																			
N_1							+												
N_2							+ +												
N_{inf}							+ + +												
Trophic composition																			
1A								-											
2A								+											
1B																	+		
2B							+ +					+	+						

5.4. Discussion.

5.4.1. Seasonality in the benthic environment.

In essence pelagic activity at Signy Island occurs through a summer bloom (Dec and Jan) of large diatoms and colonial forms, superimposed on a less intense but longer nanoflagellate bloom. At the heart of the winter nanoplankton chlorophyll concentrations often exceed the microplankton chlorophyll concentrations which are generally very low (0.05 mg m^{-3}) (Clarke *et al.* 1988; Clarke & Leaky 1996).

However, two unusual summer seasons characterized the current sampling period:

1) next to the normal diatom bloom in the summer season of 1990/91 (16 mg m^{-3}), a small supplement of microchlorophyll (2.1 mg m^{-3}) was added to the early winter water. Having a different species composition from the spring bloom, this mini-bloom peaked in the period preceding our sampling (in March 1991). Superimposed, there was a long-lived nanoplankton production prevailing from from early summer 1990 to early winter 1991;
2) the 1991/92 summer season was the only since 1972 that had two consecutive microchlorophyll blooms with peaks of 17.5 and 11.5 mg m^{-3} in, respectively, early summer (Nov/Dec) and autumn (Mar/Apr). Furthermore, two nanoplankton peaks (1.75 and 1 mg m^{-3}) before the appearance of sea-ice mirrored the two blooms in the microplankton size fraction (Clarke & Leaky 1996).

A spearman rank analysis between all available environmental variables of food (Table 5.7.) expressed correlations between the benthic pigments from our study, and sediment trap and water column variables from the study of Clarke & Leaky (1996). This held not for total organic matter (TC, TN), and correlations occurred mainly with the nanochlorophyll fraction (≈ flagellates). Peaks of benthic food followed also maximum settlement rates of chlorophyll and phaeophytin in the sediment traps (≈ diatoms) with, however, a delay of a few weeks (not depicted).

Table 5.7.: *Probability levels of the Spearman rank correlation between detrital sources in the sediment (Chl-a, fucoxanthin, Chl-c, B-carotene, organic carbon and nitrogen) and respectively sediment trap (chlorophyll, phaeopigments, dry mass, ash free dry mass, carbon and nitrogen) and water column (micro Chl-a, micro phaeopigments, nano Chl-a and nano phaeopigments); N=10; sediment trap and water column data were obtained from Clarke (BAS, Cambridge).*

	Sediment trap						Water column			
	Chl	Phaeo	dwt	AFDM	N	C	micro Chl-a	micro phaeo	nano Chl-a	nano phaeo
Chl-a		+	+							+ +
Fucoxanthins			+		+			+	+	+ + +
Chl-c	+	+ +	+						+	+ +
B-carotenes			+		+			+	+	+ + +
TOC										
TON										

p ≤ .05: + .05 < p ≤ .01: + + .01 < p ≤ .001: + + +

All together this indicates that production and deposition events described above can be tracked in the sediments, with some weeks of delay for diatom blooms, and no visible delay for flagellate blooms, the latter mainly due to its long production period (Clarke & Leaky 1996). This confirms the findings that pelagic rapid growing cells, including diatom resting spores and sea-ice algae, settle periodically from the water column without being grazed *in situ* (Gilbert 1991b, Nedwell *et al.* 1993), in contrast to the slowly, almost continuously, settling pelagic flagellates (Smetacek 1984).

By converting Chl-a data to carbon equivalents (C: Chl-a of 40:1, de Jonge 1980), the fraction of sediment organic carbon represented by algal material was calculated (Table 5.8). Low values in Sep (4%, Sep 5) were indicative for a low nutritional status of the environment during late winter, whereas in summer (Jan 22), when algal cells were actively dividing, nearly 50 % of the organic record in the sediments was induced by chlorophyll input.

***Table 5.8.**: Calculation of the percentage of the POC pool attributed to pigments in the sediments of Factory Cove; values of organic carbon were only from the upper two centimeters of the sediment core.*

	Chl-a mg C g^{-1}	TC mg C g^{-1}	Chl-a : TC %
14/5/91	1.04	7.092	14.7
11/6/91	1.24	6.757	18.4
12/7/91	0.72	5.404	13.3
10/8/91	1.12	5.898	19.0
5/9/91	0.12	3.126	3.8
4/10/91	0.56	5.869	9.5
28/11/91	1.08	6.513	16.6
27/12/91	0.92	4.882	18.8
22/1/92	2.32	4.965	46.7
26/2/92	1.96	5.31	36.9

Despite the high contribution of algae, still a great deal of the POC pool was not covered, and C:N ratio's based on weight values of TN and TC were high compared to similar ratios in the sediment traps (Table 5.9). The latter are indicative of phytoplankton derived organic matter (Tyson 1995), which in turn reflect some state of detrital decomposition in the sediment. Such processes occurr very rapidly by microbial oxidative respiration and sulphate reduction, tightly following the seasonal trace of depositional fluxes (Tanner & Herbert 1981; Nedwell *et al.* 1993). Measured by a bioassay, peak concentrations of available organic matter, occurred at roughly the same time as detrital transmission of primary production to the sediment surface, namely in Apr 1991, Dec 1991 and Mar 1992 (each 9% of total carbon, Walker 1993), and presumably in May 1992 and Oct/Nov 1992. In late winter the concentrations of available carbon were highly suppressed and remained stable at about 7% of total carbon (Walker 1993). This was the only period of the year occurring in a state of trophic resource limitation.

***Table 5.9.** : C:N ratios of the organic matter in respectively the sediment trap (T) and sediment (S); ND indicates that organic nitrogen measurements were below detection level; the data of the sediment trap were calculated from unpublished results (Clarke, British Antarctic Survey).*

		T	S			T	S
1991	**A**	8.7	20.8	**1992**	**J**	7.0	11.5
	M	8.2	3.4		**F**	6.4	13.3
	J	6.7	17.1		**M**	6.0	ND
	J	5.9	ND		**A**	6.5	ND
	A	8.2	12.7		**M**	5.8	18.5
	S	9.2	ND		**J**	7.5	27.3
	O	10.0	32.8		**J**		17.1
	N	7.0	43.6		**A**	8.2	13.3
	D	7.5	14.8		**S**	7.5	15.0
					O	7.0	17.3
					N	7.3	22.0

Another part of the organic matter recovered must have been deviated also from burial of inactive algal components and inefficient aerobic breakdown of primary food sources as a consequence of anaerobic conditions (Jφrgensen 1982). Especially in the deeper layers (from 2 cm on) detritus was refractory (Vanhove *et al. in press*). In these benthic horizons background levels of organic matter were high all year round and made detection of seasonality virtually impossible. Hence temporal signals were highly damped below the surface of the sediments and essentially constant throughout the year (cf Bouvy & Soyer 1989 in a mudflat in the Kerguelen Islands and Nedwell *et al.* 1993 at Signy Island).

Summarized, fresh food supply from both *in situ* production and pelagial deposition, was not only substantial, but exhibited a long duration as well, leaving the sediments only for a very short period in in the second half of the winter (Aug/Sep) under trophic limitation.

5.4.2. Meiofaunal responses to the annual dynamics in the environment.

As to the hypothesis of Findlay that systems receiving pulses of directly available detritus should exhibit population fluctuations closely tied to the rate of food supply (1982), and giving the seasonal cycle of detrital input and microbial food at the current Antarctic site off Signy Island, a strong impact on the meiofauna structure and dynamics, was highly suggestive.
Temporal changes were indeed sometimes very impressive, with distinct highs and lows in population densities and biomass. Correlations with the environment were restricted to water column and sediment traps, and mainly pointed towards nanochlorophyll production. However, when shifting the environmental variables one month later, and repeating the spearman rank analysis on the same meiofaunal parameters (Table 5.10 for benthic food sources and Table 5.11. for pelagic food sources), a completely different picture arised, indicating that there existed also a delayed response of meiobenthos to its ambient environment. However, this was much greater to the pelagic than to the benthic trophic environment. Within the pelagial all chlorophyll categories (micro, nano and pico) were responsible for the high number of significant correlations.

***Table 5.10**.: Summary of the Spearman Rank correlation analysis between meiofauna and 1-month delayed benthic environmental variables; only the variables with significant p-levels were retained.*

	SEDIMENT							
	Org C	**Org N**	**CN**	**DOC**	**Chla**	**Fuco**	**Chlc**	**Bcar**
MEIOFAUNA								
Total harpacticoids					+	+ +	+ +	+ +
Ostracods	+							
NEMATODES								
Median individual biomass					- -		- -	
Genera								
Sphaerolaimus				- -				
Cohorts								
Aponema								
juveniles	- -							
gravid females	+							
Daptonema								
juveniles		-	+					
males		+ +	- -					
Neochromadora								
males						+		
gravid females	+	+ +	-		+	+ +		+ +
Diversity								
N1					+ +	+ +	+ +	+ +
Trophic guilds								
1A	-							
2B				-				

+ + + or - - - : highly significant : .001 + + or - - : high significant : .01 + or - : significant : .05

***Table 5.11.**: Summary of the Spearman Rank correlation analysis between meiofauna and 1-month delayed environmental water column and sediment trap variables; the environmental data were obtained from Clarke (BAS, Cambridge).*

	WATER COLUMN								SEDIMENT TRAP							
	Microchla	Microphe	NanoChla	Nanophe	Picochla	Picophe	t°	ice	Chl	Phaeo	Chl+Phe	dry mass	ash	AFDM	C	N
MEIOFAUNA																
Amphipods																
Bivalves																
Adult harpacticoids				++					++	++	++	+++	+++	+	++	++
Juvenile harpacticoids																
Total harpacticoids	+		++						+	+	+	+	+		+	+
Nematodes	++		+		++		+		+		+				+	
Ostracods							+								+	
Turbellarians	+				+		+									
Total meiofauna	++		+		++		+		++	+	++	+	+		+	+
NEMATODES																
Median individual biomass																
Genera																
Daptonema	++		+	+	+++				++	+	++	++	+	++	++	+
Aponema																
Neochromadora									+		+					
Sabatieria															+	+
Microlaimus																
Chromadorita	+	++		++	++	+			+++	++	++	++	+	+	+	+
Sphaerolaimus																
Dichromadora				+												
Prochromadorella				+					+	+	+	+	+	+		
Promonhystera				+						+	+	+	+		+	+
Eleutherolaimus				++				+	+	+	+	++	++	+	+	+
Cohorts																
Aponema																
juveniles				--				++				-	--		-	--
non-gravid females																
gravid females																
males																
Daptonema																
juveniles				-				++					-			
non-gravid females				++				--								
gravid females			-							-	-	-		--	--	-
males								--								
Neochromadora																
juveniles			--	--	--		-	--		-			--		-	--
non-gravid females																
gravid females			+	++			+	-					--			
males																
Microlaimus																
juveniles						-										
non-gravid females			-	-			-	+				--	-	---	-	
gravid females																
males																
Sabatieria																
juveniles																
non-gravid females																
gravid females			++	++			+	-	+	++	+	++	++	+	+	+
males														+		
Chromadorita																
juveniles	-					-										
non-gravid females																
gravid females																
males																
Total																
juveniles	-	-		-	--			+					-		-	-
non-gravid females														--		
gravid females																
males																
Diversity																
N_0																
N_1																
N_2																
N_{inf}																
Trophic guilds																
1A																
1B	++			+	++				+		+	++	++	+++	++	+
2A									+	+	+	+				
2B																

+ + + or - - - : highly significant : .001 + + or - - : high significant : .01 + or - : significant : .05

Hence, the combination of both types of Spearman rank analysis, revealed a extended set of direct and one-month-delayed relationships between meiofauna at the environment at Signy Island. The relationships will be outlined more in detail in followiong sections.

5.4.3. Impact on meiofaunal standing stock.

Extremely high meiofaunal abundances were reported throughout the year (annual means 5-7.5 10^6 ind.m^{-2}), with a peak value in May (18.8 10^6 ind. m^{-2}), and a succession of subordinate peaks of about 10^6 ind. m^{-2} throughout the time series. The high standing stocks at the study site were already discussed in previous report (Vanhove *et al. in press*) and were attributed to the eutrophic nature of the biotope. Similarly in this study, meiofaunal standing stock could be related to the trophic environment, by a direct response to water column nanochlorophyll and delayed responses to all trophic variables from sediment trap and water column.

Total density and biomass were very high in early winter 1991, shortly after the minibloom of nanoflagellates and high carbon availability in the sediments; stock sizes dropped then significantly within a very short time scale, following the winter stop in primary production from May on. One would expect the significant drop in food production to be followed by an acute resource limitation, and hence a considerable breakdown of the meiofaunal stocks in late winter. There was indeed a very pronounced stock size reduction of almost 50% in only two weeks time in the month of May. Subsequent depauperation occurred until only 10% of the initial peak density were reached, and slightly more than a poor 1% of the initial total biomss remained. So, it is reasonable to conclude that fresh food availability was limiting for the meiofauna population.

However, two remarks need more attention: (1) even when stocks were drastically depressed, minimum figures (1.9 10^6 ind. and 0.19 g dwt m^{-2}, 5 Sep 1991) were still comparable to average values in many shallow soft bottom communities (see extensive tables Rudnick *et al.* 1985), and (2) the winter, rather than being a long period of low stocks, was confined to at most two months during late winter. Both features were probably interconnected. Seemingly, population sizes during 'burst' periods were so high that reduction, although occurring at a fast rate, was not extreme enough to depauperate the meiofauna communities before a new input of fresh food in spring made a new increase of the population size possible.

The main reason for this has to be searched in the uncommon character of the pelagic environment during that season (*e.g.* 1990/91). As earlier described the strong seasonal variation in the pelagic of Signy Island with the short bloom of large microphytoplanktonic diatoms in mid-summer was essentially prolonged by a second mini-bloom, superimposed on a long-lived nanophytoplankton production, both inducing a food input into the system to May/June in early winter.

This confirms the findings of Barnes, that despite the brevity of the summer peak in diatom cell numbers, the levels of nanoplankton occurring throughout much of the year may be sufficient for many benthic suspension feeders, leaving only a very short period of inactivity in their feeding behaviour during winter (Barnes & Clarke 1994, 1995). Thus, the citation of Barnes *'we need to revise our ideas of a harsh, dark polar winter of low temperatures and long periods of sea-ice cover'*, based on the suspension feeding component of the benthos, can now be extended to the endo(meio)benthic component too.

Interannual variability was high but, during the second year higher total biomass values in late summer (Jan/Feb) in the trace of the first diatom bloom and high bio-availability of the food in the sediments (Walker 1993), followed by elevated biomass in early winter, lagging the second autumn bloom, were again confirming the response of meiofaunal standing stock to the ambient environment. However, fluctuations were much higher resulting in a less pronounced seasonal pattern, and probably were a result of two blooms, closely following one another (Clarke & Leaky 1996).

In conclusion, the major response mechanisms of meiofaunal standing stock were:
1) distinct peak abundances, lagging with a few weeks behind peak diatom production (that lead to excess concentrations of rapidly sinking fresh bio-available food)
2) lower, though still highly fluctuating, stocks during most of the year with immediate and lagged responses to lower quality nanophytoplankton input (*e.g.* lower sinking rates allow bacterial decomposition within the water column, Smetacek 1984)
3) strong reduced stocks with a short duration in mid winter, when food availability was at its lowest.

Ofcourse response mechanisms of the meiofauna might be more complex, and factors other than those related to pelagic blooms may have contributed to the temporal variability of meiofaunal standing stock.

First, *in situ* microphytobenthic production around Signy Island can be substantial and highly seasonally variable, amounting to slightly over 100 mg C m^{-2} during the ice-free summer, with peaks of 700 mg C m^{-2} d^{-1} (Gilbert 1991 a). Benthic algae were mostly responsible for the increase in sediment chlorophyll concentrations in the period prior to the phytoplankton bloom (in Nov/Dec).

Second, meiofauna has frequently been found under the sea-ice (Cross 1982; Carey & Montagna 1982; Grainger & Hsiao 1990). Food requirements may be met by the sedimentation of ice-algae and faecal material of herbivores grazing underneath the ice (Sasaki & Hoshiai 1986; Matsuda *et al.* 1987), and by microphytobenthic production under the ice (Gilbert 1991b). Such a primary production beneath the sea-ice was also favourable to the meiobenthos in the Nansen Basin (Pfannkuche & Thiel 1987).

Third, sedimented and *in situ* produced organic sources might be directly ingested or become part of the microbial loop. In benthic food chains, the microbial communities are an important key, due to their fast growth and high metabolic activity in association with organic material (Meyer-Reil 1983), and, along with diatoms, bacteria may belong to the available food for the meiobenthos (Meyer-Reil & Faubel 1980; Admiraal *et al.* 1983; Montagna *et al.* 1983, 1995; Carman & Thistle 1985; Rivkin & DeLaca 1990; Epstein & Shiaris 1992).
The respiratory activity of bacterial communities in Factory Cove revealed marked and immediate responses to external food supply and their seasonal variations were very periodical in the track of phytodetrital deposition from the water column (Nedwell *et al.* 1993). Although, there is not always a direct relationship between heterotrophic activity and biomass (Delille & Bouvy 1989; Delille 1995), meiofaunal density and biomass fluctuations clearly coincided with the highs and lows observed in the microbial communities.

Fourth, a physical factor, being coastal storms with associated high winds perturb the generally low-energy nearshore system of Signy Island, leading to significant resuspension of surficial sediments (White *et al.* 1993). This might result in a mixing and the destruction of the benthic microbial mats (Kaufmann 1977), but also induce deposition of ice-algae, ending in augmented benthic activity (Walker 1993). All factors together, undoubtedly had a pronounced effect on the meiobenthos populations.
Harpacticoid copepods, animals that are known to rapidly colonize phytodetritus, may particularly be vulnerable to storm events (Thistle *et al.* 1995). It reflects that hydrodynamics might be responsible for short-term variability in ice-free periods.

Finally, from a continuous spectrum of variability probably half the variability is related to the above described features, but many fluctuations might be due to factors of unknown nature (for example macrofaunal activity, biological interactions within the meiofauna, etc..).

5.4.4. Comparison with literature.

The literature available to us offers no comparative studies in the Antarctics. One investigation, that treated meiofauna in the seasonal varying biotope of an Antarctic nearshore mud site at the Peninsula (64°S, Anvers Island), could have been very useful (Kauffman 1977), as major abiotic/biotic environmental variables (*e.g.* ice-cover and temperature regime, timing and periodicity of benthic and pelagic primary production, organic matter changes, macrofaunal composition and densities of mainly deposit feeders, etc..) were exactly parallel and very comparable to the current site. Ironically, meiofauna was sampled by dredging, and the lowest sieve size used was 63 µm. Hence, sampling techniques must have given rise to a totally underestimated meiofaunal stock. A completely blurred picture of seasonal taxon composition and densities became apparent, and no attempt was done to look for nematode patterns (the most abundant taxon!).

Comparable ecosystems with episodic and highly seasonal sedimentation exhibited contradictory response mechanisms. For example in subarctic bay sediments (Alaska, 58°N), meiofaunal recruitment and density maxima were deconnected from sedimentation events (Fleeger *et al.* 1989). However, the authors could not rule out that the results might have been biased by using two different gears seperately during the sampling period.
In the intertidal of the subantarctic Kerguelen Islands (49°S) somewhat similar phenomena as in Signy were recognizable (de Bovée *et al.* 1983; Bouvy 1988; Bouvy & Soyer 1989). Meiofauna exhibited very high abundances (up to 15 000 ind. 10 cm^{-2}) with distinct short term oscillations. Time lags between peak densities in summer were much shorter compared to in winter, and were related to the reproductive strategy of a few co-dominant species (Bouvy 1988; Bouvy & Soyer 1989). The observations were attributed to the changing temperature regime of the environment.

Literature on seasonality in temperate meiofauna communities is accumulating (about 20 papers reviewed by Heip *et al.* 1985, and later Alongi 1987; Eskin & Coull 1987; Gourbault 1987; Danovaro *et al.* 1992, 1995; Ansari & Parulekar 1993; Li & Vincx 1993; Guidi-Guilvard & Buscail 1995; Schizas & Shirley 1996).
However, the majority of the reports deal with intertidal and estuarine meiofauna, or meiofauna associated with seagrass beds or pollution events. As meiofauna populations in these habitats behave different from subtidal communities (*e.g.* often under the influence of salinity changes, Heip *et al.* 1985), we restricted our further comparison to comparable 'unpolluted' areas.

Temporal fluctuations of the meiofauna in the North Sea were considerable, though total densities were not significant different between winter and summer (Warwick & Buchanan 1971; Juario 1975; Boucher 1980). In the Mediterranean changes in density of meiofauna were highly seasonal, with clear summer or autumn peaks. The main structuring forces were searched in temperature (de Bovée & Soyer 1974), strong winds and irregular river discharges (Guidi-Guilvard & Buscail 1995).

Of all temperate studies treating temporal variability in subtidal meiofauna populations, one research deserves particular attention (as it considers comparable subtidal depths and the environment exhibits extreme fluctuations), namely that of Rudnick *et al.* (1985) in the 7m deep coastal marine silt-clay sediments of Narangansett Bay, Rhode Island (USA). Having an average metazoan meiofaunal density of 13.4 10^6 ind. m^{-2} and a total (formaminifers included) ash free dry weight of 2.9 g m^{-2}, meiofauna contained highest stocks ever measured. Maxima were found in late spring and early summer and minima were reached by early autumn The authors attributed the observations to three main factors: (1) sampling technique and laboratory processing, (2) deposition of detritus containing unusual high proportions of labile organics (*e.g.* detritus derived from phytoplankton with rapid settlement and minimal decomposition in the water column), and (3) depression of macrofaunal competition and predation. In essence the first two arguments hold also for the current study. We have not checked macrofaunal impact, but as the soft bottom substrates of Signy Island can contain high biomasses of deposit feeding polychaetes, amphipods, bivalve molluscs, isopods and gastropods, having a wet weight range of 300 to 800 g m^{-2} (Hardy 1972), the third argument of Rudnick looks not valuable for our study.

5.4.5. Effect on body size.

The combined effect of the low temperature (*e.g.* by reducing the energy cost for basal metabolic) and the high seasonal regime of primary production (*e.g.* by producing short-term growth increments) are known to affect body weight in Antarctic invertebrates (Clarke 1983). Likewise, such environmental variables of food influence nematode size as well, in the way that availability of high quality food induces big nematode body sizes (Warwick *et al.* 1986). In our study, the average individual mass of the nematodes (mean 0.5 ± 0.23 µg dwt; median 0.2 ± 0.26 µg dwt) was well within the range of sizes observed from literature on subtidal nematodes (*e.g.* 0.07-2.12 µg, Ratsimbazafy *et al.* 1994). The relationship food/body size was not self evident, but distinct peaks in early winter 1991 and 1992, and late summer 1992, suggested that this was a response to the elevated availability of organic matter in these periods (*e.g.* Apr 1991, Dec 1991, Mar 1992, Walker 1993). Turning to genus and age composition it will be seen that the mean individual size in the peak periods was attributed to the occurrence of higher adult percentages, especially of the predominating genera *Daptonema* and *Sabatieria*.

5.4.6. Differential impact on meiofauna taxa.

Nematodes strongly covered the trend described by total meiofauna and therefore they will not be discussed on taxon level anymore.

Harpacticoid copepods followed the patterns of water column productivity with high densities in productive periods and low numbers in late winter. They showed immediate responses to the temperature and nanochlorophyll fraction (2 to 20 µm, Clarke & Leaky 1996) in the seawater, and were related with a time delay to all food components in the water column and sediment trap, and to pigments in the sediments. The combination of immediate and retarded responses made the harpacticoid copepods as the meiofauna taxon the most tightly associated with temporal events of fresh food supply.
The observations were more or less similar to those in literature. Generally, the periodicity of juvenile harpacticoid copepods was related to late winter/early spring events (nauplii in the current study were also highly variable in densities during late winter prior to the blooms), and adults reached their highest densities during summer (Kauffman 1977; Rudnick *et al.* 1985; Schizas & Shirley 1996). Consistent among these and other studies was that this taxon was strongly associated with fresh inputs of food into the system, often with time lags of about two months (Montagna *et al.* 1983; Decho & Fleeger 1988; Shirley *et al.* 1987; Rudnick 1989).

Seasonality of ostracod density was highly damped at Signy Island, mainly as a consequence of very high variability between the replicates, and probably because of sample processing (*e.g.* especially low densed taxa experience the bias of recalculated densities from subsample counts). It is known that some ostracods occur year-round and others may have one or two population peaks each year, either in summer of winter. They endure the unfavourable season either in special larval stage or as eggs or as adult (Higgins & Thiel 1988). The ostracods were highly fluctuating in Narragansett Bay as well (Rudnick *et al.* 1985).

Finally, turbellarian density changes happened in a manner similar to harpacticoids, but with a distinct trough in winter, indicating that they were vulnerable to the unfavourable features of the Antarctic winter. Their affintiy to higher food levels in summer was confimed by the positive correlation of their densities with water column chlorophyll.

The differential effect of pelagic sedimentation on different meiofauna taxa agreed with the microcosm study of Rudnick (1989) who found that the meiofauna essentially can be grouped according to the relative importance of fresh deposited versus older detrius in their diet.

5.4.7. Impact on nematode genus and trophic composition.

A priori, it was expected that significant peaks in nematode abundance, in response to enhanced food production, would be mirrored in a change in the genus composition, and that such would result in a rise of epigrowth-feeding genera. When blooms and deposition of organic substances had ceased, coinciding with an incorporation of organic detritus in the sediments, this would then be observed in an increase in deposit feeders (Heip et al. 1985).
However, the results of nematode genus composition showed unclear seasonal variation:
-population fluctuations did occur, but their periodicity varied considerably from genus to genus
-periodic oscillations occurred within the seasons and not always in the same manner or extent as in the planktonic environment
-randomly occurring density peaks of *Aponema*, *Daptonema*, *Microlaimus* and *Chromadorita* had often only very short lags in between.

Traditionally, polar ecologists concentrate on the strong contrast in food availability for herbivores (Clarke 1988). This held already for the (predominantly herbivorous) harpacticoids, and can partly be extended to nematodes too.
Although immediate relationships with the trophic environment were virtually lacking, they became more obvious with one month delay. Striking relationships were those of *Daptonema*, *Chromadorita*, *Prochromadorella*, *Promonhystera* and *Eleutherolaimus*, all of them belonging to the epistrate and non-selective deposit feeding categories. They showed, each, tight relationships with pelagic production and sedimentation, a feature that was, however, not as strong when addressing the entire trophic categories (*e.g.* there were comparably much fewer relationships between the feeding categories 2A/1B and the environment).

Considerable variation in temporal abundance, without any crucial changes in dominance of the generic and trophic composition throughout the course of the investigation, was in agreement with nematode community characteristics in fine sand communities at temperate latitudes (Juario 1975; Vincx 1989).

Why the apparent lack of distinct seasonality and why no clear relationships between the entire trophic categories and the environment?

Generalizing the feeding strategies in nematode communities by assigning one specific feeding mode to a genus based on the morphology of the buccal cavity, might be very helpfull in many aspects (for example to structure the otherwise very diverse assemblages, and to compare results with the overwhelming number of studies that adhered to Wieser's groupings), but leads to premature conclusions, as it deconnects the ecological preferences of the nematodes from specific habitat characteristics (Vanhove *et al. in press*).

Epigrowth feeders showed no clear temporal trend. A reason could be that this trophic group did not graze solely on diatoms, but on a diet of many detrital food sources. Epistrate feeders were not related to chlorophyll in the benthic environment, but showed immediate responses to organic carbon in the sediments, and delayed relationships with chlorophyll and their degradation products in the traps.
Another reason could be that *Aponema* (representing one third of the total nematode population at Signy), intuitively assigned as an epistrate feeder, rather belonged to the selective deposit feeders (cf the closely related *Molgolaimus,* which according to Wieser belonged to the 1A-group).

To this respect we re-analyzed the nematode communities with *Aponema* as a selective feeder (Figure 5.12). Again, nor the selective deposit feeders (1A), neither the epistrate grazers (2A) showed obvious seasonal trends in relative or absolute numbers, and no new correlations became apparent (results not depicted).

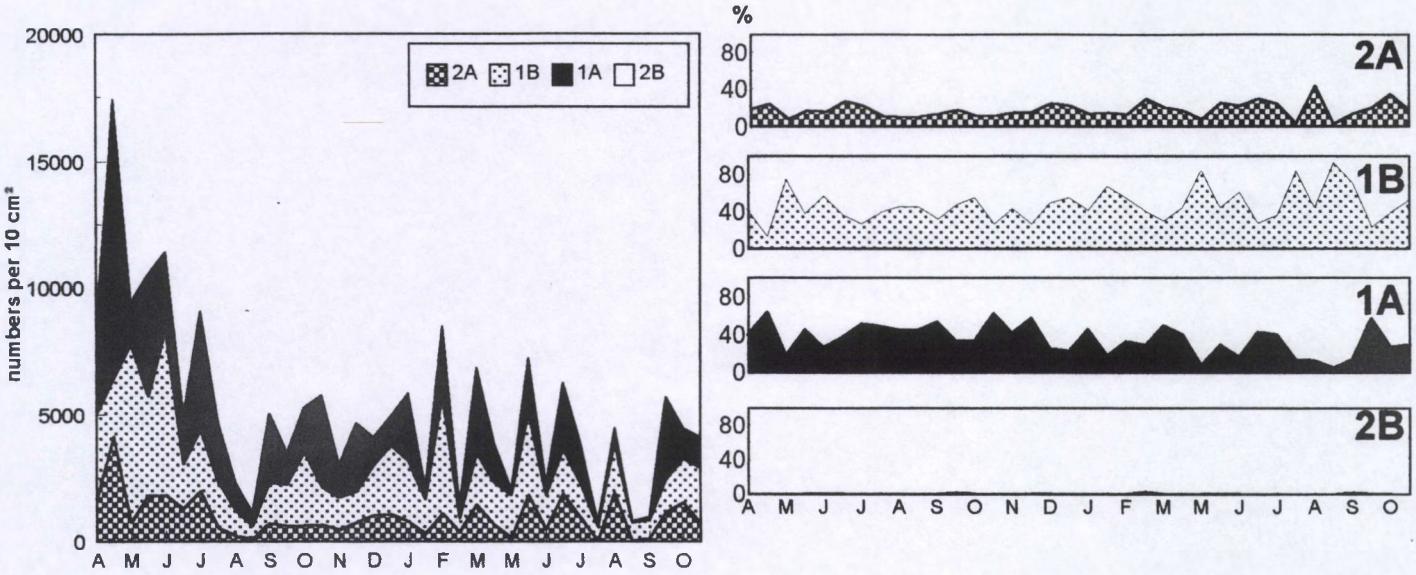

***Figure 5.12**. : Absolute (no 10 cm^{-2}) and relative (%) variation in trophic composition of the nematode communities during the time course of the study; 2A: epistrate feeder, 1B: non-selective deposit feeder, 1A: selective deposit feeder, 2B: predator/omnivore; Aponema was assigned as a selective deposit feeder instead of an epistrate feeder. Data presented are the mean of two sediment cores.*

Non-selective deposit feeders were mainly composed of *Daptonema*. Wieser (1953) classified this genus as thus because of the relatively large unarmed buccal cavity. The particular species at Signy, however, have a big mouth with a strong cuticularized ridge that could serve as a big tooth. Therefore, using the classification based on buccal morphology, it should rather be assigned as an epistrate feeder.

The frequent observations of intact pennate diatoms in the alimentary duct of adult *Daptonema's*, superimposed on the observation that *Daptonema* showed many time-delayed responses to microchlorophyll (and hence diatoms) in the water column, conducted to a belief that this genus, indeed, can switch to a diet of mainly diatoms. However, the percentage of organisms recovered with diatoms in the gut on the total number in each sample (9-78 %, Table 5.12) did not exhibit an obvious seasonal trend. Although diatom blooms were restricted to short periods of the year, planktonic forms (including pennate forms) are found in the benthos throughout the entire year (Gilbert 1991b). So diatoms in the guts were supposedly intact or remaining frustules of past blooms. The diatoms might have been benthic forms as well, but no information was found concerning the seasonal variabilitiy of *in situ* producing benthic diatoms. As long as we have no more detailed information about the diatom species in the alimentary tracts, the importance of this benthic component as a food source for *Daptonema* remains an open question.

***Table 5.12.**: Percentage (average of two replicates, 1 SD) of the adult specimens of Daptonema with pennate diatoms in the gut, in the sampling period from April 27 until December 27, 1991.*

Date	%	SD
27-Apr	39	9.8
14-May	21	29.1
28-May	25	5.7
11-Jun	9	0.1
26-Jun	23	2.8
12-Jul	69	3.4
28-Jul	36	1.1
10-Aug	16	5.0
23-Aug	78	22.9
5-Sep	64	16.8
20-Sep	55	4.4
4-Oct	28	1.5
17-Oct	71	34.4
1-Nov	54	52.4
14-Nov	76	19.8
28-Nov	74	16.1
13-Dec	56	11.8
27-Dec	36	8.2

Yet, *Daptonema*, although having a strong tooth-like ridge, to pierce or scrape off diatoms, probably more frequently during certain periods of the year, can still be considered as a non-selective deposit (or generalist) feeder. And, although densities were strongly correlated with diatomic components, this was not their solely food source (Moens & Vincx 1997). Similar observations were done for *Daptonema erectum* in an estuarine mud off South Carolina (Eskin & Coull 1987). The hypothesis was put forward that *Daptonema* can substitute bacteria, detritus or flagellates if diatom abundance is low. *Daptonema* peaks in our samples were also coincident with maxima in benthic oxygen uptake (for example, a peak of benthic activity in March was followed by a maximum in abundances of *Daptonema*), suggesting that, indeed, also bacteria belonged to their diet.

Despite the several remarks involved with the use of Wieser's classification, the most obvious explanation for the apparent lack of distinct seasonality in the nematode communitiy and trophic composition has to be searched, again, in the high availability of many different food sources during most of the annual cycle.
In early winter 1991 virtually all genera, among which the predominating *Aponema*, *Daptonema*, *Sabatieria* and *Neochromadora*, showed significantly deviating peaks in absolute numbers (and hence, also the trophic groups to which they were categorized). Each of them, probably, has developed specific adaptations to exploit the short-term deposition pulse of the highly diverse plankton communities (Clarke & Leaky 1996) and subsequent elevations of organic matter concentrations and microbial activity in the sediments (Nedwell *et al.* 1993).
The combination of all trophic sources produced energy for the benthic fauna during most of the year. This lead to discontinous nematode community changes in which depending on the availability of each trophic source, nematode genera responded by some degree of competitive interaction (an example was *Aponema* demonstrating highly fluctating densities in early winter 1991, early summer 1991 and late winter 1992).
Even during midwinter, when deposit and epistrate feeders needed to contend with only a few months of low energy sources, nematode community composition did not change. Sufficient energy probably accumulated on the bottom (food reserve ?), so that most genera could accommodate the winter months by slightly alternating their trophic strategy. Such external nutritional reserve can be important for all nematodes as they lack internal reserves (Giere 1993).

5.4.8. Seasonality in diversity.

The observation of excess food, resulting in a chemically reduced state of the fine grained sediments at Factory Cove (Signy Island), lead already to the conclusion that the nematode assemblages were structurally dominated by a few genera, facing the characteristics of advanced organic eutropication (Vanhove *et al. in press*). This was translated in a very low diverse, dominant meiobenthic community. Now, a remarkable stability in this dominance diversity throughout the study, can be added to the earlier observations. Habitats of low heterogeneity tend to support a low number of taxa over the annual cycle, often with one or a few of them numerically dominant (Juario 1975; Vincx 1989). As a consequence of food enrichment, virtually year-round, a 'stable' chemical status of the benthic environment might have caused this 'homogeneity' in the biotope, leading to the temporal patterns of dominance diversity. This could not directly be proved, but vertical profiles of oxygen concentration in the sediments of Factory Cove, showed a very low penetration of oxygen with little or no seasonal variation between Jan 1991 and May 1991 (Nedwell *et al.* 1993). As oxygen stratification is connected to the rate of microbial oxygen uptake, it indicates that aerobic respiration was high throughout the year (same reference), and yet, the sediments remained reductive all the time.

Despite this relatively constancy in higher Hill's numbers, the genus richness (N_0), fluctuated considerably, and might indicate that fresh food supply, against the background of a highly reductive environment, attracted volatile genera (*e.g.* genera that in most cases do not live under the extreme reductive circumstances). In addition, a vertical seggregation of the nematode population into genera that sustained the negative features of the reductive environment, and other genera that preferably colonized the very thin oxic surface layer of the sediments, was attained (Vanhove *et al. in press*). The latter would then explain partly the striking observation that closely related dominant genera (*e.g.* according to the structure of buccal cavity in for example the epistrate feeders), and probably closely related species (for example the genus *Sabatieria* and *Microlaimus* consisted of more than one species) co-occurred in the same sediments. That such closely related nematode taxa can coexist in the same sediment column is not really something exceptional (Juario 1975: coexistence of *Microlaimus turgofrons, M. torosus* and *M. honestus;* Jensen 1981: spatial seggregation in the morphological groups of *Sabatieria pulchra* and *S. ornata*), confirming that there was clearly no competitive exclusion for biogenic elements all over the year.

5.4.9. Impact on demography, life-history traits.

In a seasonal environment, wherein trophic resources fluctuate significantly, different possible adaptive life strategies in nematodes can predominate: seasonality in reproduction with the number of generations restricted to particular seasons (cf. the univoltine *Enoplus communis*, the bivoltine *Viscosia viscosia*, or the polyvoltine *Theristus setosus*), or life strategies completely uncoupled from environmental events (cf the continous reproduction of *Microlaimus turgofrons*) (Juario 1975). The latter is the most common. As the population increases, the successive generations will come to overlap and the amount of overlapping will increase progressively as times goes on (Heip *et al.* 1985).

Nematode reproduction at Signy Island looked continuous as the four life-history categories were encountered throughout the year and juveniles dominated within the range of 14-59%. This confirmed with population life-history studies of nematodes in temperate regions where many nematodes reproduce continuously throughout the year (Heip *et al.* 1985).
In the current study, maxima of gravid females and juveniles were highest in Aug/Sep and Nov/Dec. Assuming that reproductive activity occurred more during these relatively low nutritional periods, it could be possible that reproduction before the season of bulk supply was an advantageous life strategy to cope with periods of low energy production. Such strategy has been found in many Antarctic benthic invertebrates (Clarke 1988), and is explained by the fact that the reproduction facet of the life cycle is generally characterized by a reduced activity, stoppage of growth, and cessation of feeding. In addition, young stages develop by the end of the low food period enabling them to take advantage of the new blooms of the next productive season.

With a complete asynchrony in the reproductive cycles of individual species, seasonal patterns in the total nematode population were often masked (Juario 1975; Boucher 1980; Vincx 1989), hence downloading to lower taxon level was needed:

Sabatieria populations at Signy (probably a mixture of several species) exhibited some cyclicity in the relative densities of the juveniles being much less presented in midwinter. But due to the fact that gravid females were missing in one third of the samples, a reproduction cycle could not be inferred. Maybe, the species of this genus were long lived and reproduction occurred scattered through the annual cycle. None of the life stages showed responses to benthic food sources (nor immediate, neither delayed), but gravid females were positively related to many detrital sources in the water column and sediment trap (with one month delay). The life cycles of *Sabatieria* species has been studied several times at temperate latitudes (see herefore discussion of Vincx 1989). Species close to the one in the sediments of Factory Cove (*S. pulchra* , *S. punctata*, and synonyms), either reproduced throughout the year with no particular period of production, or showed a more active reproductive period in spring, depending on particular field situations.

Gravid females of *Aponema* were relatively more abundant in May/June, followed by higher percentages of juveniles and immature females in July. Due to high fluctuations we can not guarantee that such was coupled to environmental changes (*e.g.* correlations discerned sometimes contrasting results). Egg deposition of *Microlaimus torosus* (in essence the same species as *Aponema torosus*) in the study of Juario (1975) occurred troughout the year, but reproductive activity was higher in winter than in summer, and therefore comparable with the Antartic counterpart.

From the remaining genera in the current study only *Neochromadora* appeared to have a more sinusoid cycle with a relatively higher amount of immature females in mid-winter (early July) and a distinct recruitment period in early summer (Oct/Nov). The (late winter)-period in between must have been that of maturation of the females. Positive correlations of the gravid females with immediate and delayed fresh food in sediment, trap and water column, suggest a tight relation with fresh food supply.

In *Daptonema*, *Microlaimus* and *Chromadorita* clear signals of reproductive cycles were missing.

Apart from food (and salinity), temperature is a common factor proposed for life-history dynamics and reproductive effort of the nematodes in temperate regions (Heip *et al.* 1985). Generally, higher ambient temperatures result in shorter development times. Likewise temperature changes imposed reproductive strategies in the subantarctic nematodes of the Kerguelen Islands, as nematode development time varied between 30 and 75 days, at respectively 10 and 2°C (Bouvy & Soyer 1989). However, the temperature range at Signy is very low (between -0.5 and +2.0 °C in the current study), and, apart from some scattered observations, no correlations of nematode life stages with temperature were observed. Supposedly, temperature variability was only of minor importance for nematode reproduction in the current region. This supports the recent views on the relatively low impact of temperature changes, compared to the higly seasonal nature of food supply, on invertebrate (re)production activity (Clarke 1983).

The study of Bouvy & Soyer (1989), however, emerges also that (apart from the temperature effect), nematode development time in the subantarctics can be in the order of a few weeks. This might explain why maximum abundances of gravid females and juveniles at Signy were often well seperated temporally with the highest percentage juveniles (Sep and Dec), lagging behind the highest relative numbers of mature gravid females (Aug and Nov), and why standing stock increases of the entire meiobenthic populations were only profound at least one month after primary production peaks. The observation invoke that development time in Antarctics nematodes might be in the same order as in temperate counterparts (*e.g.* between a week and a few months, Heip *et al.* 1985).

Yet, based on annual P:B values reported for temperate nematodes, annual production is calculated between 2.2 and 38.4 $gC.m^{-2}$ for P:B ratios between 4 and 69 (Vranken & Heip 1986), and 5.0 $gC.m^{-2}$ for a P:B = 9 (Gerlach 1971). This greatly exceeds values calculated for nematodes in the North Sea (*e.g.* at maximum 2.6 $gC.m^{-2}$ y^{-1}, Vincx 1989), and is equivalent to 4.1% of phytoplankton production and 11.9% of microphytobenthic production at Factory Cove, Signy Island (Vanhove, unpublished results).

Calculating the Maturity Index (*e.g.* an arbitrary index constructed by assigning a coloniser-persister scale to the nematode genera, Bongers *et al.* 1991), a figure of 2.4 was obtained, which agrees with nematode communities in stressed and eutrophic conditions. The nematodes belonging to the community can rapidly increase in numbers under favourable conditions, with short life-cycles, high colonization ability and tolerance to disturbance, eutrophication and anoxybiosis (Bongers *et al.* 1991), confer the r-stategy in the Pearson-Rosenberg model (Pearson & Rosenberg 1978 in Heip 1995). Although there is no simple relationship between population characteristics and ability to colonize (Heip 1995), the observations clearly direct to the effects of the characteristic (organically enriched) sediments of Factory Cove on the life strategies of the meiofauna.

It is too early to conclude *de facto* that reproductive activity was related to any of the mentioned environmental cues as,
1) some genera might have been built up by more than one species
2) no attempts was done to identify the different juvenile stages of the nematodes. However this is a prerequisite for defining a more accurate timing of egg deposition
3) we did not look for the vertical seggregation of the nematode life stages, although it has been shown that juveniles and adults might be temporally adapted to specific conditions along the sediment profile (as was shown for the distict microhabitat preferences of *Theristus anoxybioticus* in the muddy sediments at methane seepages in the northern Kattegat, Denmark)(Jensen 1995).

5.4.10. An apparent lack of tight response to the trophic status of the benthic environment.

Although correlations between the meiofauna and the benthic environment existed, they represented only a very limited proportion of all possible relations, and they were rather scarce when compared to the many correlations with sediment trap and water column variables. Several reasons can be at the base of these observations: 1) a high deviation between the replicates, presumably inherent to the patchy character of meiofauna and influenced by sampling and sorting, 2) spatio-temporal variability in clump size of meiofauna and food items (Blanchard 1990); 3) differing scales of generation times, between meiofauna, diatoms and bacteria, respectively in the order of weeks or months (Heip *et al.* 1985, Giere 1993), days (Admiraal *et al.* 1982), and hours (Meyer-Reil *et al.* 1978), and 4) specific and ontogenic variation in diet selection (Admiraal *et al.* 1983, Romeyn & Bouwman 1983, Carman & Thistle 1985, Hentschel & Jumars 1994, Montagna *et al.* 1995).

The most likely the apparent lack of response to benthic organic food sources has to be searched in the quality, rather than the quantitiy of organic detritus. As argued by Soetaert *et al.* (*subm.*), a tiny flux of more or less refractory compounds, that have a large residence time in the sediment, may produce the same concentration as a large flux of high-quality food, which disappears much faster. As recently produced and deposited detritus is more readily assimilated than older refractory organic carbon (Rudnick 1989), the organic matter in the sediment is a bad indicator of food input to the bottom. Because of this, it is very difficult to relate density or biomass patterns of meiofauna with organic matter concentrations in the bottom. On the other hand, correlations with pigments were more obvious. Unfortunately the data did not cover the entire study period, and intervals between subsequent monitoring were probably too long to decover all possible relationships.

5.4.11. Impact of sediment texture.

When describing meiofauna habitats, grain size is a key factor which directly determines spatial conditions for the meiofauna (Giere 1993). Nematodes, in particularly, appear to be more sensitive to slight changes in sediment composition than either macrofauna or harpacticoid copepods (Herman *et al.* 1985). In the current study the fine-grained characteristics of the sediments -in combination with the covarying organic content, pore-water chemistry, microbial abundance and composition, etc..- certainly defined meiofaunal standing stock size (higher densities in finer sediments), diversity (lower diversity in finer sediments) and trophic composition (often directed towards deposit feeders in finer sediments) (Heip *et al.* 1985; Giere 1993). However, there is little evidence that grain size *per se* produced temporal patterns in the meiofaunal communities, as only very minute changes were detected during the entire study period (*e.g.* median sand 102 ± 2.0 µm; silt/clay 32 ± 4.4%), and no correlations, apart from turbellarian density and higher meiofaunal taxon numbers with median grain size, were found. This contrasted the high variability in DOC (714 ± 208.6 mg l^{-1}), chl-a (28 ± 15.9 µg g^{-1}), fucoxanthin (13 ± 8.19 µg g^{-1}), chl-c (8 ± 4.59 µg g^{-1}), β-carotene (9 ± 5.59 µg g^{-1}) on an annual base.

5.5. Remark on sampling adequacy.

We do not exclude that our samplings induced some of the variability observed in patterns at Signy. Sampling by scuba diving obviously has its limitations. The disturbance of superficial soft sediment layers, which contain essentially the highest concentrations of benthic fauna, is the major problem. However, photographic evidence showed that this occurred mainly with repeated coring. As, in the current approach, sampling was restricted to four cores (*e.g.* two for meiofauna and two for environment), we do not believe that it put serious constraints on the sampling efficiency.

Due to obvious restrictions imposed by time and manpower, we had to resort to subsampling as well. To justify our method, the adequacy of estimating abundances from subsamples was evaluated by comparing the meiofauna counts from randomly chosen complete cores and the results obtained from three recalculated subsamples. No significant differences were found between the two methods (*e.g.* the counts agreed within 10%). As the bias attributed to subsampling is expected to occur more frequently in taxa with low abundances, the discussion of meiofauna taxa was limited to the more abundant ones.

5.6. Final conlusion.

An important inference from the present study is that the meiofaunal standing stock in the Antarctic subtidal sediments of Signy Island were strongly impacted by the temporal varying pelagic and benthic food supply. The weak affinity of nematode genus and trophic composition, with a concomitant stable pattern of dominance diversity, suggest the importance of the eutrophic, highly reductive nature of the sediments, and their seasonal variability in controlling community processes. This study emphasizes that the assertion of Clarke (1988), that all levels of the Southern Ocan food web are influenced profoundly by the seasonality of the primary production, holds also for the metazoan meiofauna.

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APPENDICES

Appendix 1: Classification of the nematode genera into families according to Lorenzen (1994) (2 pages)

Appendix 2: Depth variation within meiofauna communities (1 page)

-Meiofaunal counts in the sediments of Kapp Norvegia (no 10 cm^{-2}, cores for analysis of spatial and vertical distribution) (1 page)

Appendix 3: Depth variation within nematode assemblages (10 pages)

-Nematode genus counts Weddell Sea (no 10 cm^{-2}) (8 pages)
-Nematode family counts (no 10 cm^{-2}) (2 pages)

Appendix 4: Vertical distribution within the sediments of the Weddell Sea (3 pages)

-Meiofaunal counts Weddell Sea (no 10 cm^{-2}) (1 page)
-Nematode genus counts Weddell Sea (no 10 cm^{-2}) (2 pages)

Appendix 5: Meiofauna in its biogeochemical environment (3 pages)

-Meiofaunal counts Signy (no 10 cm^{-2}) (1 page)
-Nematode genus counts Signy (no 10 cm^{-2}) (1 page)
-Environmental data Signy: chloropigments (µg ml^{-1}), diatoms (no 10^6 ml^{-1}), bacteria (no 10^9 ml^{-1}), organic matter (mass %), interstitial nutrients (mg l^{-1}), pellite (%), sediment texture (µm) (1 page)

Appendix 6: Temporal variability within meiofauna communities (10 pages)

-Meiofaunal counts Signy (no 10 cm^{-2}) (2 pages)
-Nematode genus counts Signy (no 10 cm^{-2}) (6 pages)
-Environmental data Signy: organic matter (mass %), sediment texture (µm), dissolved organic carbon (mg l^{-1}), chloropigments (µg g^{-1})(2 pages)

Appendix 7: Nematode size measurements, Weddell Sea (12 pages)
L: length (mm), W: width (mm),K1,1: (station, replicate)

Appendix 8: Nematode size measurements, Signy (19 pages)
L: length (mm), W: width (mm), Apr 27: (date, 2 replicates pooled)

Appendix 1

Classification of the nematode genera into families according to Lorenzen (1994)

Classification of the nematode genera according to Lorenzen (1994)

Family Chromadoridae Filipjev, 1917
- *Acantholaimus* Allgén, 1933
- *Actinonema* Cobb, 1920
- *Chromadora* Bastian, 1865
- *Chromadorella* Filipjev, 1918
- *Chromadorina* Filipjev, 1918
- *Chromadorita* Filipjev, 1922
- *Dichromadora* Kreis, 1929
- *Neochromadora* Micoletzky, 1924
- *Prochromadorella* Micoletzky, 1924
- *Ptycholaimellus* Cobb, 1920
- *Rhips* Cobb, 1920
- *Spiliphera* Bastian, 1865
- *Trochamus* Boucher & Bovée, 1972

Family Ethmolaimidae Filipjev & Stekhoven, 1941
- *Ethmolaimus* de Man, 1880

Family Neotonchidae Wieser & Hopper, 1966
- *Neotonchus* Cobb, 1933

Family Cyatholaimidae Filipjev, 1918
- *Longicyatholaimus* Micoletzky, 1924
- *Marylynnia* Hopper, 1977
- *Metacyatholaimus* Stekhoven, 1942
- *Minolaimus* Vitiello, 1970
- *Nannolaimus* Cobb, 1920
- *Nannolaimoides* Ott, 1972
- *Paracanthonchus* Micoletzky, 1924
- *Paracyatholaimoides* Gerlach, 1953
- *Paralongicyatholaimus* Stekhoven, 1950
- *Pomponema* Cobb, 1917

Family Selachinematidae Cobb, 1915
- *Cheironchus* Cobb, 1917
- *Gammanema* Cobb, 1920
- *Halichoanolaimus* de Man, 1886
- *Latronema* Wieser, 1954
- *Richtersia* Steiner, 1916

Family Desmodoridae Filipjev, 1922
- *Desmodora* de Man, 1889
- *Echinodesmodora* Blome, 1982*
- *Molgolaimus* Ditlevsen, 1921
- *Pseudodesmodora* Boucher, 1975

Family Epsilonematidae Steiner, 1927
- *Epsilonema* Steiner, 1927

Family Draconematidae Filipjev, 1918
- *Dracograllus* Allen & Noffsinger, 1978
- *Draconema* Cobb, 1913
- *Prochaetosoma* Micoletzky, 1922

Family Microlaimidae Micoletzky, 1922
- *Aponema* Jensen, 1978
- *Bolbolaimus* Cobb, 1920
- *Calomicrolaimus* Lorenzen, 1976
- *Ixonema* Lorenzen, 1971
- *Microlaimus* de Man, 1880
- *Spirobolbolaimus* Soetaert & Vincx, 1988*

Family Monoposthiidae Filipjev, 1934
- *Nudora* Cobb, 1920

Family Desmoscolecidae Shipley, 1896
- *Desmoscolex* Claparède, 1863
- *Greeffiella* Cobb, 1922
- *Hapalomus* Lorenzen, 1969
- *Pareudesmoscolex* Weischer, 1962
- *Protricomoides* Timm, 1970

Family Meyliidae de Coninck, 1965
- *Prototricoma* Timm, 1970
- *Quadricoma* Filipjev, 1922
- *Tricoma* Cobb, 1893

Family Leptolaimidae Örley, 1880
- aff. *Dagda* Southern, 1914
- *Alaimella* Cobb, 1920
- *Camacolaimus* de Man, 1889
- *Leptolaimoides* Vitiello, 1971
- *Leptolaimus* de Man, 1876
- *Stephanolaimus* Ditlevsen, 1918

Family Haliplectidae Chitwood, 1951
- *Setoplectus* Vitiello, 1971

Family Tarvaiidae Lorenzen, 1981
- *Tarvaia* Allgén, 1934

Family Aegialoalaimidae Lorenzen, 1981
- *Aegialoalaimus* de Man, 1907
- *Cyartonema* Cobb, 1920
- *Diplopeltoides* Gerlach, 1962

Family Ceramonematidae Cobb, 1933
- *Metadasynemella* de Coninck, 1942
- *Pselionema* Cobb, 1933
- *Pterygonema* Gerlach, 1954

Family Tubolaimoididae Lorenzen, 1981
- *Chitwoodia* Gerlach, 1956
- *Tubolaimoides* Gerlach, 1963

Family Monhysteridae de Man, 1876
- *Diplolaimella* Allgén, 1929
- *Diplolaimelloides* Meyl, 1954
- *Gammarinema* Kinne & Gerlach, 1953

Family Xyalidae Chitwood, 1951
- *Ammotheristus* Lorenzen, 1977
- *Amphimonhystera* Allgén, 1929
- *Amphimonhystrella* Timm, 1961
- *Cobbia* De Man, 1907
- *Daptonema* Cobb, 1920
- *Elzalia* Gerlach, 1957
- *Gnomoxyala* Lorenzen, 1977
- *Linhystera* Juario, 1974
- *Metadesmolaimus* Stekhoven, 1935
- *Manganonema* Bussau,1993 (nomen nudum)*
- *Paramonhystera* Steiner, 1916
- *Promonhystera* Wieser, 1956
- *Rhynchonema* Cobb, 1920
- *Theristus* Bastian, 1865
- *Valvaelaimus* Lorenzen, 1977

Family Sphaerolaimidae Filipjev, 1918
- *Doliolaimus* Lorenzen, 1966
- *Metasphaerolaimus* Gourbault & Boucher, 1981*
- *Sphaerolaimus* Bastian, 1865

Family Siphonolaimidae Filipjev, 1918

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* not included in Lorenzen (1994)

Siphonolaimus de Man, 1893

Family Linhomoeidae Filipjev, 1922
Anticyathus Cobb, 1920
Desmolaimus de Man, 1880
Disconema Filipjev, 1918
Eleutherolaimus Filipjev, 1922
Eumorpholaimus Schultz, 1932
Linhomoeus Bastian, 1865
Megadesmolaimus Wieser, 1954
Metalinhomoeus de Man, 1907
Paralinhomoeus de Man, 1907
Terschellingia de Man, 1888

Family Axonolaimidae Filipjev, 1918
Ascolaimus Ditlevsen, 1919
Axonolaimus de Man, 1889
Odontophora Bütschli, 1874

Family Comesomatidae Filipjev, 1918
Cervonema Wieser, 1954
Hopperia Vitiello, 1969
Paramesonchium Hopper, 1967
Pierrickia Vitiello, 1970
Sabatieria Rouville, 1903
Setosabatieria Platt, 1985*
Vasostoma Wieser, 1954

Family Diplopeltidae Filipjev, 1918
Araeolaimus de Man, 1888
Campylaimus Cobb, 1920
Diplopeltis Cobb in Stiles & Hassal, 1905
Diplopeltula Gerlach, 1950
Southerniella Allgén, 1932

Family Coninckiidae Lorenzen, 1981
Coninckia Gerlach, 1956

Family Thoracostomopsidae Filipjev, 1927
Enoplolaimus de Man, 1893
Fenestrolaimus Filipjev, 1927
Mesacanthion Filipjev, 1927
Oxyonchus Filipjev, 1927
Paramesacanthion Wieser, 1953

Family Anoplostomatidae Gerlach & Riemann, 1974
Anoplostoma Bütschli, 1874
Chaetonema Filipjev, 1927

Family Phanodermatidae Filipjev, 1927
Crenopharynx Filipjev, 1934
Micoletzkyia Ditlevsen, 1926
Phanoderma Bastian, 1865
Phanodermopsis Ditlevsen, 1926

Family Anticomidae Filipjev, 1918
Anticoma Bastian, 1865
Cephalanticoma Platonova, 1976
Paranticoma Micoletzky, 1930

Family Ironidae de Man, 1876
Syringolaimus de Man, 1888

Family Leptosomatidae Filipjev, 1916
aff *Platycoma* Cobb, 1894
Cylicolaimus de Man, 1889

Family Oxystominidae Chitwood, 1935
Cricohalalaimus Bussau,1993 (nomen nudum)*

Halalaimus de Man, 1888
Litinium Cobb, 1920
Nemanema Cobb, 1920
Oxystomina Filipjev, 1921
Thalassoalaimus de Man, 1893
Wieseria Gerlach, 1956

Family Oncholaimidae Filipjev, 1916
Pontonema Leidy, 1855
Viscosia de Man, 1890

Family Enchelidiidae Filipjev, 1918
Batheurystomina Lambshead & Platt, 1979
Belbola Andrassy, 1973
Calyptronema Marion, 1870
Enchelidium Ehrenberg, 1836
Eurystomina Filipjev, 1921
Simplocostomella Micoletzky, 1930

Family Rhabdodemaniidae Filipjev, 1934
Rhabdodemania Baylis and Daubney, 1926

Family Pandolaimidae Belogurov, 1980
Pandolaimus Allgén, 1929

Family Simpliconematidae Blome & Schrage, 1985
Simpliconema Blome & Schrage, 1985

Family Trefusiidae Gerlach, 1966
Halanonchus Cobb, 1920
Rhabdocoma Cobb, 1920
Trefusia de Man, 1893

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* not included in Lorenzen (1994)

Appendix 2

Depth variation within meiofauna communities

Depth variation within meiofauna communities

	K1,1	K1,2	K1,3	K2,1	K2,2	K2,3	K2,4	K2v1	K2v2	K3,1	K3,2	K3,3	K3v1	K3v2	K4,1	K4,2	K4,3	K4,4	K5,1	K5,2	K5,3	K5v1	K5v2	K6,1	K6,2	K6,3	K6v1	K6v2
Coelenterates	0	2	1	2	0	2	0	0	1	0	0	0	3	0	2	2	0	3	0	0	0	0	0	0	0	0	0	0
Turbellarians	0	0	0	2	1	6	0	6	5	2	1	0	1	0	1	1	2	2	0	0	1	0	0	0	0	0	0	0
Nematodes	2745	2087	1904	1102	1702	3101	1461	2650	3037	3587	2514	257	9659	3899	971	696	814	814	660	470	1121	1140	541	492	934	1027	1429	1194
Gastrotrichs	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	3	1	3	1	0	1	0	0	0	0	0	0	0
Rotifers	0	0	0	0	0	10	0	6	3	2	2	0	0	0	0	0	16	8	0	0	0	0	0	0	0	0	0	0
Loricifers	0	0	0	0	0	0	0	1	2	1	0	0	1	0	0	0	0	0	0	1	0	3	0	0	0	0	1	3
Priapulids	0	0	0	1	1	1	0	0	0	0	1	0	2	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0
Kinorhynchs	13	7	3	12	29	60	29	58	38	26	20	2	67	57	1	1	1	5	3	1	4	1	0	6	5	11	9	5
Polychaetes	63	35	32	25	19	38	11	34	25	31	16	0	31	37	11	10	4	4	3	2	0	2	7	1	4	2	0	0
Oligochaetes	1	0	0	6	5	3	0	2	27	3	2	0	6	9	3	1	0	1	1	1	6	0	0	1	1	2	0	0
Tardigrades	9	6	3	0	0	1	0	0	0	0	0	0	0	0	4	2	0	0	1	1	0	1	0	1	1	0	2	2
Ostracods	19	11	14	7	12	24	11	17	12	10	1	0	13	9	11	10	3	7	1	1	3	0	0	2	1	4	0	2
Harpacticoid copepods	323	216	167	117	90	166	95	63	129	42	16	4	46	96	50	78	18	47	26	25	23	7	10	33	29	29	17	35
Isopods	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	2	0	1	0	0	0	0	0	0	0	0	0	0
Tanaidaceans	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0
Amphipods	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
Cumaceans	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	8	0	0
Halacarid mites	7	8	5	2	0	4	1	1	4	0	0	0	0	0	1	0	0	0	1	1	0	0	1	1	0	1	0	0
Bryozoans	0	0	0	1	0	57	0	0	1	0	0	0	0	0	1	5	0	14	0	0	0	0	0	0	0	0	0	0
Bivalves	1	1	1	9	6	9	9	4	12	6	8	0	9	7	7	1	3	3	1	2	6	1	0	1	1	0	1	0
Tunicates	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nauplii	256	102	117	95	102	169	25	84	171	88	18	3	56	77	44	39	22	36	1	5	0	1	4	4	6	0	6	9
Porifers	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Echinoderms	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Meiofaunal counts in the sediments of Kapp Norvegia (no 10 cm^{-2}, cores for analysis of spatial and vertical distribution).

Appendix 3

Depth variation within nematode assemblages

Depth variation within nematode assemblages

		K1,1			K1,2			K1,3			K2,1			K2,2			K2,3			K3,1			K3,2			K3,3			K4,1			K4,2			K4,3			K4,4			K5,1			K5,2			K5,3			K6,1			K6,2			K6,3		
		j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m
aff. *Ammotheristus*	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
aff. *Dagda*	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
aff. *Platycoma*	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acantholaimus	2A	2	1	0	0	1	3	1	0	1	1	2	0	2	1	0	1	0	0	0	0	1	1	1	0	0	0	0	1	0	1	1	0	1	0	0	1	3	2	0	3	1	0	1	0	1	1	0	1	6	4	5	14	9	6	4	4	4
Actinonema	2A	3	1	0	1	1	3	0	0	1	1	2	4	0	3	2	2	1	2	1	1	0	0	0	0	0	0	0	1	1	0	1	2	0	0	0	0	1	1	1	0	0	0	0	0	0	0	2	2	0	0	2	0	3	2	0	1	0
Aegialoalaimus	1A	3	2	0	3	1	2	2	0	1	1	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	9	1	0	7	1	0	5	3	4	2	1	3	10	0	3	1	0	0	1	0	0	1	0	0
Alaimella	1A	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ammotheristus	1B	4	0	1	3	0	1	1	1	1	0	0	0	0	0	3	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
Amphimonhystera	1B	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amphimonhystrella	1B	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
Anoplostoma	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anticoma	1A	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Anticyathus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aponema	1A	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Araeolaimus	1A	0	1	1	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4	0	0	2	1	0	0	0	0	0	0	1	1	0	0	2	0	0	1	0	0	0	0
Ascolaimus	1B	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Axonolaimus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Batheurystomina	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Belbolla	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bolbolaimus	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calomicrolaimus	2A	0	2	0	1	4	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	5	1	2	3	3	1	7	2	2	0	0	0	0	0	0	2	0	1	0	1	0	0	0	0	0	0
Calyptronema	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camacolaimus	2A	0	0	0	1	1	0	9	2	3	3	0	1	1	0	0	2	0	1	0	0	0	0	0	0	0	2	2	1	7	0	0	5	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	3	0	0
Campylaimus	1B	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	2	0	1	1	1	0	0	1	2	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	1	1	1	0	3	2	1	2	0	0
Cephalanticoma	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cervonema	1A	0	0	0	1	0	0	0	0	0	3	1	1	13	2	2	4	1	4	4	0	4	3	4	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	1	0	0	0	3	2	2	3	1	0	3	3	2
Chaetonema	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cheironchus	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chitwoodia	1A(?)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chromadora	2A	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chromadorella	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chromadorina	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chromadorita	2A	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	3	0	0	4	0	0	5	1	1	3	0	0	6	1	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Cobbia	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Coninckia	1A(?)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Crenopharynx	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cricohalalaimus	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyartonema	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Cylicolaimus	2B	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Daptonema	1B	0	0	1	0	0	0	0	0	0	3	2	1	2	1	0	2	2	1	1	0	0	6	0	2	2	2	2	5	0	0	1	0	2	0	0	0	4	2	4	0	0	0	2	0	0	5	0	1	6	3	4	4	2	0	6	3	3
Desmodora	2A	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	2	0	0
Desmodora aff. *cambelli*	2A	0	0	0	1	0	0	0	0	0	9	0	3	5	0	0	5	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Desmodorella	2A	4	0	0	7	0	0	8	1	1	1	0	0	3	1	0	6	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	1	2	0	0	1	1	0	1	0	0	2	0	0	0	1
subgen. *Pseudochromadora*	2A	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Desmolaimus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Desmoscolex	1A	0	0	0	1	0	0	0	0	0	0	2	0	2	0	0	2	0	2	0	4	1	0	1	1	0	0	3	1	0	0	1	2	2	1	0	0	0	1	0	2	1	0	2	0	1	0	0	1	0	2	3	1	0	0	0	0	0
Dichromadora	2A	0	2	3	1	0	2	0	0	0	2	1	2	8	9	6	3	8	14	7	1	3	5	1	5	4	1	1	1	8	2	4	3	4	0	0	2	7	2	3	1	1	0	4	0	0	0	0	0	10	10	5	5	3	4	1	9	8
Diplolaimella	1B	2	0	0	1	0	2	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	3	0	1	0	0	0	0	0	0	0	1	1	3	1	0	0	0	0	3	0	2
Diplolaimelloides	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diplopeltis	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nematode genus counts Weddell Sea (no 10 cm^{-2}).

Depth variation within nematode assemblages

		K1,1			K1,2			K1,3			K2,1			K2,2			K2,3			K3,1			K3,2			K3,3			K4,1			K4,2			K4,3			K4,4			K5,1			K5,2			K5,3			K6,1			K6,2			K6,3		
		j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m
Diplopeltis aff.	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0
Diplopeltoides	1A	1	1	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Diplopeltula	1A	0	1	2	0	0	1	5	0	3	0	0	1	0	0	1	0	1	2	1	1	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	2	2	0	0	0	2	1	0	0	0	0	0	0	2	0
Disconema	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Disconema aff.	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dolicholaimus	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
Dracograllus	1A	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Draconema	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Echinodesmodora	2A	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Eleutherolaimus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Elzalia	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0
Enchelidium	2A	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enoplolaimus	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Epsilonema	1A	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ethmolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eumorpholaimus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eurystomina	2B	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fenestrolaimus	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gammanema	2B	1	0	0	0	1	0	0	0	0	3	1	0	0	0	0	1	0	0	1	0	0	0	0	0	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	1	0	3	0	0	0	0	2	0	0	0	0	1	0	2	0	0
Gammarinema	1B	4	0	0	6	0	1	5	2	2	4	4	1	1	0	0	2	0	0	2	0	0	0	0	0	0	0	0	2	0	0	2	0	1	1	0	0	4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Gnomoxyala	1B	0	0	0	3	1	3	3	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Greeffiella	1A	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	1	2	2	1	0	0	0	1	0	0	2	0	1	1	0	0
Halalaimus	1A	0	0	1	1	0	0	0	0	0	4	4	2	3	4	1	3	2	3	1	1	0	1	4	0	0	0	0	2	0	1	1	1	0	2	2	0	5	0	2	0	0	1	1	0	0	3	1	0	1	1	0	3	0	1	5	0	2
Halanonchus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Halichoanolaimus	2B	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	1	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	1	0	0	1	0	1	3
Hapalomus	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Hopperia	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ixonema	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Latronema	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptolaimoides	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Leptolaimus	1A	0	0	0	2	0	0	0	0	0	7	2	1	4	1	6	7	2	3	10	1	5	4	4	7	8	1	4	4	1	3	3	0	0	4	1	0	4	0	1	3	0	4	1	0	1	1	0	1	5	2	2	7	2	0	3	1	2
Linhomoeus	2A	0	0	0	1	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0
Linhystera	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0
Litinium	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Longicyatholaimus	2A	0	0	0	2	0	0	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manganonema	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Marylynnia	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	4	0	0	1	1	0
Megadesmolaimus	1B	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mesacanthion	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Metacyatholaimus	2A	0	0	0	0	1	1	2	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0
Metadasynemella	1A	1	1	1	1	0	2	6	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	1	3	2	2	2	1	0	0	0	0	0	0	0
Metadesmolaimus	1B	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Metalinhomoeus	1B	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Metasphaerolaimus	2B	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0
Micoletzkyia	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Microlaimus	2A	1	3	2	6	2	2	1	0	0	8	1	4	5	3	2	9	4	2	19	2	5	7	3	0	10	4	0	4	1	2	0	1	2	1	0	0	0	0	0	1	0	1	0	2	4	8	3	3	8	12	6	7	2	9	11	6	5
Minolaimus	1A	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
Molgolaimus	1A	4	3	1	11	2	2	6	1	2	13	5	7	11	8	12	8	5	4	22	3	7	10	7	7	12	5	6	1	1	1	5	5	3	18	7	6	3	1	0	29	15	11	20	13	10	27	3	4	1	0	0	0	0	5	0	1
Monhystera	1B	8	1	3	5	2	1	10	3	1	7	1	1	2	4	0	5	4	4	3	1	2	6	0	2	10	2	1	7	3	1	8	4	0	8	1	2	15	3	0	2	0	0	1	3	2	3	1	2	6	1	0	7	1	8	7	4	5
Nannolaimoides	2A	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	1	0	2	4	3	3	4	1	2	0	0	0	0	0	0	0	0	0	0

Nematode genus counts Weddell Sea (no 10 cm^{-2}).

Depth variation within nematode assemblages

		K1,1			K1,2			K1,3			K2,1			K2,2			K2,3			K3,1			K3,2			K3,3			K4,1			K4,2			K4,3			K4,4			K5,1			K5,2			K5,3			K6,1			K6,2			K6,3		
		j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m
Nannolaimus	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nemanema	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Neochromadora	2A	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Neotonchus	2A	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Nudora	2A	7	2	5	3	6	5	2	6	4	1	0	0	3	2	0	0	0	0	16	0	3	9	1	0	3	0	2	2	0	0	0	0	0	0	0	1	0	0	1	0	0	2	2	0	1	0	0	0	0	0	0	0	0	0	0
Odontophora	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oxyonchus	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oxystomina	1A	0	1	0	0	0	0	0	0	1	2	0	0	0	0	1	2	0	1	0	1	0	0	0	0	1	0	0	0	0	0	1	1	0	0	1	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0
Pandolaimus	1B	0	0	0	0	0	0	0	0	0	1	0	1	2	0	2	0	1	0	1	1	0	9	1	1	2	0	1	0	0	0	0	0	0	1	1	0	0	0	0	3	2	1	1	1	0	7	1	1	0	0	0	0	0	1	0	0
Paracanthonchus	2A	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	1	0	1	0	2	0	1	3	0	0	6	3	0	0	0	0	2	1	0	0	1	0	1	1	0	2	0	0	5	1	0	3	0	0	2	1	0
Paracyatholaimoides	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paralinhomoeus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Paralongicyatholaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paramesacanthion	2B	0	0	0	0	0	0	4	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0
Paramesonchium	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paramonhystera	1B	0	1	2	1	1	2	1	1	1	1	1	0	2	1	0	0	0	1	1	0	0	0	0	1	1	2	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	1
Paranticoma	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	1	0	0	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	5	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pareudesmoscolex	1A	2	0	0	1	0	0	0	0	0	2	0	0	2	0	0	1	0	0	2	0	0	6	0	0	0	0	0	3	0	0	1	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phanoderma	2B	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phanodermopsis	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Pierrickia	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pomponema	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pontonema	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prochaetosoma	2A	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prochromadorella	2A	1	1	2	0	2	0	1	1	0	0	0	0	0	0	0	3	1	1	0	0	0	0	0	0	2	0	1	0	0	0	1	1	1	0	0	0	3	1	0	0	0	0	0	0	0	3	1	1	0	0	0	1	1	0	1	1	0
Prototricoma	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	5	0	0	2	1	0	0	0	0	2	1	0	3	0	0	0	0
Protricomoides	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Pselionema	1A	0	0	0	0	0	0	2	1	3	1	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	0	1	0	2	0	0	0	0	0	0	1	0
Pseudodesmodora	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	1	1	3	1	0	1	0	0	0	0	0	0	0	0	0
Pterygonema	1A	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Ptycholaimellus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Quadricoma	1A	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	1	0	0	0
Rhabdocoma	1A	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0	0	1	0
Rhabdodemania	2B	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rhips	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Rhynchonema	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Richtersia	1B	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sabatieria	1B	36	8	7	12	3	1	26	7	12	4	2	1	23	8	0	9	2	1	4	1	0	10	3	2	10	2	2	8	2	1	6	0	0	7	3	0	17	2	0	19	2	2	7	2	2	27	10	0	8	0	1	4	0	0	10	5	7
Setoplectus	1A	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Setosabatieria	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Simpliconema	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Simplocostomella	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Siphonolaimus	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southerniella	1A	13	2	7	5	0	0	2	3	1	1	0	3	1	0	0	1	1	1	1	0	0	1	0	0	2	0	0	6	2	0	2	1	0	2	0	0	5	0	0	2	0	1	1	0	0	0	1	0	3	0	1	5	0	0	2	4	2
Sphaerolaimus	2B	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
Spiliphera	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spirobolbolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0
Stephanolaimus	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Syringolaimus	2B	0	0	0	0	0	0	0	0	0	9	2	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	2	0	0	1	0	1	2	0	0	1	0	0	1	2	0
Tarvaia	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nematode genus counts Weddell Sea (no 10 cm^{-2}).

Depth variation within nematode assemblages

		K1,1			K1,2			K1,3			K2,1			K2,2			K2,3			K3,1			K3,2			K3,3			K4,1			K4,2			K4,3			K4,4			K5,1			K5,2			K5,3			K6,1			K6,2			K6,3		
		j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m
Terschellingia	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	3	3	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Thalassoalaimus	1A	0	0	1	1	0	1	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	2
Theristus	1B	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	1	1	2	0	0	4	0	1
Trefusia	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
Tricoma	1A	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	5	0	1	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trochamus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tubolaimoides	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Valvaelaimus	2A(?)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Vasostoma	2A	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Viscosia	2B	1	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	2	0	0	2	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0
Wieseria	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Chromadoridae gen.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Comesomatidae gen.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Desmoscolecidae gen.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Linhomoeidae gen.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monhysteridae gen.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thoracostomopsidae gen.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Xyalidae gen.		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nematode genus counts Weddell Sea (no 10 cm^{-2}).

Depth variation within nematode assemblages

| | | H1,1 | | | H1,2 | | | H2,1 | | | H2,2 | | | H3,1 | | | H3,2 | | | H4,1 | | | H4,2 | | | H5,1 | | | H5,2 | | | H6,1 | | | H6,2 | | | H7,1 | | | H7,2 | | | H8,1 | | | H8,2 | | | H9,1 | | | H9,2 | | | H10,1 | | | H10,2 | | | H11,1 | | | H11,2 | | |
|---|---|---

Depth variation within nematode assemblages

| | | H1,1 | | | H1,2 | | | H2,1 | | | H2,2 | | | H3,1 | | | H3,2 | | | H4,1 | | | H4,2 | | | H5,1 | | | H5,2 | | | H6,1 | | | H6,2 | | | H7,1 | | | H7,2 | | | H8,1 | | | H8,2 | | | H9,1 | | | H9,2 | | | H10,1 | | | H10,2 | | | H11,1 | | | H11,2 | | |
|---|---|---

Depth variation within nematode assemblages

| | | H1,1 | | | H1,2 | | | H2,1 | | | H2,2 | | | H3,1 | | | H3,2 | | | H4,1 | | | H4,2 | | | H5,1 | | | H5,2 | | | H6,1 | | | H6,2 | | | H7,1 | | | H7,2 | | | H8,1 | | | H8,2 | | | H9,1 | | | H9,2 | | | H10,1 | | | H10,2 | | | H11,1 | | | H11,2 | | |
|---|---|---

Depth variation within nematode assemblages

| | | H1,1 | | | H1,2 | | | H2,1 | | | H2,2 | | | H3,1 | | | H3,2 | | | H4,1 | | | H4,2 | | | H5,1 | | | H5,2 | | | H6,1 | | | H6,2 | | | H6,2 | | | H7,1 | | | H7,2 | | | H8,1 | | | H8,2 | | | H9,1 | | | H9,2 | | | H10,1 | | | H10,2 | | | H11,1 | | | H11,2 | | |
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Depth variation within nematode assemblages

	K1,1			K1,2			K1,3			K2,1			K2,2			K2,3			K3,1			K3,2			K3,3			K4,1			K4,2			K4,3			K4,4			K5,1			K5,2			K5,3			K6,1			K6,2			K6,3		
	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m	j	f	m
Chromadoridae	6	5	7	2	5	8	2	1	2	4	5	8	11	14	9	12	11	17	13	2	4	12	3	6	9	1	2	10	10	3	8	7	6	3	1	3	14	6	4	5	4	0	5	0	2	4	4	4	17	14	12	20	16	12	6	15	12
Ethmolaimidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Neotonchidae	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyatholaimidae	0	0	0	3	1	2	3	0	1	2	0	1	2	1	1	2	0	1	0	2	2	1	1	0	5	3	3	6	0	2	6	3	1	1	0	1	3	1	0	1	1	3	5	4	4	6	3	4	5	1	1	7	1	0	3	4	0
Selachinematidae	2	0	0	1	2	0	1	0	0	3	1	0	0	0	0	2	1	0	1	0	0	0	1	0	2	0	0	4	0	2	2	0	0	0	0	0	0	0	0	3	1	0	3	0	0	0	0	2	3	2	1	0	1	1	2	1	3
Desmodoridae	8	3	1	19	3	2	15	2	3	24	5	10	19	9	12	19	5	6	23	3	7	11	7	7	15	5	6	3	1	1	7	5	3	18	7	6	6	1	0	34	16	13	28	17	11	29	4	4	2	0	0	2	0	0	7	0	2
Epsilonematidae	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Draconematidae	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Microlaimidae	1	5	2	7	6	5	1	0	0	9	1	5	5	3	3	9	4	2	19	2	5	7	3	1	10	4	0	6	2	3	5	2	4	4	4	1	7	3	2	2	0	3	0	2	4	13	3	4	8	13	6	7	2	9	11	6	5
Monoposthiidae	7	2	5	3	6	5	2	6	4	1	0	0	3	2	0	0	0	0	16	0	3	9	1	0	3	0	2	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	2	0	1	0	0	0	0	0	0	0	0	0	0	0
Desmoscolecidae	3	0	1	2	0	0	0	0	0	2	2	0	4	0	0	3	0	2	2	4	1	6	1	1	0	0	3	4	0	1	1	0	1	2	2	2	3	0	0	3	1	1	4	3	1	2	0	1	2	1	1	2	2	4	2	0	0
Meyliidae	0	0	0	1	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	7	0	1	0	0	0	4	0	0	5	1	0	3	1	0	1	0	1	2	1	1	4	0	0	0	0	0
Leptolaimidae	0	0	0	3	1	0	9	2	3	10	2	3	5	1	6	10	2	4	10	2	5	4	4	7	10	3	5	11	1	3	8	0	1	4	1	0	13	1	1	3	0	4	1	1	1	1	0	3	6	2	2	7	2	0	6	1	3
Haliplectidae	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tarvaiidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aegialoalaimidae	4	3	0	6	1	2	2	0	1	1	1	0	0	0	1	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	9	1	0	7	1	0	6	3	4	2	1	4	11	0	3	2	0	0	1	0	0	1	0	0
Ceramonematidae	1	1	1	1	0	2	8	1	4	1	1	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	2	2	1	1	4	3	2	3	1	3	0	0	1	0	0	0	0	1
Tubolaimoididae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monhysteridae	14	1	3	12	2	4	15	5	4	11	5	2	3	4	0	7	4	5	5	1	2	6	0	3	10	2	1	10	3	1	12	4	1	9	1	5	20	4	0	2	0	0	1	3	2	4	2	5	8	1	0	7	1	8	10	5	7
Xyalidae	4	3	4	8	2	7	5	2	5	7	4	2	6	2	3	3	3	2	3	2	0	8	4	5	5	4	2	7	0	1	2	0	3	0	1	0	5	2	5	1	0	0	2	1	1	6	3	1	9	6	6	10	2	1	13	9	5
Sphaerolaimidae	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
Siphonolaimidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Linhomoeidae	0	0	0	1	0	1	1	0	1	0	0	0	1	0	1	1	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	3	0	3	4	2	0	2	1	1	0	0	0	2	0	1	0	1	0	0	0	0	1	0	0
Axonolaimidae	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Comesomatidae	36	8	7	14	3	1	27	7	12	7	3	2	36	10	2	13	3	5	8	1	4	13	7	3	14	3	2	8	2	1	6	0	0	8	3	0	17	2	0	19	2	4	8	2	3	29	11	0	11	2	3	7	1	0	13	8	9
Diplopeltidae	13	4	10	5	1	1	9	3	5	1	0	7	1	0	1	1	4	3	3	2	1	2	0	1	5	2	0	7	2	0	4	1	0	6	0	0	7	1	1	5	2	5	3	3	0	2	4	2	4	3	1	8	3	1	5	6	2
Coninckiidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thoracostomopsidae	0	0	0	0	0	0	4	1	0	0	0	0	1	0	0	4	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	1	0	0
Anoplostomatidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phanodermatidae	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1
Anticomidae	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0	2	0	0	0	0	0	0	0	0	1	2	0	4	0	0	0	0	0	6	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Ironidae	0	0	0	0	0	0	0	0	0	9	2	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	2	0	0	1	0	1	2	0	0	1	0	0	1	2	0
Leptosomatidae	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oxystominidae	0	1	2	2	0	1	0	0	3	6	4	2	3	4	2	6	2	5	1	2	1	1	4	0	1	0	0	2	1	2	2	2	0	2	3	0	6	0	2	2	1	1	1	0	0	3	2	0	1	1	0	5	2	1	6	1	4
Oncholaimidae	1	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	2	0	0	2	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0
Enchelidiidae	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rhabdodemaniidae	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pandolaimidae	0	0	0	0	0	0	0	0	0	1	0	1	2	0	2	0	1	0	1	1	0	9	1	1	2	0	1	0	0	0	0	0	0	1	1	0	0	0	0	3	2	1	1	1	0	7	1	1	0	0	0	0	0	0	1	0	0
Simpliconematidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Trefusiidae	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	1	0	0	1	0	0	0	1	0	0	0

Nematode family counts (no 10 cm^{-2}).

Depth variation within nematode assemblages

| | H1,1 | | | H1,2 | | | H2,1 | | | H2,2 | | | H3,1 | | | H3,2 | | | H4,1 | | | H4,2 | | | H5,1 | | | H5,2 | | | H6,1 | | | H6,2 | | | H7,1 | | | H7,2 | | | H8,1 | | | H8,2 | | | H9,1 | | | H9,2 | | | H10,1 | | | H10,2 | | | H11,1 | | | H11,2 | | |
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Appendix 4

Vertical distribution within the sediments of the Weddell Sea

Vertical distribution within the sediments of the Weddell Sea

K2

	0-1 cm		1-2 cm		2-3 cm		3-4 cm		4-5 cm		5-10 cm	
	1	2	1	2	1	2	1	2	1	2	1	2
Coelenterates	0	0	0	0	0	0	0	0	0		0	1
Turbellarians	3	0	1	2	0	2	1	1	0		1	0
Nematodes	1028	1747	799	616	373	268	266	116	146		45	291
Gastrotrichs	0	0	0	0	0	0	0	0	0		0	0
Rotifers	6	1	0	1	1	1	0	1	0		0	0
Loricifers	0	0	0	0	0	0	0	0	0		0	1
Priapulids	0	0	0	0	0	0	0	0	0		0	0
Kinorhynchs	49	34	7	2	1	1	0	0	0		1	1
Polychaetes	22	10	10	6	1	5	0	2	1		0	3
Oligochaetes	0	3	2	5	0	7	0	6	0		0	7
Tardigrades	0	0	0	0	0	0	0	0	0		0	0
Ostracods	17	9	0	1	0	2	0	0	0		0	0
Harpacticoid copepods	42	114	13	6	7	2	1	3	0		0	4
Isopods	0	0	0	0	0	0	0	0	0		0	0
Tanaidaceans	0	0	0	0	0	0	0	0	0		0	0
Amphipods	0	0	0	0	0	0	0	0	0		0	0
Cumaceans	0	0	0	0	0	0	0	0	0		0	0
Halacarid mites	0	0	0	0	0	3	0	0	1		0	1
Bryozoans	0	0	0	0	0	0	0	0	0		0	2
Bivalves	2	8	2	1	0	2	0	0	0		0	1
Tunicates	0	0	0	0	0	0	0	0	0		0	0
Nauplii	65	152	10	8	6	4	1	0	0		0	7
Porifers	0	0	0	0	0	0	0	0	0		0	0
Echinoderms	0	0	0	0	0	0	0	0	0		0	0

K3

	0-1 cm		1-2 cm		2-3 cm		3-4 cm		4-5 cm		5-10 cm	
	1	2	1	2	1	2	1	2	1	2	1	2
Coelenterates	0	0	0	0	0	0	0	0	0	0	0	
Turbellarians	1	0	0	0	0	0	0	0	0	0	0	
Nematodes	2219	1442	2464	1016	2615	989	1639	348	417	106	406	
Gastrotrichs	0	0	0	0	0	0	0	0	0	0	0	
Rotifers	0	0	0	0	0	0	0	0	0	0	0	
Loricifers	0	0	1	0	0	0	0	0	0	0	0	
Priapulids	1	0	0	0	0	0	0	0	0	0	1	
Kinorhynchs	44	48	17	8	4	1	1	0	0	0	1	
Polychaetes	10	16	6	12	10	6	1	1	2	3	2	
Oligochaetes	2	4	1	1	0	0	1	3	2	0	0	
Tardigrades	0	0	0	0	0	0	0	0	0	0	0	
Ostracods	7	6	3	2	0	0	1	1	1	1	1	
Harpacticoid copepods	22	81	16	12	4	1	3	2	1	0	1	
Isopods	0	0	0	0	0	0	0	0	0	0	0	
Tanaidaceans	0	2	0	0	0	0	0	0	0	0	0	
Amphipods	0	0	0	0	0	0	0	0	0	0	0	
Cumaceans	0	0	0	0	0	0	0	0	0	0	0	
Halacarid mites	0	0	0	0	0	0	0	0	0	0	0	
Bryozoans	0	0	0	0	0	0	0	0	0	0	0	
Bivalves	3	6	4	2	1	0	1	0	0	0	0	
Tunicates	0	0	0	0	0	0	0	0	0	0	0	
Nauplii	33	62	0	16	7	0	5	0	0	0	1	
Porifers	0	0	0	0	0	0	0	0	0	0	0	
Echinoderms	0	0	0	0	0	0	0	0	0	0	0	

K5

	0-1 cm		1-2 cm		2-3 cm		3-4 cm		4-5 cm		5-10 cm	
	1	2	1	2	1	2	1	2	1	2	1	2
Coelenterates	0	0	0	0	0	0	0	0	0	0	0	0
Turbellarians	0	0	0	0	0	0	0	0	0	0	0	0
Nematodes	301	13	246	31	210	71	134	66	107	72	143	288
Gastrotrichs	0	0	0	0	0	0	0	0	0	0	0	0
Rotifers	0	0	0	0	0	0	0	0	0	0	0	0
Loricifers	0	0	1	0	1	0	1	0	0	0	0	0
Priapulids	0	0	0	0	0	0	0	0	0	0	0	0
Kinorhynchs	0	0	0	0	1	0	0	0	0	0	0	0
Polychaetes	1	0	0	0	0	0	1	0	0	7	0	0
Oligochaetes	0	0	0	0	0	0	0	0	0	0	0	0
Tardigrades	1	0	0	0	0	0	0	0	0	0	0	0
Ostracods	0	0	0	0	0	0	0	0	0	0	0	0
Harpacticoid copepods	5	3	1	1	0	2	1	3	0	1	0	0
Isopods	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidaceans	0	0	0	0	0	0	0	0	0	0	0	0
Amphipods	0	0	0	0	0	0	0	0	0	0	0	0
Cumaceans	0	0	0	0	0	0	0	0	0	0	0	0
Halacarid mites	0	0	0	0	0	0	0	0	0	1	0	0
Bryozoans	0	0	0	0	0	0	0	0	0	0	0	0
Bivalves	1	0	0	0	0	0	0	0	0	0	0	0
Tunicates	0	0	0	0	0	0	0	0	0	0	0	0
Nauplii	0	1	1	0	0	0	0	1	0	0	0	2
Porifers	0	0	0	0	0	0	0	0	0	0	0	0
Echinoderms	0	0	0	0	0	0	0	0	0	0	0	0

K6

	0-1 cm		1-2 cm		2-3 cm		3-4 cm		4-5 cm		5-10 cm	
	1	2	1	2	1	2	1	2	1	2	1	2
Coelenterates	0	0	0	0	0	0	0	0	0	0	0	0
Turbellarians	0	0	0	0	0	0	0	0	0	0	0	0
Nematodes	921	642	280	412	92	176	63	10	56	41	17	14
Gastrotrichs	0	0	0	0	0	0	0	0	0	0	0	0
Rotifers	0	0	0	0	0	0	0	0	0	0	0	0
Loricifers	0	3	0	0	0	0	1	0	0	0	0	0
Priapulids	0	0	0	0	0	0	0	0	0	0	0	0
Kinorhynchs	8	5	1	0	0	0	0	0	0	0	0	0
Polychaetes	0	0	0	0	0	0	0	0	0	0	0	0
Oligochaetes	0	0	0	0	0	0	0	0	0	0	0	0
Tardigrades	1	2	1	0	0	0	0	0	0	0	0	0
Ostracods	0	2	0	0	0	0	0	0	0	0	0	0
Harpacticoid copepods	9	27	6	2	1	1	1	0	1	6	0	0
Isopods	0	0	0	0	0	0	0	0	0	0	0	0
Tanaidaceans	0	0	0	0	0	0	0	0	0	0	0	0
Amphipods	0	0	0	0	0	0	0	0	0	0	0	0
Cumaceans	0	0	0	0	0	0	0	0	0	0	0	0
Halacarid mites	0	0	0	0	0	0	0	0	0	0	0	0
Bryozoans	0	0	0	0	0	0	0	0	0	0	0	0
Bivalves	1	0	0	0	0	0	0	0	0	0	0	0
Tunicates	0	0	0	0	0	0	0	0	0	0	0	0
Nauplii	6	6	0	4	1	0	0	0	0	0	0	0
Porifers	0	0	0	0	0	0	0	0	0	0	0	0
Echinoderms	0	0	0	0	0	0	0	0	0	0	0	0

Meiofaunal counts Weddell Sea (no 10 cm^{-2})

Vertical distribution within the sediments of the Weddell Sea

		K2												K3											
		0-1 cm		1-2 cm		2-3 cm		3-4 cm		4-5 cm		5-10 cm		0-1 cm		1-2 cm		2-3 cm		3-4 cm		4-5 cm		5-10 cm	
		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Acantholaimus	2A	0	0	6	1	1	3	1	0	4		1	1	2	3	1	3	0	1	2	1	0	0	1	
Actinonema	2A	6	1	3	0	2	0	0	2	0		0	2	0	0	0	2	0	1	0	1	0	0	2	
Aegialoalaimus	1A	0	0	0	0	1	0	1	0	0		1	3	0	0	0	1	0	0	0	0	0	1	0	
Alaimella	1A	0	0	0	0	0	0	0	0	0		0	0	2	0	0	1	0	0	0	0	0	0	0	
Ammotheristus	1B	0	0	0	0	0	1	0	0	0		0	0	1	0	0	0	0	0	0	0	0	0	0	
Amphimonhystrella	1B	0	5	1	1	0	0	0	0	0		0	1	0	1	0	3	0	2	0	2	0	0	0	
Anticoma	1A	0	1	0	2	0	0	2	0	0		0	2	0	0	0	0	0	0	0	0	0	0	1	
Anticyathus	1B	0	0	0	0	1	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Aponema	1A	0	0	0	0	0	0	0	0	0		1	0	1	3	1	0	1	0	0	0	0	1	0	
Axonolaimus	1B	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	1	
Calomicrolaimus	2A	0	0	0	0	0	0	0	0	0		0	0	0	3	1	1	3	0	0	0	0	0	4	
Camacolaimus	2A	0	1	2	3	2	2	0	0	0		0	0	1	0	0	0	0	0	0	0	0	0	0	
Campylaimus	1B	0	0	0	1	0	0	0	0	0		0	0	1	2	0	1	0	0	1	0	0	0	0	
Cephalanticoma	2A	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Cervonema	1A	5	4	9	3	2	1	7	3	3		0	3	2	0	0	3	3	2	0	2	0	2	0	
Chitwoodia	1A(?)	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Chromadora	2A	0	0	0	0	0	0	0	0	1		0	0	0	0	0	1	0	0	0	0	0	0	0	
Chromadorita	2A	0	0	5	0	0	0	0	0	0		0	1	0	0	1	0	0	0	1	0	0	0	0	
Cobbia	2A	0	1	0	0	0	1	0	0	1		2	1	0	3	0	0	0	1	0	1	1	0	0	
Daptonema	1B	2	2	6	2	2	1	1	1	1		0	3	0	2	2	2	0	2	1	3	0	1	3	
Desmodora	2A	14	7	3	1	2	2	0	0	0		2	5	1	1	0	1	0	0	2	0	1	0	1	
Desmoscolex	1A	9	2	0	3	2	2	0	0	1		2	8	0	3	1	1	0	0	1	1	1	1	0	
Dichromadora	2A	1	8	20	15	14	1	1	2	1		2	4	1	4	5	10	2	0	1	0	0	0	0	
Diplolaimella	1B	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Diplopeltoides	1A	0	0	0	0	0	1	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Diplopeltula	1A	2	1	1	1	0	2	1	0	0		0	0	0	1	0	1	1	0	0	1	1	0	0	
Disconema	1A	0	0	0	0	0	0	0	0	0		0	0	0	1	0	0	0	0	0	0	0	0	0	
Draconema	1A	0	1	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Elzalia	1B	0	0	0	0	0	0	0	0	0		0	0	1	0	0	0	0	0	1	0	1	0	0	
Enoplolaimus	2B	0	0	0	0	1	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Gammanema	2B	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Gammarinema	1B	0	0	0	0	0	0	0	1	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Greeffiella	1A	0	0	0	0	0	2	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Halalaimus	1A	2	5	4	4	4	2	0	0	4		1	1	6	4	4	5	0	1	1	1	3	0	1	
Halichoanolaimus	2B	1	0	2	0	1	3	0	1	0		0	0	0	1	0	0	0	0	0	0	0	0	0	
Hapalomus	1A	0	0	0	0	0	0	0	0	0		2	0	0	0	1	0	1	0	0	0	0	0	0	
Leptolaimus	1A	10	6	3	3	1	1	0	0	0		2	2	7	11	0	5	2	1	2	1	2	1	0	
Linhomoeus	2A	0	1	1	0	0	0	0	0	0		0	0	0	1	0	0	0	0	0	1	0	2	0	
Linhystera	1A	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Litinium	1A	0	0	0	1	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Longicyatholaimus	2A	0	0	0	0	0	0	0	0	0		0	0	0	1	0	0	0	1	0	1	0	0	0	
Marylynnia	2A	0	0	0	0	0	1	0	0	0		1	0	0	0	0	0	0	0	0	0	1	1	0	
Megadesmolaimus	1B	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Mesacanthion	2B	3	0	1	1	0	0	0	0	0		0	1	0	2	0	0	0	0	0	0	0	0	0	
Metadasynemella	1A	0	0	0	0	0	0	0	0	0		0	0	0	1	1	0	0	0	0	0	0	0	0	
Metadesmolaimus	1B	0	1	1	0	0	1	0	0	0		0	2	0	0	1	0	0	0	0	0	0	0	0	
Metalinhomoeus	1B	0	0	0	0	0	0	0	0	1		2	0	0	0	0	0	0	0	0	0	0	1	1	
Metasphaerolaimus	2B	0	0	0	0	2	4	1	0	2		0	0	0	1	0	0	0	1	0	1	0	1	1	
Microlaimus	2A	19	11	1	3	1	1	0	6	1		1	1	23	27	12	5	12	2	5	6	4	1	5	
Minolaimus	1A	0	0	0	0	0	0	0	0	0		0	0	3	0	0	0	0	0	0	0	0	0	0	
Molgolaimus	1A	7	7	7	13	11	25	24	29	23		7	14	24	1	39	16	56	46	65	15	53	6	41	
Monhystera	1B	2	6	6	9	3	7	1	3	1		0	10	0	2	2	2	0	2	0	0	1	0	1	
Nannolaimoides	2A	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Nannolaimus	1A	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Nemanema	1A	0	0	0	0	0	0	0	0	0		0	0	0	0	0	2	0	0	0	0	0	0	0	
Neotonchus	2A	0	0	0	0	0	1	1	1	0		0	0	0	0	0	1	0	0	0	0	0	0	1	
Nudora	2A	2	6	1	7	4	3	0	0	0		0	5	4	5	2	2	1	0	0	1	0	1	5	
Odontophora	1B	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Oxystomina	1A	0	0	0	0	1	0	0	0	0		1	0	0	3	0	2	0	1	0	1	0	0	1	
Pandolaimus	1B	0	1	1	9	18	12	0	8	0		3	1	4	0	6	7	1	2	0	2	3	0	9	
Paracanthonchus	2A	0	0	0	1	3	0	1	5	1		0	0	2	0	3	2	4	2	2	3	1	0	2	
Paralinhomoeus	1B	0	0	0	0	0	0	0	0	0		0	3	0	0	0	0	0	0	0	0	0	0	0	
Paralongicyatholaimus	2A	0	0	0	0	0	0	0	1	0		0	0	0	0	0	0	0	0	0	0	0	0	1	
Paramonhystera	1B	0	1	1	4	2	0	2	2	1		1	2	0	1	2	1	5	1	0	1	1	0	2	
Paranticoma	2A	0	2	0	2	0	0	0	0	0		0	0	1	1	1	1	0	0	1	0	0	1	1	
Pareudesmoscolex	1A	1	3	0	1	0	0	0	0	0		0	0	0	0	0	1	0	2	0	2	0	0	0	
Pierrickia	1B	0	0	1	0	1	0	0	0	0		0	1	1	0	0	1	1	1	0	2	0	4	1	
Prochromadorella	2A	0	1	0	0	0	1	0	0	0		0	1	0	0	1	0	0	0	0	0	0	0	0	
Pselionema	1A	1	0	0	0	0	0	0	0	0		0	0	0	2	0	0	0	0	0	0	0	0	0	
Quadricoma	1A	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	1	0	0	0	0	
Rhabdocoma	1A	0	0	0	0	0	0	0	0	0		0	0	1	0	0	0	0	0	0	0	0	0	0	
Rhabdodemania	2B	2	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Rhips	2A	0	1	0	1	0	0	0	0	0		0	0	0	2	0	0	0	0	0	0	0	0	0	
Rhynchonema	1B	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Sabatieria	1B	1	0	15	3	20	13	54	10	50		10	15	0	0	3	1	7	21	10	40	22	39	14	
Southerniella	1A	0	1	0	0	0	1	0	2	0		0	1	0	0	2	0	0	0	0	0	1	0	1	
Sphaerolaimus	2B	0	0	0	0	1	0	0	0	2		0	0	0	0	0	0	0	1	0	1	0	0	0	
Syringolaimus	2B	0	1	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Tarvaia	1A	0	0	0	0	0	0	0	1	0		0	0	1	0	0	0	0	0	0	0	0	0	0	
Thalassoalaimus	1A	0	0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0	0	0	0	0	0	
Theristus	1B	2	0	2	0	0	0	0	0	0		1	1	0	0	3	0	0	0	0	0	0	1	0	
Tricoma	1A	0	0	0	0	0	0	0	1	0		0	1	0	0	0	0	0	0	0	0	0	0	0	
Viscosia	2B	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Wieseria	1A	1	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	

Nematode genus counts Weddell Sea (no 10 cm^{-2})

Vertical distribution within the sediments of the Weddell Sea

		K5												K6									
		0-1 cm		1-2 cm		2-3 cm		3-4 cm		4-5 cm		5-10 cm		0-1 cm		1-2 cm		2-3 cm		3-4 cm		4-5 cm		5-10 cm	
		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Acantholaimus	2A	2	0	5	0	0	0	2	0	0	0	0	2	3	6	14	10	5	3	3		0	1	0	0
Actinonema	2A	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Aegialoalaimus	1A	5	1	14	2	8	6	8	3	7	2	8	5	0	0	2	0	0	0	2		0	0	0	0
Alaimella	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0		0	0	0	0
Ammotheristus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0		0	0	0	0
Amphimonhystrella	1B	0	0	0	0	0	0	0	0	0	0	1	0	6	0	0	0	0	0	0		0	0	0	0
Anticoma	1A	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0		0	0	0	0
Anticyathus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Aponema	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	1	0	0		0	0	0	0
Axonolaimus	1B	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0		0	0	0	0
Calomicrolaimus	2A	1	0	0	0	0	0	0	0	0	0	0	0	2	4	0	2	1	0	0		0	0	0	0
Camacolaimus	2A	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	2		2	2	0	0
Campylaimus	1B	1	0	0	0	0	0	0	0	1	0	0	2	2	0	1	3	1	1	0		0	0	0	0
Cephalanticoma	2A	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Cervonema	1A	0	0	0	0	0	0	2	0	0	0	0	1	0	1	10	2	3	3	2		1	0	1	0
Chitwoodia	1A(?)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Chromadora	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0		0	0	0	0
Chromadorita	2A	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	1	1	0		1	0	0	0
Cobbia	2A	4	0	0	0	0	0	0	0	0	0	0	0	2	1	0	1	0	0	1		0	0	5	0
Daptonema	1B	2	0	2	0	1	1	0	1	0	0	0	0	5	2	4	3	2	1	1		0	0	1	1
Desmodora	2A	2	2	3	0	2	1	0	2	2	4	0	6	1	3	0	0	0	0	0		0	0	0	0
Desmoscolex	1A	1	0	1	1	2	5	2	2	0	4	1	1	1	0	1	1	0	1	1		0	0	0	0
Dichromadora	2A	2	0	4	0	0	0	0	0	0	0	2	1	2	5	24	17	5	13	4		2	1	2	0
Diplolaimella	1B	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Diplopeltoides	1A	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0		0	0	0	0
Diplopeltula	1A	0	0	1	2	0	2	0	2	0	0	0	0	0	0	0	0	1	0	0		0	0	0	0
Disconema	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Draconema	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Elzalia	1B	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Enoplolaimus	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Gammanema	2B	1	0	0	2	0	5	0	0	1	0	0	3	0	0	0	0	0	0	0		0	0	0	0
Gammarinema	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0		0	0	0	0
Greeffiella	1A	0	0	0	1	0	2	0	2	0	2	0	3	0	0	0	0	0	0	0		0	0	0	0
Halalaimus	1A	1	0	0	0	1	0	0	0	0	0	1	2	3	1	1	0	2	0	0		0	0	0	1
Halichoanolaimus	2B	0	0	1	0	0	0	1	0	0	0	0	0	0	1	2	2	4	4	5		0	0	0	0
Hapalomus	1A	0	0	0	1	0	0	0	0	0	0	0	1	0	1	1	1	0	1	1		0	0	0	0
Leptolaimus	1A	0	0	2	0	0	0	2	0	0	0	0	2	9	11	1	6	1	5	1		4	0	0	1
Linhomoeus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Linhystera	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0		2	0	0	0
Litinium	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1		1	0	0	0
Longicyatholaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Marylynnia	2A	0	0	1	0	0	2	1	1	3	3	0	0	0	0	0	0	1	0	0		0	0	0	0
Megadesmolaimus	1B	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0		0	0	0	0
Mesacanthion	2B	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0		0	0	0	0
Metadasynemella	1A	0	0	1	0	4	1	0	2	0	1	0	3	0	0	0	0	0	0	0		0	0	0	0
Metadesmolaimus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Metalinhomoeus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Metasphaerolaimus	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Microlaimus	2A	1	0	0	0	1	0	1	3	0	0	0	0	9	14	10	9	6	9	0		0	0	0	0
Minolaimus	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0		0	0	0	0
Molgolaimus	1A	19	0	28	7	66	14	62	18	41	16	63	16	1	3	2	12	1	13	0		0	0	0	1
Monhystera	1B	0	0	1	0	0	1	0	0	1	1	0	1	22	9	5	3	2	5	1		0	2	3	0
Nannolaimoides	2A	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Nannolaimus	1A	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0		0	0	0	0
Nemanema	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0		0	0	0	0
Neotonchus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0		0	0	0	0
Nudora	2A	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Odontophora	1B	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0		0	0	0	0
Oxystomina	1A	0	1	0	0	1	0	1	0	0	0	0	0	0	1	0	1	0	3	0		0	0	0	0
Pandolaimus	1B	3	1	4	2	0	3	1	1	3	2	0	2	0	0	0	0	0	0	0		0	0	0	0
Paracanthonchus	2A	0	0	0	0	0	0	0	0	0	2	0	1	0	0	5	5	1	3	0		0	0	0	0
Paralinhomoeus	1B	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Paralongicyatholaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Paramonhystera	1B	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0		0	0	0	0
Paranticoma	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Pareudesmoscolex	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Pierrickia	1B	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Prochromadorella	2A	0	0	0	0	0	0	0	0	0	0	0	0	7	0	2	0	0	0	0		0	0	0	0
Pselionema	1A	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0		0	0	0	0
Quadricoma	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Rhabdocoma	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0		0	0	0	0
Rhabdodemania	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Rhips	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Rhynchonema	1B	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Sabatieria	1B	12	2	13	1	6	6	2	6	3	5	14	16	0	0	5	3	4	14	11		9	9	1	1
Southerniella	1A	0	0	0	0	0	0	1	0	0	0	0	0	1	12	2	3	2	3	0		0	0	0	0
Sphaerolaimus	2B	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0		0	0	0	0
Syringolaimus	2B	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2	2		3	2	0	1
Tarvaia	1A	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0		0	0	0	0
Thalassoalaimus	1A	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0
Theristus	1B	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	1	0		0	0	0	0
Tricoma	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0		0	0	0	0
Viscosia	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0		0	0	0	0
Wieseria	1A	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	3	0	0		0	0	0	0

Nematode genus counts Weddell Sea (no 10 cm^{-2})

Appendix 5

Meiofauna in its biogeochemical environment

26.01.1994 COVE 1	0-1 cm					1-2 cm					2-3 cm					3-4 cm					4-5 cm				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Amphipods	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalves	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	3	0	0	0
Foraminifers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropods	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Halacarids	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Harpacticoids	740	0	140	1320	300	270	0	20	310	60	20	0	3	260	15	4	6	1	49	1	3	50	2	13	1
Nauplii	800	0	30	750	10	160	0	20	260	0	20	0	1	250	0	0	0	1	55	3	0	11	0	9	2
Nematodes	4090	10	3830	2500	5780	5050	1	7390	3860	5800	410	5	1372	3530	816	133	268	192	178	42	13	663	27	57	19
Ostracods	80	4	0	290	20	70	0	30	190	80	40	2	6	150	21	2	4	6	23	3	0	22	4	9	0
Tardigrades	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turbellarians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

21.02.1994 COVE 2	0-1 cm					1-2 cm					2-3 cm					3-4 cm					4-5 cm				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Amphipods	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bivalves	5	0	0	2	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foraminifers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropods	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Halacarids	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
Harpacticoids	835	1050	950	253	460	65	92	98	33	58	20	13	6	7	25	17	2	2	15	0	4	5	0	3	0
Nauplii	210	75	440	126	380	10	22	116	21	77	16	11	11	1	29	9	2	3	2	2	5	1	1	0	0
Nematodes	2635	1765	5010	229	1740	1160	577	1140	52	1010	386	82	365	5	107	57	22	30	1	19	33	2	4	0	6
Ostracods	35	15	80	14	70	15	13	14	10	9	12	10	4	13	7	15	22	9	5	19	23	105	2	13	67
Tardigrades	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turbellarians	5	0	10	0	10	5	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Meiofaunal counts Signy (no 10 cm^{-2}).

26.01.1994 COVE 1		0-1 cm					1-2 cm					2-3 cm					3-4 cm					4-5 cm				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Aponema	2A	13	4	7	6	28	99	0	82	15	85	104	2	106	87	71	105	83	79	67	31	7	48	21	21	13
Chromadorita	2A	7	0	3	5	5	1	0	0	9	3	0	0	0	1	2	0	0	0	2	1	1	2	0	3	1
Diplolaimella	1B	0	0	0	0	0	0	0	0	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
Eleutherolaimus	1B	8	0	0	0	0	1	0	0	2	0	1	0	0	1	0	1	0	0	0	1	0	1	0	0	0
Daptonema	1B	62	3	79	13	56	6	0	8	63	8	5	0	3	9	3	5	11	7	13	1	0	24	2	5	1
Leptolaimus	1A	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Microlaimus	2A	9	0	5	4	2	0	0	0	5	2	0	0	0	3	4	0	0	1	1	0	0	0	0	4	1
Neochromadora	2A	22	3	17	11	25	25	0	24	23	23	6	2	11	24	15	25	8	19	10	1	5	23	6	7	0
Odontophora	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Onchium	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paramonhystera	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pomponema	2B	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prochromadorella	2A	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Promonhystera	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pseudosteineria	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sabatieria	1B	0	0	0	0	0	1	0	0	0	1	9	0	1	4	4	10	4	7	11	2	0	0	1	5	1
Sphaerolaimus	2B	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Steineria	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Viscosia	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

21.02.1994 COVE 2		0-1 cm					1-2 cm					2-3 cm					3-4 cm					4-5 cm				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Aponema	2A	26	8	3	2	2	45	50	44	2	56	38	26	84	1	29	11	3	18	0	3	5	0	3	0	2
Chromadorita	2A	6	1	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diplolaimella	1B	1	8	0	5	1	5	12	3	4	4	0	2	1	0	0	0	0	0	0	0	0	0	0	0	2
Eleutherolaimus	1B	4	0	0	0	0	3	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Daptonema	1B	171	222	103	101	51	30	34	39	26	31	8	7	5	1	11	10	3	3	0	0	3	0	3	0	5
Leptolaimus	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Microlaimus	2A	15	5	2	4	4	1	0	2	0	1	4	0	1	0	0	1	0	0	0	0	1	0	0	0	0
Neochromadora	2A	33	4	10	0	3	19	9	21	0	12	19	3	17	0	3	5	1	0	1	5	1	0	1	0	1
Odontophora	1B	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Onchium	2A	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Paramonhystera	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Pomponema	2B	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prochromadorella	2A	2	1	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Promonhystera	1B	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Pseudosteineria	1B	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sabatieria	1B	1	0	0	0	0	2	1	0	1	1	1	2	1	0	2	2	1	2	1	1	2	0	1	0	0
Sphaerolaimus	2B	0	0	0	0	0	2	3	1	1	2	1	0	3	0	1	0	0	4	0	0	0	0	0	0	0
Steineria	1B	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Viscosia	2B	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nematode genus counts Signy (no 10 cm^{-2}).

Meiofauna in its biogeochemical environment

date	depth	repl	chlc	chla	fuco	diat	bact	TC	NH_4-N	NO_3-N	PO_4-P	sili	pell	means	meds	mods	stde	skew
26.01.1994	0-1 cm	1	10.216	96.858	37.222	92.300	23.583	1.094	5.090	0.480	1.100	2.300	31.540	115.650	112.700	105.630	0.368	0.359
COVE 1		2	10.948	99.520	39.010	22.100	26.783	0.993	8.650	0.480	2.130	0.880	26.630	118.600	116.150	111.300	0.369	0.297
		3	8.206	84.576	26.320	57.200	25.301	1.519	5.140	0.500	0.840	1.000	27.470	120.800	116.550	111.300	0.410	0.769
	1-2 cm	1	13.918	133.794	51.026	22.900	24.121	0.858	12.060	0.340	2.270	9.310	27.600	117.400	114.500	111.300	0.373	0.329
		2	12.099	188.620	55.506	10.900	18.096	0.865	6.690	0.580	1.310	5.910	22.260	120.700	116.450	111.300	0.406	0.904
		3	10.280	123.070	40.650	16.900	27.470	0.968	7.630	0.620	1.550	7.280	24.120	120.150	117.950	111.300	0.372	0.267
	2-3 cm	1	5.388	105.398	22.112	28.400	10.802	0.791	9.070	0.060	2.280	12.200	21.430	120.950	118.850	111.300	0.373	0.251
		2	8.100	136.140	30.394	11.100	11.731	0.669	9.070	0.100	1.650	5.030	22.840	119.000	113.850	111.300	0.411	0.999
		3	7.900	108.122	35.620	19.750	10.659	0.700	9.060	0.160	1.950	3.200	21.620	122.300	118.450	111.300	0.402	0.833
	3-4 cm	1	2.680	60.790	11.430	7.130	7.934	0.397	23.320	0.020	2.080	12.350	17.830	123.600	119.800	117.600	0.406	0.739
		2	4.238	92.630	22.270	9.280	8.591	0.405	20.340	0.000	2.200	1.120	23.620	117.600	112.000	99.960	0.412	1.026
		3	2.312	51.108	10.900	8.205	8.351	0.432	21.830	0.000	0.570	2.330	19.980	120.800	116.200	111.300	0.407	0.942
	4-5 cm	1	0.560	15.102	2.422	7.680	6.214	0.334	26.560	0.190	2.040	11.460	22.440	120.800	116.250	111.300	0.409	0.784
		2	0.604	23.872	2.854	7.330	6.553	0.329	23.550	0.000	1.840	10.390	26.740	115.100	110.050	99.960	0.395	0.758
		3	0.434	16.534	2.524	7.505	7.386	0.359	18.340	0.000	1.270	8.890	21.610	119.750	114.250	105.630	0.419	0.997
21.02.1994	0-1 cm	1	7.420	91.145	7.526	17.900	17.152	0.704	9.010	0.060	1.680	2.730	24.950	112.900	105.000	89.790	0.425	1.357
COVE 2		2	7.248	70.350	22.340	20.100	19.084	0.675	5.160	0.170	0.510	1.430	24.790	111.200	104.700	94.875	0.390	1.221
		3	7.592	111.940	32.366	19.000	23.465	0.875	5.020	0.270	0.600	1.770	27.220	110.750	104.500	99.960	0.397	1.256
	1-2 cm	1	2.672	41.274	9.870	15.600	5.058	0.285	7.790	0.250	0.460	7.450	26.360	106.700	99.720	89.790	0.392	1.288
		2	1.266	23.790	4.976	7.280	5.166	0.274	6.640	0.040	0.530	1.910	26.350	107.000	100.115	89.790	0.410	1.446
		3	2.850	45.626	10.734	11.440	4.280	0.254	11.030	0.130	0.790	10.340	26.910	109.600	102.600	89.790	0.404	1.278
	2-3 cm	1	0.336	9.270	1.566	11.800	2.961	0.230	11.540	0.000	0.870	8.900	29.460	106.200	97.930	80.670	0.408	1.378
		2	0.266	6.936	1.346	8.330	2.228	0.215	9.250	0.000	0.720	8.890	27.850	106.800	98.815	85.230	0.409	1.368
		3	0.340	9.532	1.720	10.065	2.281	0.194	21.500	0.000	1.120	10.990	32.560	105.600	96.950	80.670	0.410	1.367
	3-4 cm	1	0.186	4.898	0.898	7.420	2.497	0.261	17.770	0.000	1.040	11.590	27.750	107.300	99.120	80.670	0.409	1.287
		2	0.244	6.270	1.044	5.200	2.058	0.278	13.727	0.000	0.910	7.040	27.930	89.925	98.670	80.670	0.401	1.387
		3	0.172	5.198	0.914	6.310	1.405	0.277	9.680	0.000	0.780	2.490	32.410	104.700	96.415	80.670	0.404	1.468
	4-5 cm	1	0.270	4.842	2.330	6.560	1.846	0.386	2.490	0.000	0.130	2.990	27.680	83.420	99.005	85.230	0.409	1.360
		2	0.000	5.432	0.882	2.210	1.797	0.387	9.330	0.000	0.640	8.570	27.620	106.050	98.230	80.670	0.400	1.355
		3	0.202	7.274	0.956	4.385	0.973	0.308	28.270	0.000	1.510	11.460	28.280	107.000	98.560	80.670	0.413	1.375

Environmental data Signy: chloropigments (µg ml^{-1}), diatoms (no 10^6 ml^{-1}), bacteria (no 10^9 ml^{-1}), organic matter (mass %), interstitial nutrients (mg l^{-1}), pellite (%), sediment texture (µm).

Appendix 6

Temporal variability within meiofauna communities

Temporal variability within meiofauna communities

1991	April 27		May 14		May 28		June 11		June 26		July 12		July 28		August 10		August 23	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Amphipods	0	3	10	10	0	0	30	20	0	100	10	0	10	0	0	0	0	0
Bivalves	10	26	13	40	0	20	0	0	20	10	10	0	30	10	0	0	10	0
Adult harpacticoids	870	660	575	430	150	310	510	80	370	340	330	270	590	400	320	340	150	90
Nauplii	393	260	135	230	230	250	590	190	350	390	410	350	630	680	290	330	150	250
Nematodes	9070	7790	17450	17340	6940	11870	11520	9570	11030	11820	5510	4290	10020	7940	4450	4870	2040	2530
Ostracods	505	560	740	620	170	140	870	210	420	370	310	670	650	300	230	190	180	210
Turbellarians	20	33	0	50	30	20	10	0	20	20	0	0	10	0	0	0	0	0
Polychaetes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Halacarids	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropods	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tardigrades	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

1991	September 5		September 20		October 4		October 17		November 1		November 14		November 28		December 13		December 27	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Amphipods	12	2	50	20	10	0	10	10	0	2	0	0	0	0	0	0	0	0
Bivalves	3	5	10	0	10	10	0	0	10	2	10	20	30	10	10	20	10	0
Adult harpacticoids	165	302	380	180	170	70	120	100	480	70	90	210	180	190	60	90	490	230
Nauplii	498	481	360	140	270	140	390	250	790	36	310	250	410	560	340	370	860	890
Nematodes	1119	1082	4420	5650	3460	3810	3770	6810	3320	432	5430	6120	3050	2910	3760	5560	3610	4550
Ostracods	42	125	380	130	430	440	250	190	680	252	200	270	210	320	270	350	220	240
Turbellarians	0	0	10	20	10	10	10	0	10	8	10	20	30	10	0	0	30	20
Polychaetes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Halacarids	0	2	0	0	10	0	0	0	0	2	0	0	0	0	0	0	0	0
Gastropods	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tardigrades	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0

Meiofaunal counts Signy (no 10 cm^{-2}).

1992	January 10		January 22		February 9		February 26		April 16		May 4		May 15		May 29		June 13	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Amphipods	10	10	10	0	6	1	0	0	0	0	0	10	0	0	0	1	0	0
Bivalves	10	0	13	20	7	4	20	50	0	0	0	10	10	30	0	6	10	20
Adult harpacticoids	220	150	83	180	418	550	1040	830	428	469	146	200	70	430	378	507	880	690
Nauplii	510	1140	400	710	363	688	1130	860	65	139	50	140	20	310	134	86	230	180
Nematodes	4640	4250	6178	5490	2146	1918	8350	8630	1432	1199	5121	8592	3412	4250	2259	1770	7260	7210
Ostracods	220	270	220	260	228	185	570	210	87	43	347	720	50	350	565	430	250	790
Turbellarians	40	20	13	20	13	7	0	10	1	2	0	0	0	10	0	0	0	0
Polychaetes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Halacarids	0	0	7	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Gastropods	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tardigrades	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

1992	July 1		July 16		July 28		August 15		August 27		September 11		September 28		October 7		October 27		November 10	
	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Amphipods	0	0	0	0	0	30	0	0	0	0	1	0	0	10	0	10	0	10	10	0
Bivalves	0	10	0	0	10	0	2	0	30	30	0	2	0	0	0	10	50	20	10	30
Adult harpacticoids	200	400	280	460	270	70	13	16	210	550	47	58	100	120	20	30	390	100	239	240
Nauplii	0	40	30	60	30	40	5	3	230	300	1	10	50	40	0	70	420	210	141	660
Nematodes	2200	2200	5470	7100	3840	3910	340	1048	4080	4880	846	740	610	1370	3600	7780	1970	6920	3026	5190
Ostracods	30	180	590	1330	340	110	37	24	420	1900	28	105	370	180	80	340	490	170	408	580
Turbellarians	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Polychaetes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Halacarids	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
Gastropods	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tardigrades	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Meiofaunal counts Signy (no 10 cm^{-2}).

1991		April 27										May 14										May 28										June 11										June 26									
		1					2					1					2					1					2					1					2					1					2				
		j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T
Aponema	2A	37	12	12	28	89	36	10	7	29	81	63	19	13	44	139	53	22	11	45	131	4	4	7	2	17	6	3	18	21	48	36	10	19	31	96	16	13	20	33	81	12	17	19	15	63	10	13	11	16	50
Chromadorita	2A	2	1	1	1	5	1	0	0	0	1	7	0	1	1	9	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	4	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
Daptonema	1B	38	23	0	17	78	36	21	1	19	77	16	5	1	2	23	11	7	0	10	28	12	67	7	74	160	26	54	1	82	142	20	18	2	14	54	1	29	3	26	59	13	49	2	58	122	8	46	0	61	114
Dichromadora	2A	0	2	0	2	4	0	2	0	1	3	0	0	3	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Microlaimus	2A	1	2	0	1	4	2	3	0	3	8	3	1	0	1	5	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0
Sabatieria	1B	8	0	0	0	8	4	0	0	1	5	1	0	0	0	1	3	0	1	0	4	13	2	0	6	21	4	1	1	2	8	13	0	0	2	15	11	3	0	3	17	3	1	2	1	7	6	1	0	2	9
Sphaerolaimus	2B	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	3	0	0	0	0	0	2	1	0	2	5
Neochromadora	2A	12	6	2	6	26	22	1	2	7	32	20	3	2	12	37	27	12	2	6	47	2	1	3	2	8	1	6	4	7	18	17	8	4	9	38	6	7	0	7	20	2	9	7	8	26	4	11	5	21	41
Monhystera	1B	0	0	0	0	0	1	1	0	1	3	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Prochromadorella	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1	2	0	0	0	0	0	0	0	0	1	1	0	0	1	0	1	0	0	0	0	0
Eleutherolaimus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptolaimus	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Odontophora	1B	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ascolaimus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calomicrolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camacolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Desmodora	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Desmoscolex	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gammanema	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marylynnia	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Molgolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oxystomina	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paracanthonchus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paramesonchium	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southerniella	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Syringolaimus	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Terschellingia	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epsilonematodae spec.	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nematode genus counts Signy (no 10 cm^{-2}).

1991		July 12										July 28										August 10										August 23										September 5									
		1					2					1					2					1					2					1					2					1					2				
		j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T
Aponema	2A	26	9	16	42	92	26	6	8	16	56	34	30	8	33	106	60	32	8	36	126	31	16	8	47	101	43	11	19	24	97	9	7	14	29	59	42	29	9	46	126	36	19	16	26	96	20	11	17	22	70
Chromadorita	2A	0	0	0	0	0	1	0	1	1	3	1	2	0	0	3	0	1	1	4	6	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	0	3	0	0	0	0	0	1	0	1	0	2
Daptonema	1B	16	8	0	16	40	32	3	5	3	43	17	15	3	20	55	13	9	4	21	47	45	8	1	12	66	43	8	1	16	68	50	26	6	34	116	22	13	2	3	40	3	9	6	12	30	71	10	7	20	108
Dichromadora	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	1	2	2	0	0	3	5	1	1	1	0	3
Microlaimus	2A	1	2	0	0	3	1	3	3	0	7	1	1	0	1	3	2	0	0	1	3	0	0	0	1	1	0	2	2	1	5	0	0	1	0	1	1	0	0	2	3	0	2	1	0	3	0	1	1	0	2
Sabatieria	1B	15	0	2	2	19	33	4	2	8	47	12	2	0	1	15	1	0	1	2	4	12	2	3	0	17	6	1	0	1	8	11	4	0	4	19	20	1	0	4	25	17	7	0	3	27	8	1	1	4	14
Sphaerolaimus	2B	0	2	0	0	2	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	1	2	1	0	0	0	1	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0
Neochromadora	2A	22	13	4	14	53	25	5	6	6	42	8	18	2	10	38	19	18	2	5	44	6	2	1	7	16	11	4	0	11	26	5	3	1	6	16	10	4	0	3	17	4	0	0	5	9	10	6	1	0	17
Monhystera	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	2	5
Prochromadorella	2A	0	0	0	0	0	0	1	1	1	3	0	2	0	0	2	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
Eleutherolaimus	1B	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	1	1	0	0	0	0	0
Leptolaimus	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Odontophora	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ascolaimus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calomicrolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camacolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Desmodora	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Desmoscolex	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gammanema	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marylynnia	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Molgolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oxystomina	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Paracanthonchus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paramesonchium	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southerniella	1A	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Syringolaimus	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Terschellingia	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epsilonematodae spec.	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nematode genus counts Signy (no 10 cm^{-2}).

1991		September 20										October 4										October 17										November 1										November 14									
		1					2					1					2					1					2					1					2					1					2				
		j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T
Aponema	2A	25	23	20	39	107	62	16	14	36	127	30	14	4	20	68	27	14	2	18	61	30	14	12	27	83	31	7	10	16	64	37	14	16	30	96	20	8	16	21	65	66	20	11	44	131	61	19	13	66	138
Chromadorita	2A	0	1	0	2	3	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	4	1	0	2	7	0	1	0	2	3	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0
Daptonema	1B	20	20	6	22	68	23	7	8	21	59	43	13	2	11	69	49	13	2	16	80	47	19	7	20	93	73	18	1	30	122	67	6	2	16	80	23	7	7	16	62	21	10	13	17	61	21	8	3	10	42
Dichromadora	2A	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3	0	0	0	3
Microlaimus	2A	2	3	1	1	7	3	2	3	0	8	1	1	2	1	5	2	0	0	5	7	0	0	0	0	0	3	1	3	1	8	0	2	0	1	3	0	0	0	1	1	0	1	1	0	2	0	0	2	0	2
Sabatieria	1B	8	3	0	1	12	2	0	0	0	2	16	1	0	1	18	8	2	1	3	14	5	6	0	1	12	3	0	0	1	4	8	0	0	0	8	39	11	3	12	66	3	0	0	0	3	4	3	0	0	7
Sphaerolaimus	2B	1	0	0	0	1	0	0	0	0	0	1	1	0	0	2	4	0	0	1	5	2	0	0	0	2	1	0	0	0	1	1	0	0	0	1	1	1	0	0	2	0	0	0	1	1	0	0	0	1	1
Neochromadora	2A	9	9	2	6	26	10	3	1	2	16	17	3	0	7	27	19	4	0	4	27	6	5	0	8	19	11	1	0	4	16	7	5	0	2	14	3	0	1	8	12	3	8	1	4	16	5	10	1	8	24
Monhystera	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	2	4	0	0	0	0	0	0	0	0	0	0
Prochromadorella	2A	0	0	1	0	1	0	0	0	0	0	0	1	0	1	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eleutherolaimus	1B	0	0	0	0	0	2	0	0	1	3	0	0	0	1	1	0	0	0	2	2	1	0	0	2	3	0	0	1	0	1	0	0	0	2	2	0	3	0	2	5	0	0	0	2	2	0	0	0	0	0
Leptolaimus	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
Odontophora	1B	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ascolaimus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calomicrolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camacolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Desmodora	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Desmoscolex	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gammanema	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marylynnia	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Molgolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oxystomina	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paracanthonchus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paramesonchium	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southerniella	1A	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Syringolaimus	2B	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Terschellingia	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epsilonematodae spec.	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nematode genus counts Signy (no 10 cm^{-2}).

1991		November 28										December 13										December 27									
		1					2					1					2					1					2				
		j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T	j	f-	f+	m	T
Aponema	2A	43	16	11	34	103	37	11	7	21	76	30	31	10	31	102	66	17	8	57	137	16	11	11	12	50	31	9	6	9	55
Chromadorita	2A	0	1	0	1	2	0	1	0	0	1	4	3	0	0	7	2	0	0	1	3	0	0	0	0	0	0	0	1	1	2
Daptonema	1B	31	10	9	15	65	50	12	5	15	82	25	7	2	22	56	18	8	4	11	41	62	8	1	11	82	66	10	3	11	90
Dichromadora	2A	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
Microlaimus	2A	1	0	0	2	3	1	1	1	0	3	0	1	0	1	2	1	0	0	0	1	0	1	0	4	5	1	0	0	0	1
Sabatieria	1B	17	3	0	0	20	10	3	1	3	17	7	1	0	2	10	5	2	1	0	8	6	4	1	1	12	4	5	1	3	13
Sphaerolaimus	2B	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	1	0	0	1	2	4	0	0	1	5	0	0	0	0	0
Neochromadora	2A	22	8	1	5	36	9	4	0	7	20	10	8	3	13	34	8	11	0	6	25	15	18	2	11	46	25	12	1	9	47
Monhystera	1B	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Prochromadorella	2A	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
Eleutherolaimus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	0	0	1	2	3
Leptolaimus	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Odontophora	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Ascolaimus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calomicrolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camacolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Desmodora	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Desmoscolex	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gammanema	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Marylynnia	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Molgolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oxystomina	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paracanthonchus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paramesonchium	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southerniella	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Syringolaimus	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Terschellingia	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epsilonematodae spec.	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nematode genus counts Signy (no 10 cm^{-2}).

1992		January 10		January 22		February 9		February 26		April 16		May 4		May 15		May 29		June 13	
		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Aponema	2A	53	46	83	77	59	11	67	66	32	68	109	70	79	58	13	13	47	61
Chromadorita	2A	8	9	5	2	7	7	10	9	4	3	9	5	7	3	3	4	7	9
Daptonema	1B	100	105	52	67	70	147	115	100	58	21	34	58	47	79	99	104	96	67
Dichromadora	2A	0	0	0	1	9	1	2	0	3	2	1	1	3	3	3	0	1	2
Microlaimus	2A	0	0	4	2	4	3	2	2	2	2	3	8	4	1	0	0	6	8
Sabatieria	1B	21	14	14	18	46	30	7	5	33	24	4	0	8	10	53	51	3	12
Sphaerolaimus	2B	0	2	1	0	1	2	1	0	6	4	0	0	0	0	1	2	1	1
Neochromadora	2A	30	46	0	41	18	16	6	19	33	49	13	27	19	17	10	7	26	19
Monhystera	1B	0	0	1	0	1	0	2	2	1	0	1	0	4	3	0	0	1	0
Prochromadorella	2A	0	1	0	0	0	0	1	3	0	2	0	1	1	3	0	0	20	0
Eleutherolaimus	1B	0	0	0	1	0	0	2	1	0	0	0	0	0	0	0	0	0	0
Leptolaimus	1A	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0
Odontophora	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ascolaimus	1B	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Calomicrolaimus	2A	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
Camacolaimus	2A	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0
Desmodora	2A	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0
Desmoscolex	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gammanema	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marylynnia	2A	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Molgolaimus	2A	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0
Oxystomina	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paracanthonchus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paramesonchium	2A	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southerniella	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Syringolaimus	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Terschellingia	1A	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Epsilonematodae spec.	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nematode genus counts Signy (no 10 cm^{-2}).

Temporal variability within meiofauna communities

1992		July 1		July 16		July 28		August 15		August 27		September 11		September 28		October 7		October 27		November 10	
		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Aponema	2A	27	26	78	68	67	73	6	20	22	25	6	10	9	28	128	92	27	44	51	53
Chromadorita	2A	2	1	1	3	4	7	4	2	8	2	3	4	9	10	7	9	9	10	4	9
Daptonema	1B	54	89	50	44	70	34	51	23	74	73	28	73	60	73	28	45	58	57	65	64
Dichromadora	2A	0	0	2	1	2	6	0	0	0	0	0	0	0	1	1	3	2	2	0	1
Microlaimus	2A	11	5	3	4	1	8	0	0	47	45	0	0	1	6	0	0	39	16	0	0
Sabatieria	1B	42	20	2	1	11	4	124	77	7	6	146	99	68	60	3	1	2	0	51	19
Sphaerolaimus	2B	0	2	0	0	4	1	1	0	3	0	0	1	1	6	1	1	0	1	0	0
Neochromadora	2A	32	16	46	42	30	19	7	2	21	36	2	1	0	16	15	32	26	21	20	22
Monhystera	1B	0	0	1	0	1	3	0	3	1	0	0	0	1	1	0	1	10	2	0	0
Prochromadorella	2A	3	0	0	3	2	1	0	0	1	3	0	0	0	1	0	0	0	0	0	3
Eleutherolaimus	1B	0	0	0	0	0	0	0	1	3	2	0	0	0	1	0	0	0	0	0	0
Leptolaimus	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Odontophora	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ascolaimus	1B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calomicrolaimus	2A	1	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Camacolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Desmodora	2A	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Desmoscolex	1A	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0
Gammanema	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marylynnia	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Molgolaimus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oxystomina	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paracanthonchus	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paramesonchium	2A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Southerniella	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Syringolaimus	2B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Terschellingia	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Epsilonematodae spec.	1A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nematode genus counts Signy (no 10 cm^{-2}).

Temporal variability within meiofauna communities

1991	depth	TC	TN	means	meds	mods	stde	skew	DOC	chla	fuco	chlc	Bcar
Apr 27	0-2 cm	0.608	0.072	82.990	99.360	89.790	0.326	0.499	1037.918	-	-	-	-
	2-5 cm	0.346	0.000	110.200	103.950	89.790	0.405	1.397	-	-	-	-	-
	5-10 cm	0.541	0.000	110.700	104.150	89.790	0.412	1.293	-	-	-	-	-
May 14	0-2 cm	0.709	0.823	106.300	99.005	80.670	0.406	1.452	-	26.110	12.470	6.930	8.470
	2-5 cm	0.565	0.000	107.050	100.450	85.230	0.409	1.643	-	-	-	-	
	5-10 cm	0.414	0.000	113.850	105.550	89.790	0.439	1.427	-	-	-	-	-
May 28	0-2 cm	0.508	0.052	105.750	102.050	89.790	0.336	0.488	527.752	-	-	-	-
	2-5 cm	0.410	0.000	105.700	99.325	80.670	0.397	1.587	-	-	-	-	-
	5-10 cm	0.331	0.000	105.100	97.875	80.670	0.403	1.583	-	-	-	-	-
Jun 11	0-2 cm	0.676	0.082	107.200	101.200	89.790	0.397	1.585	-	30.780	14.170	8.340	9.600
	2-5 cm	0.282	0.000	106.150	99.220	80.670	0.406	1.595	-	-	-	-	-
	5-10 cm	0.268	0.000	105.850	99.170	85.295	0.401	1.569	-	-	-	-	-
Jun 26	0-2 cm	0.579	0.062	104.400	100.550	89.790	0.334	0.523	630.355	-	-	-	-
	2-5 cm	0.374	0.000	105.750	99.395	80.670	0.397	1.587	-	-	-	-	-
	5-10 cm	0.285	0.000	107.550	100.400	89.790	0.406	1.442	-	-	-	-	-
Jul 12	0-2 cm	0.540	0.000	109.000	102.550	89.790	0.406	1.413	-	17.850	7.150	4.150	4.870
	2-5 cm	0.388	0.000	106.900	100.500	80.670	0.397	1.413	-	-	-	-	-
	5-10 cm	0.364	0.000	109.400	102.400	89.790	0.418	1.508	-	-	-	-	-
Jul 28	0-2 cm	0.474	0.000	108.450	102.000	89.790	0.407	1.486	938.165	-	-	-	-
	2-5 cm	0.343	0.000	113.400	106.950	99.960	0.416	1.244	-	-	-	-	-
	5-10 cm	0.371	0.000	106.650	99.720	80.670	0.404	1.462	-	-	-	-	-
Aug 10	0-2 cm	0.590	0.057	107.050	99.945	80.670	0.400	1.227	-	27.450	13.030	7.050	8.810
	2-5 cm	0.544	0.064	114.300	107.050	89.790	0.421	0.815	-	-	-	-	-
	5-10 cm	0.432	0.000	113.350	106.950	89.790	0.403	0.661	-	-	-	-	-
Aug 23	0-2 cm	0.284	0.000	107.250	99.815	89.790	0.402	1.363	638.906	-	-	-	-
	2-5 cm	0.553	0.050	107.850	99.830	80.670	0.418	1.416	-	-	-	-	-
	5-10 cm	0.442	0.052	108.800	102.200	89.790	0.405	1.324	-	-	-	-	-
Sep 5	0-2 cm	0.313	0.000	108.200	100.300	80.670	0.411	1.287	-	3.180	1.700	1.210	1.220
	2-5 cm	0.358	0.000	108.600	101.750	89.790	0.409	1.394	-	-	-	-	-
	5-10 cm	0.398	0.000	105.500	98.400	80.670	0.401	1.519	-	-	-	-	-
Sep 20	0-2 cm	0.386	0.000	112.150	103.850	89.790	0.432	1.280	341.547	-	-	-	-
	2-5 cm	0.457	0.000	107.500	100.035	80.670	0.414	1.438	-	-	-	-	-
	5-10 cm	0.437	0.000	106.250	98.280	80.670	0.413	1.478	-	-	-	-	-
Oct 4	0-2 cm	0.587	0.064	105.800	100.900	89.790	0.360	0.902	-	14.390	5.580	3.720	3.870
	2-5 cm	0.260	0.000	110.650	103.850	89.790	0.404	1.295	-	-	-	-	-
	5-10 cm	0.345	0.000	109.100	102.600	89.790	0.392	1.145	-	-	-	-	-
Oct 17	0-2 cm	0.313	0.000	113.800	106.250	99.960	0.426	1.376	850.762	-	-	-	-
	2-5 cm	0.253	0.000	115.750	107.350	99.960	0.446	1.400	-	-	-	-	-
	5-10 cm	0.347	0.000	113.550	103.650	89.790	0.463	1.481	-	-	-	-	-
Nov 14	0-2 cm	0.565	0.065	116.000	100.790	80.670	0.561	1.737	594.254	-	-	-	-
	2-5 cm	0.447	0.000	109.350	101.250	80.670	0.438	1.563	-	-	-	-	-
	5-10 cm	0.376	0.000	106.050	100.350	89.790	0.357	0.656	-	-	-	-	-
Nov 28	0-2 cm	0.651	0.000	108.150	101.150	80.670	0.403	1.172	-	27.390	11.790	7.650	8.070
	2-5 cm	0.373	0.000	104.700	99.770	85.230	0.346	0.610	-	-	-	-	-
	5-10 cm	0.407	0.000	114.900	103.200	89.790	0.499	1.669	-	-	-	-	-
Dec 13	0-2 cm	0.499	0.058	106.750	100.100	80.670	0.375	0.752	919.164	-	-	-	-
	2-5 cm	0.422	0.000	109.750	101.150	89.790	0.438	1.282	-	-	-	-	-
	5-10 cm	0.420	0.000	111.500	100.900	80.670	0.486	1.808	-	-	-	-	-
Dec 27	0-2 cm	0.488	0.066	105.150	99.460	80.670	0.369	0.969	-	22.520	13.290	7.560	9.040
	2-5 cm	0.612	0.058	106.250	99.390	80.670	0.395	1.292	-	-	-	-	-
	5-10 cm	0.253	0.000	101.400	96.370	80.670	0.329	0.000	-	-	-	-	-

Environmental data Signy: organic matter (mass %), sediment texture (µm), dissolved organic carbon (mg l^{-1}), chloropigments (µg g^{-1}).

Temporal variability within meiofauna communities

1992	depth	TC	TN	means	meds	mods	stde	skew	DOC	chla	fuco	chlc	Bcar
Jan10	0-2 cm	1.428	0.161	108.100	100.800	80.670	0.410	1.292	598.054	-	-	-	-
	2-5 cm	0.646	0.068	111.000	102.950	80.670	0.420	1.022	-	-	-	-	-
	5-10 cm	0.574	0.055	112.000	103.650	80.670	0.429	1.091	-	-	-	-	-
Jan 22	0-2 cm	0.497	0.060	106.500	98.105	80.670	0.414	1.259	-	57.860	27.540	16.420	18.580
	2-5 cm	0.347	0.000	111.550	103.150	89.790	0.423	1.166	-	-	-	-	-
	5-10 cm	0.472	0.000	108.400	102.300	89.790	0.399	1.454	-	-	-	-	-
Feb 9	0-2 cm	0.565	0.076	105.150	101.650	89.790	0.329	0.503	786.160	-	-	-	-
	2-5 cm	0.250	0.000	109.075	101.385	85.230	0.409	1.162	-	-	-	-	-
	5-10 cm	0.345	0.000	109.350	101.050	89.790	0.425	1.493	-	-	-	-	-
Feb 26	0-2 cm	0.531	0.059	105.750	99.570	80.670	0.384	1.257	-	48.760	25.860	13.290	17.480
	2-5 cm	0.502	0.059	106.600	99.620	80.670	0.395	1.158	-	-	-	-	-
	5-10 cm	0.394	0.000	110.300	103.500	89.790	0.407	1.140	-	-	-	-	-
Apr 16	0-2 cm	0.412	0.000	110.000	102.850	89.790	0.402	1.169	-	-	-	-	-
	2-5 cm	0.286	0.000	105.200	99.000	89.790	0.360	0.850	-	-	-	-	-
	5-10 cm	0.288	0.000	104.850	99.765	89.790	0.347	0.672	-	-	-	-	-
May 4	0-2 cm	0.796	0.094	106.250	102.750	89.790	0.336	0.459	-	-	-	-	-
	2-5 cm	0.474	0.000	103.650	99.715	89.790	0.331	0.514	-	-	-	-	-
	5-10 cm	0.316	0.000	108.350	101.950	89.790	0.387	1.076	-	-	-	-	-
May 15	0-2 cm	0.567	0.000	105.450	100.660	80.670	0.351	0.588	-	-	-	-	-
	2-5 cm	0.537	0.000	103.900	98.320	80.670	0.348	0.635	-	-	-	-	-
	5-10 cm	0.265	0.000	107.950	101.900	89.790	0.375	0.810	-	-	-	-	-
May 29	0-2 cm	0.637	0.154	111.050	108.000	99.960	0.346	0.385	-	-	-	-	-
	2-5 cm	0.230	0.000	117.250	108.750	89.790	0.446	1.032	-	-	-	-	-
	5-10 cm	0.301	0.000	107.650	101.250	89.790	0.373	0.785	-	-	-	-	-
Jun 13	0-2 cm	1.101	0.078	108.100	102.100	89.790	0.386	1.053	-	-	-	-	-
	2-5 cm	0.572	0.000	111.700	104.600	85.230	0.407	0.827	-	-	-	-	-
	5-10 cm	0.465	0.000	113.750	107.900	89.790	0.396	0.588	-	-	-	-	-
Jul 1	0-2 cm	0.740	0.088	108.850	106.150	99.960	0.330	0.366	-	-	-	-	-
	2-5 cm	0.339	0.000	114.350	106.750	89.790	0.416	0.924	-	-	-	-	-
	5-10 cm	0.485	0.000	114.200	106.150	89.790	0.421	1.021	-	-	-	-	-
Jul 16	0-2 cm	0.764	0.069	107.300	101.850	89.790	0.370	0.826	-	-	-	-	-
	2-5 cm	0.438	0.000	105.700	100.830	89.790	0.356	0.787	-	-	-	-	-
	5-10 cm	0.469	0.000	105.850	98.765	80.670	0.389	1.152	-	-	-	-	-
Jul 28	0-2 cm	0.629	0.067	104.350	99.565	80.670	0.346	0.611	-	-	-	-	-
	2-5 cm	0.561	0.053	109.700	103.550	89.790	0.386	0.717	-	-	-	-	-
	5-10 cm	0.312	0.000	110.150	103.600	89.790	0.394	1.057	-	-	-	-	-
Aug 15	0-2 cm	0.679	0.073	109.400	106.200	99.960	0.347	0.395	-	-	-	-	-
	2-5 cm	0.411	0.000	109.450	104.100	89.790	0.368	0.781	-	-	-	-	-
	5-10 cm	0.474	0.065	112.950	106.850	89.790	0.397	0.713	-	-	-	-	-
Aug 27	0-2 cm	0.475	0.045	110.800	108.500	99.960	0.333	0.312	-	-	-	-	-
	2-5 cm	0.223	0.000	112.350	107.850	99.960	0.366	0.809	-	-	-	-	-
	5-10 cm	0.151	0.000	106.200	102.850	99.960	0.321	0.452	-	-	-	-	-
Sep 11	0-2 cm	0.732	0.086	109.700	106.950	99.960	0.337	0.372	-	-	-	-	-
	2-5 cm	0.375	0.000	108.550	102.400	89.790	0.371	0.727	-	-	-	-	-
	5-10 cm	0.270	0.000	111.300	103.100	89.790	0.417	1.156	-	-	-	-	-
Sep 28	0-2 cm	0.589	0.074	111.200	106.150	89.790	0.370	0.561	-	-	-	-	-
	2-5 cm	0.319	0.000	117.500	111.500	89.790	0.415	0.583	-	-	-	-	-
	5-10 cm	0.417	0.000	119.900	110.750	89.790	0.464	1.072	-	-	-	-	-
Oct 7	0-2 cm	1.022	0.127	107.400	103.600	89.790	0.345	0.513	-	-	-	-	-
	2-5 cm	0.398	0.000	104.900	101.200	89.790	0.335	0.484	-	-	-	-	-
	5-10 cm	0.345	0.000	106.850	101.700	89.790	0.366	0.879	-	-	-	-	-
Oct 27	0-2 cm	0.676	0.082	106.700	104.000	99.960	0.324	0.364	-	-	-	-	-
	2-5 cm	0.367	0.000	104.150	99.965	89.790	0.330	0.596	-	-	-	-	-
	5-10 cm	0.297	0.000	108.600	102.500	89.790	0.387	1.399	-	-	-	-	-
Nov 10	0-2 cm	0.385	0.000	103.700	100.340	89.790	0.323	0.451	-	-	-	-	-
	2-5 cm	0.602	0.066	103.900	97.800	89.790	0.358	0.876	-	-	-	-	-
	5-10 cm	0.337	0.000	110.200	105.700	89.790	0.362	0.499	-	-	-	-	-

Environmental variables Signy: continued.

Appendix 7

Nematode size measurements, Weddell Sea

L: length (mm)
W: width (mm)
K1,1: (station, replicate)

Size measurements nematodes Weddell Sea

	H1,1		H1,2		H2,1		H2,2		H3,1		H3,2		H4,1		H4,2		H5,1		H5,2		H6,1		H6,2		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
1	0.99	0.05	0.95	0.04	1.20	0.08	2.25	0.06	0.86	0.03	1.40	0.06	0.66	0.03	3.35	0.07	1.39	0.03	0.91	0.04	2.36	0.06	0.82	0.02	
2	0.97	0.04	2.01	0.06	1.43	0.03	1.05	0.05	0.88	0.03	1.01	0.04	0.52	0.01	1.51	0.05	1.27	0.04	0.67	0.03	1.82	0.05	1.22	0.04	
3	1.34	0.03	1.26	0.05	1.98	0.06	1.50	0.04	0.45	0.02	0.94	0.04	0.58	0.02	2.03	0.05	1.41	0.05	0.99	0.05	1.95	0.04	2.14	0.08	
4	2.51	0.04	1.21	0.06	1.28	0.06	1.60	0.05	0.77	0.03	1.12	0.03	3.41	0.12	1.76	0.04	1.40	0.05	0.93	0.03	1.34	0.03	1.02	0.03	
5	1.72	0.06	3.50	0.14	2.24	0.05	1.94	0.07	1.76	0.06	1.06	0.04	1.88	0.09	1.20	0.03	0.97	0.04	1.36	0.05	2.45	0.12	4.50	0.10	
6	1.58	0.06	2.51	0.05	2.28	0.05	0.91	0.03	1.86	0.09	0.81	0.03	2.25	0.11	0.91	0.03	1.01	0.04	2.39	0.06	0.79	0.03	0.87	0.03	
7	2.51	0.05	0.89	0.03	1.11	0.05	1.04	0.03	0.98	0.04	0.61	0.02	1.95	0.04	1.66	0.05	1.30	0.03	1.27	0.05	1.98	0.05	1.94	0.03	
8	0.80	0.03	2.56	0.10	2.50	0.06	2.70	0.07	2.14	0.06	0.67	0.02	0.55	0.02	0.60	0.02	1.49	0.03	1.11	0.06	1.24	0.03	1.86	0.04	
9	1.34	0.04	0.87	0.03	1.60	0.04	1.17	0.04	1.05	0.03	0.54	0.02	1.58	0.06	2.45	0.05	1.45	0.03	1.60	0.03	1.22	0.03	1.03	0.05	
10	0.86	0.04	0.99	0.04	1.37	0.07	1.25	0.03	1.13	0.03	1.30	0.06	1.99	0.11	1.00	0.04	1.19	0.02	2.22	0.04	1.38	0.08	1.31	0.04	
11	1.66	0.02	1.03	0.05	2.41	0.06	0.83	0.03	1.23	0.04	1.26	0.05	5.60	0.07	0.90	0.04	2.46	0.02	0.95	0.05	1.30	0.04	1.33	0.03	
12	0.75	0.03	0.93	0.03	2.77	0.06	1.96	0.04	1.02	0.04	1.70	0.09	1.01	0.05	0.80	0.03	0.78	0.05	1.18	0.06	2.05	0.04	1.52	0.08	
13	2.78	0.05	0.82	0.03	2.54	0.05	0.95	0.02	0.84	0.04	1.00	0.04	1.04	0.06	2.73	0.06	1.34	0.02	0.85	0.03	4.06	0.09	2.52	0.07	
14	0.87	0.03	1.01	0.05	2.87	0.08	2.70	0.06	0.86	0.03	1.84	0.08	0.97	0.04	0.98	0.04	0.62	0.02	0.81	0.04	0.79	0.03	0.87	0.04	
15	0.82	0.03	1.11	0.04	1.20	0.08	0.88	0.05	1.65	0.06	3.00	0.07	3.02	0.09	0.48	0.03	0.65	0.04	0.71	0.03	2.67	0.04	1.41	0.06	
16	0.75	0.02	0.70	0.03	2.26	0.05	1.02	0.03	0.92	0.03	2.56	0.04	1.09	0.06	2.44	0.05	1.44	0.05	0.92	0.03	0.72	0.03	1.39	0.04	
17	0.62	0.02	1.23	0.04	1.50	0.04	1.56	0.02	2.90	0.07	0.90	0.04	1.06	0.06	0.76	0.04	1.30	0.05	1.27	0.03	3.40	0.11	1.26	0.05	
18	0.55	0.04	0.99	0.04	2.47	0.05	0.67	0.04	8.32	0.02	0.91	0.04	0.67	0.03	1.13	0.03	0.90	0.03	0.83	0.03	0.87	0.03	3.85	0.06	
19	0.99	0.04	0.82	0.03	2.46	0.06	0.77	0.02	0.59	0.03	1.05	0.04	0.63	0.03	3.14	0.04	0.96	0.04	1.29	0.04	2.10	0.05	2.07	0.04	
20	0.86	0.04	0.55	0.03	2.33	0.06	1.32	0.06	0.91	0.03	1.34	0.04	1.52	0.04	0.95	0.04	1.11	0.02	1.00	0.04	0.87	0.04	2.31	0.06	
21	1.47	0.03	0.65	0.03	2.08	0.05	2.45	0.02	2.02	0.03	1.73	0.03	1.06	0.04	2.42	0.05	1.46	0.05	1.03	0.03	1.01	0.03	2.44	0.06	
22	2.35	0.05	0.65	0.03	2.21	0.05	2.46	0.04	0.78	0.03	0.85	0.03	0.41	0.03	2.24	0.05	1.12	0.03	0.75	0.03	2.35	0.04	3.01	0.09	
23	0.70	0.02	0.70	0.03	3.74	0.08	0.95	0.05	0.85	0.04	1.37	0.03	1.64	0.04	0.96	0.04	1.44	0.06	1.92	0.04	2.75	0.10	3.22	0.09	
24	0.75	0.02	1.11	0.02	1.45	0.04	1.75	0.04	1.00	0.04	0.94	0.04	1.93	0.05	1.64	0.03	0.88	0.03	0.93	0.03	1.23	0.05	2.22	0.04	
25	0.88	0.02	0.62	0.02	1.70	0.06	0.78	0.03	2.16	0.04	0.46	0.02	2.14	0.08	1.25	0.05	2.00	0.04	2.28	0.08	2.19	0.04	1.94	0.07	
26	0.49	0.03	1.45	0.02	1.12	0.04	0.91	0.04	1.33	0.06	1.31	0.05	0.54	0.03	1.64	0.03	1.30	0.05	1.32	0.04	0.98	0.06	1.01	0.06	
27	0.84	0.03	0.72	0.02	4.16	0.13	0.90	0.03	2.28	0.04	1.49	0.04	2.61	0.07	1.07	0.04	0.78	0.02	2.00	0.04	1.82	0.04	2.40	0.07	
28	0.53	0.03	3.60	0.04	1.52	0.04	0.43	0.03	2.86	0.07	0.96	0.04	0.71	0.02	0.82	0.04	0.78	0.04	0.65	0.05	1.41	0.04	0.86	0.03	
29	0.73	0.02	0.85	0.03	1.26	0.05	0.92	0.04	3.50	0.09	0.71	0.02	1.04	0.05	1.14	0.04	0.98	0.04	1.41	0.04	1.20	0.05	2.34	0.05	
30	0.69	0.02	0.85	0.03	0.87	0.05	0.79	0.03	1.64	0.08	1.34	0.03	1.54	0.08	0.98	0.05	1.16	0.05	1.38	0.03	0.63	0.02	1.84	0.03	
31	0.49	0.02	0.74	0.02	1.23	0.05	1.88	0.04	0.96	0.03	0.82	0.03	0.64	0.03	2.33	0.04	1.22	0.05	3.23	0.04	0.52	0.03	2.29	0.04	
32	0.95	0.02	0.76	0.03	1.54	0.03	0.79	0.01	1.41	0.05	0.88	0.04	0.44	0.03	1.50	0.04	1.58	0.08	1.11	0.05	0.70	0.03	1.28	0.04	
33	0.82	0.03	0.87	0.04	1.31	0.04	1.22	0.03	0.77	0.04	0.49	0.02	0.50	0.03	1.08	0.04	1.38	0.02	0.77	0.03	1.68	0.03	0.91	0.03	
34	0.55	0.03	0.61	0.04	0.84	0.04	0.48	0.02	0.84	0.04	0.77	0.03	0.91	0.05	1.69	0.06	0.97	0.04	0.89	0.04	0.46	0.02	1.44	0.04	
35	0.76	0.02	1.41	0.03	0.80	0.04	0.55	0.03	1.70	0.04	1.53	0.07	0.56	0.03	0.91	0.04	2.71	0.07	0.79	0.02	0.60	0.04	0.96	0.03	
36	0.59	0.02	1.32	0.03	0.95	0.03	0.68	0.02	1.35	0.05	2.65	0.08	0.50	0.06	1.91	0.04	0.93	0.05	0.62	0.03	0.75	0.04	1.06	0.05	
37	0.45	0.02	0.71	0.03	1.73	0.04	0.61	0.02	1.59	0.06	0.69	0.02	1.30	0.03	0.70	0.03	0.92	0.04	0.88	0.03	1.56	0.04	1.25	0.04	
38	0.46	0.02	0.79	0.03	2.97	0.04	0.54	0.03	1.19	0.04	1.26	0.04	1.07	0.03	0.72	0.03	0.79	0.03	0.99	0.04	1.51	0.04	1.60	0.04	
39	0.67	0.01	0.82	0.02	0.88	0.03	0.81	0.02	1.01	0.03	0.72	0.03	1.01	0.03	1.16	0.05	0.69	0.03	0.84	0.03	0.93	0.05	1.08	0.01	
40	0.52	0.02	1.25	0.02	1.11	0.04	1.18	0.02	0.75	0.04	1.21	0.03	0.98	0.05	0.79	0.02	0.63	0.02	2.00	0.05	2.02	0.05	1.65	0.04	
41	0.49	0.02	0.74	0.04	1.74	0.04	0.48	0.02	0.65	0.03	0.79	0.03	1.62	0.04	1.04	0.03	1.14	0.04	0.67	0.02	1.12	0.02	0.86	0.02	
42	0.88	0.03	0.75	0.03	1.16	0.04	0.45	0.02	0.70	0.03	1.07	0.03	1.02	0.05	0.72	0.02	0.89	0.01	0.74	0.04	1.37	0.03	1.38	0.03	
43	0.83	0.02	0.71	0.02	0.91	0.04	0.53	0.02	1.01	0.03	1.12	0.02	1.00	0.04	0.81	0.03	0.77	0.03	0.94	0.05	0.82	0.04	1.30	0.03	
44	1.67	0.02	0.78	0.03	1.12	0.04	0.65	0.03	1.18	0.05	0.85	0.04	1.59	0.06	0.69	0.02	0.97	0.04	2.82	0.06	1.17	0.03	2.12	0.03	
45	0.56	0.03	0.73	0.02	0.88	0.02	0.87	0.02	1.88	0.04	3.19	0.04	1.00	0.04	0.96	0.04	0.55	0.02	0.78	0.03	0.84	0.02	1.40	0.02	
46	0.55	0.02	0.51	0.02	1.87	0.03	0.82	0.02	1.07	0.05	0.72	0.02	1.23	0.03	0.76	0.02	0.56	0.04	1.01	0.02	0.79	0.03	0.91	0.03	
47	1.23	0.05	0.83	0.03	1.57	0.03	0.62	0.03	2.84	0.07	1.93	0.03	0.58	0.02	1.43	0.03	0.49	0.01	0.51	0.03	0.89	0.04	1.09	0.03	
48	2.48	0.02	0.57	0.04	1.02	0.04	0.60	0.03	1.78	0.03	1.83	0.07	1.49	0.04	1.11	0.02	0.51	0.02	0.64	0.03	0.99	0.03	1.90	0.02	
49	0.66	0.03	0.86	0.03	0.91	0.03	0.75	0.02	1.40	0.04	0.70	0.02	1.81	0.06	1.11	0.05	0.70	0.02	0.45	0.01	3.80	0.09	1.96	0.03	
50	0.54	0.02	0.49	0.03	1.39	0.03	0.71	0.02	0.85	0.02	2.00	0.10	1.90	0.04	0.68	0.04	0.42	0.02	1.04	0.02	0.70	0.04	1.31	0.04	
51	0.97	0.03	0.44	0.02	0.94	0.04	0.48	0.03	0.67	0.03	0.96	0.02	0.80	0.03	0.76	0.03	0.51	0.01	0.86	0.04	0.66	0.03	1.72	0.04	
52	1.53	0.06	0.74	0.01	1.29	0.05	0.69	0.02	0.92	0.02	0.65	0.03	0.58	0.02	1.02	0.04	0.57	0.02	0.78	0.03	0.49	0.02	0.67	0.02	
53	0.48	0.02	0.42	0.02	1.10	0.02	0.42	0.02	0.98	0.03	0.59	0.02	0.75	0.03	0.71	0.03	0.44	0.02	0.23	0.05	0.78	0.02	0.76	0.02	
54	1.88	0.05	0.64	0.02	0.88	0.03	0.35	0.02	0.90	0.02	0.97	0.03	0.69	0.03	0.72	0.03	0.47	0.01	0.74	0.02	0.74	0.02	1.20	0.04	
55	1.00	0.08	0.42	0.04	0.89	0.05	0.39	0.02	0.66	0.03	0.64	0.02	0.57	0.03	1.83	0.04	0.41	0.01	0.85	0.03	0.75	0.03	0.82	0.03	
56	0.66	0.01	0.53	0.02	0.90	0.05	0.54	0.02	1.32	0.03	1.10	0.03	0.84	0.04	1.31	0.04	0.44	0.02	0.79	0.04	0.94	0.02	0.70	0.04	
57	0.49	0.02	0.46	0.02	1.40	0.02	0.43	0.02	0.70	0.02	0.69	0.02	0.49	0.03	1.21	0.04	0.52	0.02	1.24	0.05	1.07	0.02	1.80	0.04	
58	0.48	0.01	0.57	0.02	0.67	0.03	0.61	0.02	0.94	0.01	0.64	0.01	0.47	0.02	1.27	0.05	0.47	0.01	0.57	0.02	0.72	0.03	0.75	0.04	
59	0.87	0.01	0.66	0.02	1.55	0.02	0.53	0.02	0.73	0.02	0.50	0.02	0.72	0.02	0.94	0.03	0.91	0.02	1.11	0.03	2.14	0.02	1.42	0.05	
60	0.68	0.02	0.45	0.02	0.63	0.03	0.69	0.03	0.65	0.02	1.00	0.03	0.48	0.03	1.99	0.04	1.12	0.02	0.96	0.03	0.76	0.02	0.78	0.03	
61	0.54	0.02	0.68	0.02	0.73	0.02	0.50	0.02	0.77	0.02	0.91	0.04	0.48	0.02	1.47	0.04	0.97	0.01	1.04	0.04	0.65	0.03	0.69	0.03	
62	0.41	0.02	0.94	0.01	1.07	0.02	0.45	0.02	1.08	0.04	1.41	0.07	0.43	0.02	0.73	0.03	1.00	0.01	0.97	0.03	0.87	0.02	1.06	0.02	
63	0.44	0.02	0.43	0.03	0.84	0.02	0.36	0.02	0.97	0.02	0.98	0.04	1.18	0.02	1.19	0.01	0.71	0.03	0.90	0.04	0.74	0.03	0.85	0.02	
64	0.66	0.01	0.47	0.02	0.81	0.02	0.35	0.02	0.43	0.02	1.50	0.03	0.49	0.02	0.96	0.02	1.26	0.02	0.57	0.03	2.19	0.05	0.79	0.02	
65	0.38	0.02	0.62	0.04	0.92	0.03	0.49	0.01	0.86	0.02	0.81	0.02	0.59	0.02	0.72	0.03	0.47	0.04	0.48	0.03	1.10	0.04	0.91	0.03	
66	0.48	0.02	0.67	0.02	0.63	0.02	0.34	0.03	0.59	0.02	0.75	0.03	0.59	0.03	0.62	0.02	0.60	0.02	0.69	0.03	1.76	0.06	0.58	0.02	
67	0.52	0.02	0.94	0.03	0.50	0.03	0.52	0.02	0.42	0.02	1.03	0.03	0.84	0.04	0.65	0.02	0.78	0.03	1.65	0.02	0.66	0.03	0.64	0.03	
68	0.89	0.01	0.41	0.02	0.82	0.03	0.81	0.03	0.45	0.03	0.61	0.02	0.66	0.02	0.72	0.03	0.47	0.02	1.02	0.02	0.86	0.03	1.27	0.02	
69	0.95	0.04	0.50	0.02	0.67	0.03	1.50	0.01	0.61	0.02	1.13	0.02	0.59	0.02	0.96	0.02	0.40	0.02	0.66	0.03	1.53	0.03	0.61	0.02	
70	0.66	0.01	0.84	0.04	0.83	0.03	0.54	0.02	0.46	0.02	0.80	0.02	0.31	0.02	0.75	0.03	0.52	0.02	0.49	0.01	2.36	0.07	0.50	0.02	
71	0.40	0.02	1.03	0.03	0.93	0.03	0.56	0.02	1.97	0.02	2.53	0.03	0.89	0.03	1.43	0.03	1.01	0.05	1.61	0.03	0.69	0.03	1.54	0.02	
72	0.56	0.01	0.69	0.03	0.70	0.03	0.53	0.02	0.74	0.02	1.93	0.05	1.73	0.05	1.05	0.02	0.66	0.01	0.53	0.02	0.84	0.03	0.72	0.02	
73	0.40	0.02	0.71	0.03	0.57	0.02	0.61	0.02	0.56	0.02	0.76	0.02	1.68	0.04	0.96	0.03	0.57	0.02	0.62	0.02	1.31	0.05	0.65	0.03	
74	0.72	0.02	0.51	0.03	0.94	0.02	0.49	0.02	0.73	0.03	0.62	0.03	2.70	0.06	0.53	0.02	0.46	0.03	0.80	0.02	1.86	0.05	0.70	0.03	
75	0.68	0.02	0.65	0.02	0.76	0.03	0.62	0.02	0.57	0.02	0.95	0.02	0.53	0.02	0.77	0.02	0.46	0.02	0.85	0.02	0.57	0.02	0.61	0.03	
76	0.45	0.02	1.32	0.02	0.47	0.02	0.48	0.02	0.48	0.02	0.76	0.03	0.88	0.03	0.82	0.02	0.70	0.03	0.57	0.02	1.19	0.06	0.82	0.03	
77	0.47	0.02	0.73	0.03	1.21	0.01	0.58	0.03	0.88	0.01	0.71	0.02	2.46	0.07	0.62	0.02	1.08	0.05	0.56	0.03	4.10	0.04	0.58	0.02	
78	0.83	0.02	0.78	0.02	0.82	0.02	0.55	0.01	0.93	0.02	0.65	0.02	1.00	0.05	0.44	0.02	1.37	0.02	1.51	0.03	0.71	0.02	0.31	0.01	
79	0.46	0.02	0.62	0.02	0.43	0.02	0.48	0.02	0.40	0.03	0.93	0.04	1.82	0.04	0.49	0.02	0.64	0.03	0.78	0.03	0.64	0.02	0.50	0.01	
80	0.64	0.01	0.84	0.02	0.49	0.02	0.40	0.02	0.59	0.02	0.73	0.02	0.82	0.03	0.50	0.02	1.11	0.03	0.45	0.02	0.89	0.03	0.53	0.01	
81	0.41	0.02	0.56	0.02	0.55	0.02	1.39	0.02	0.54	0.02	0.48	0.02	1.36	0.02	0.52	0.02	0.62	0.02	1.31	0.02	0.81	0.03	0.55	0.02	
82	0.48	0.02	0.25	0.01	0.56	0.02	0.94	0.02	0.51	0.02	0.98	0.02	0.70	0.03	0.74	0.03	0.78	0.01	0.52	0.03	0.83	0.03	0.65	0.02	
83	0.60	0.01	0.79	0.01	0.53	0.02	0.45	0.03	0.49	0.01	0.93	0.02	0.96	0.04	0.48	0.01	0.41	0.02	0.46	0.02	1.34	0.05	0.60	0.02	
84	0.32	0.01	0.42	0.02	0.55	0.02	0.29	0.02	0.57	0.02	0.59	0.02	0.81	0.03	0.65	0.03	0.57	0.02	0.49	0.02	0.54	0.03	0.53	0.02	
85	0.43	0.03	0.56	0.02	0.88	0.04	1.87	0.02	0.57	0.02	0.51	0.02	0.63	0.03	0.82	0.03	0.86	0.03	0.47	0.02	1.33	0.04	0.53	0.01	
86	0.36	0.02	0.25	0.01	1.00	0.03	0.69	0.02	0.47	0.02	0.40	0.01	1.00	0.04	0.59	0.03	0.88	0.03	0.62	0.01	0.66	0.03	0.47	0.02	
87	0.42	0.02	0.79	0.01	0.73	0.02	0.53	0.02	0.54	0.02	0.53	0.02	2.63	0.02	0.50	0.03	0.47	0.02	0.45	0.01	0.69	0.03	0.53	0.02	
88	0.53	0.01	0.43	0.02	0.54	0.02	0.86	0.03	0.51	0.04	0.47	0.02	0.96	0.03	0.68	0.03	0.44	0.03	0.51	0.02	1.00	0.04	0.65	0.01	
89	0.45	0.02	0.59	0.02	0.79	0.03	0.52	0.03	0.38	0.02	0.68	0.03	0.72	0.02	0.36	0.03	0.44	0.02	0.46	0.02	0.60	0.03	0.66	0.02	
90	0.44	0.02	0.69	0.03	0.85	0.02	0.75	0.01	0.61	0.02	0.62	0.02	0.89	0.04	0.38	0.02	0.55	0.02	0.77	0.03	0.71	0.03	0.66	0.03	
91	0.74	0.01	0.50	0.02	0.68	0.02	0.33	0.01	0.58	0.02	0.63	0.02	1.36	0.06	0.52	0.01	0.37	0.04	0.47	0.02	0.60	0.02	0.41	0.02	
92	0.68	0.01	0.46	0.02	0.73	0.03	0.67	0.02	0.48	0.01	0.42	0.02	0.67	0.02	0.49	0.01	0.45	0.03	0.51	0.02	1.07	0.03	0.55	0.02	
93	0.41	0.02	1.04	0.02	0.68	0.02	0.33	0.02	0.86	0.02	0.67	0.04	0.45	0.02	0.57	0.01	0.38	0.02	1.01	0.04	1.09	0.02	1.00	0.02	
94	0.44	0.02	0.48	0.04	0.47	0.02	0.37	0.01	0.45	0.02	0.54	0.02	0.76	0.03	0.42	0.02	0.38	0.02	0.39	0.02	0.90	0.02	1.14	0.02	
95	0.37	0.01	0.52	0.02	0.80	0.02	0.93	0.02	0.52	0.02	0.44	0.01	1.04	0.02	0.29	0.04	1.27	0.03	0.48	0.02	0.61	0.02	0.43	0.02	
96	0.38	0.01	0.54	0.02	0.85	0.04	0.56	0.02	0.58	0.01	0.57	0.02	0.43	0.02	0.55	0.02	0.45	0.02	0.65	0.02	2.15	0.05	0.55	0.01	
97	0.45	0.01	0.73	0.01	0.87	0.02	0.95	0.03	0.57	0.01	0.40	0.02	0.47	0.02	0.55	0.02	0.31	0.02	0.40	0.02	0.86	0.03	0.48	0.02	
98	0.68	0.02	0.48	0.02	1.49	0.02	0.46	0.02	0.33	0.02	0.42	0.02	1.32	0.03	0.65	0.02	0.67	0.02	0.43	0.02	0.50	0.02	0.61	0.02	
99	0.68	0.02	0.41	0.02	0.48	0.02	0.70	0.01	0.71	0.02	0.63	0.03	0.43	0.02	0.43	0.02	0.35	0.02	0.24	0.03	1.86	0.05	0.94	0.01	
100	0.47	0.01	0.59	0.03	0.35	0.02	0.39	0.02	0.77	0.03	0.63	0.02	0.78	0.03	0.52	0.02	0.39	0.01	0.78	0.04	0.74	0.03	0.60	0.02	

Size measurements nematodes Weddell Sea

	H1,1		H1,2		H2,1		H2,2		H3,1		H3,2		H4,1		H4,2		H5,1		H5,2		H6,1		H6,2		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
101	0.29	0.02	0.95	0.03	0.52	0.02	0.78	0.01	0.32	0.01	0.73	0.03	0.42	0.02	0.52	0.02	0.36	0.03	1.07	0.03	0.68	0.03	0.47	0.02	
102	0.51	0.02	0.34	0.02	0.31	0.02	0.65	0.02	0.57	0.02	0.41	0.02	0.59	0.01	0.49	0.02	0.28	0.02	0.50	0.01	0.37	0.03	1.09	0.02	
103	0.33	0.01	0.58	0.02	0.80	0.05	0.45	0.02	0.52	0.02	1.68	0.02	0.49	0.02	0.47	0.02	0.49	0.01	0.44	0.02	0.78	0.02	1.56	0.02	
104	0.46	0.02	0.44	0.01	0.83	0.04	0.46	0.01	0.64	0.02	0.43	0.02	0.34	0.03	0.57	0.02	0.40	0.02	1.13	0.04	0.33	0.02	0.84	0.02	
105	0.41	0.01	0.38	0.02	0.67	0.03	0.39	0.01	1.24	0.02	0.42	0.02	0.38	0.02	0.53	0.02	0.49	0.03	0.51	0.02	1.54	0.05	0.75	0.02	
106	0.43	0.02	0.33	0.02	0.57	0.02	0.89	0.03	0.57	0.01	0.51	0.01	0.61	0.03	0.53	0.02	0.42	0.02	0.68	0.02	0.74	0.05	0.42	0.02	
107	0.38	0.01	1.17	0.03	0.46	0.02	0.63	0.02	0.68	0.02	0.33	0.01	0.67	0.02	0.48	0.01	0.34	0.02	0.68	0.03	0.88	0.02	1.08	0.03	
108	0.32	0.02	0.56	0.02	0.49	0.02	0.47	0.02	0.47	0.01	0.38	0.05	0.49	0.02	0.75	0.03	0.47	0.02	0.81	0.01	0.59	0.02	1.09	0.04	
109	0.23	0.03	0.48	0.02	0.72	0.02	0.46	0.02	0.43	0.02	0.47	0.02	0.37	0.01	0.50	0.03	0.81	0.02	0.82	0.03	0.51	0.02	0.72	0.02	
110	0.40	0.02	0.47	0.02	0.88	0.02	0.38	0.02	0.39	0.01	0.48	0.02	0.78	0.02	0.56	0.02	0.66	0.02	0.52	0.01	0.42	0.02	0.63	0.02	
111	0.23	0.03	0.44	0.02	0.70	0.02	0.34	0.02	0.37	0.02	0.31	0.02	0.65	0.02	0.76	0.03	0.65	0.02	0.45	0.02	2.04	0.06	0.58	0.03	
112	0.63	0.01	0.45	0.02	0.56	0.02	0.33	0.02	0.35	0.01	0.40	0.01	0.74	0.02	0.45	0.02	0.58	0.02	0.37	0.04	0.48	0.02	0.76	0.02	
113	0.42	0.02	0.55	0.03	0.73	0.01	0.41	0.02	0.51	0.01	0.81	0.02	0.33	0.04	1.13	0.02	0.63	0.02	0.33	0.02	1.21	0.05	0.42	0.02	
114	0.44	0.02	0.40	0.03	0.51	0.01	0.46	0.03	1.05	0.02	0.86	0.02	0.41	0.02	0.44	0.03	0.40	0.01	0.30	0.02	0.69	0.01	1.30	0.04	
115	0.33	0.02	0.55	0.03	0.57	0.02	0.49	0.02	0.35	0.02	0.48	0.02	0.46	0.02	0.52	0.03	0.45	0.02	0.42	0.02	0.84	0.02	0.65	0.01	
116	0.29	0.02	0.47	0.01	0.54	0.03	0.67	0.01	0.40	0.03	0.40	0.02	1.27	0.04	0.60	0.02	0.51	0.02	0.30	0.01	0.72	0.01	0.43	0.02	
117	0.46	0.02	0.41	0.02	0.62	0.02	0.31	0.01	0.61	0.02	0.42	0.03	0.46	0.02	0.46	0.01	0.59	0.02	0.54	0.01	0.62	0.02	0.63	0.02	
118	0.28	0.01	0.54	0.01	0.48	0.03	0.57	0.02	0.52	0.01	0.30	0.01	0.80	0.02	1.24	0.01	0.43	0.01	0.63	0.02	0.51	0.01	0.75	0.03	
119	0.33	0.02	0.42	0.02	0.77	0.04	0.34	0.02	0.36	0.02	0.81	0.04	0.72	0.02	0.35	0.02	0.28	0.01	0.53	0.01	0.46	0.02	0.50	0.01	
120	0.34	0.01	0.38	0.02	0.41	0.02	0.50	0.02	0.54	0.01	0.32	0.01	0.94	0.03	0.33	0.02	0.40	0.02	0.40	0.04	0.73	0.05	0.53	0.02	
121	0.74	0.01	0.46	0.01	0.43	0.02	0.38	0.01	1.39	0.04	0.33	0.02	0.71	0.02	0.36	0.01	0.36	0.02	0.50	0.02	0.55	0.03	0.75	0.04	
122	0.42	0.02	0.51	0.02	0.46	0.02	0.28	0.04	0.81	0.04	0.83	0.03	0.39	0.03	0.90	0.01	0.54	0.02	0.60	0.02	0.63	0.02	0.53	0.01	
123	0.29	0.01	0.21	0.03	0.45	0.02	0.35	0.02	0.60	0.03	0.90	0.03	0.39	0.02	0.44	0.02	0.30	0.02	0.55	0.04	0.75	0.04	0.33	0.01	
124	0.30	0.01	0.60	0.01	0.37	0.02	0.45	0.01	0.52	0.02	1.91	0.09	0.31	0.02	0.39	0.02	0.39	0.06	0.97	0.05	0.44	0.01	0.27	0.01	
125	0.29	0.02	0.65	0.02	0.67	0.03	0.68	0.02	1.99	0.02	0.47	0.02	0.30	0.02	0.33	0.02	0.51	0.02	0.22	0.04	0.48	0.01	0.47	0.01	
126	0.49	0.01	0.85	0.02	0.82	0.01	0.38	0.01	0.83	0.04	0.61	0.02	0.20	0.03	0.35	0.01	0.39	0.03	0.12	0.10	0.80	0.02	0.55	0.02	
127	0.40	0.02	0.55	0.01	0.54	0.03	0.44	0.02	1.21	0.02	0.98	0.04	0.32	0.02	0.36	0.01	0.47	0.01	0.30	0.03	0.99	0.02	0.37	0.02	
128	0.39	0.02	0.68	0.01	0.75	0.01	0.50	0.01	0.66	0.02	0.76	0.04	0.20	0.03	0.38	0.01	0.64	0.02	0.50	0.02	0.54	0.02	0.36	0.02	
129	0.31	0.02	0.60	0.02	0.67	0.02	0.63	0.02	0.60	0.02	2.32	0.03	0.41	0.01	0.57	0.02	0.43	0.01	0.46	0.04	0.53	0.02	0.25	0.02	
130	0.49	0.01	0.26	0.02	0.72	0.01	0.86	0.03	0.73	0.03	1.53	0.06	0.37	0.02	0.43	0.02	0.38	0.01	0.54	0.02	0.64	0.05	0.40	0.02	
131	0.40	0.01	0.51	0.03	0.48	0.01	0.46	0.02	0.42	0.01	0.60	0.04	1.09	0.01	0.50	0.02	0.46	0.06	0.63	0.02	0.63	0.03	0.53	0.02	
132	0.31	0.03	0.49	0.03	0.46	0.01	0.70	0.01	0.75	0.02	0.53	0.02	0.34	0.03	0.40	0.02	0.48	0.02	0.25	0.01	0.79	0.01	0.40	0.01	
133	0.71	0.01	0.42	0.01	0.91	0.03	0.35	0.01	0.51	0.01	0.62	0.02	0.89	0.01	0.46	0.02	0.41	0.02	2.53	0.07	0.67	0.02	0.54	0.01	
134	0.57	0.02	0.42	0.02	0.37	0.02	0.34	0.04	0.68	0.02	0.56	0.02	1.47	0.01	0.52	0.02	0.40	0.02	0.16	0.03	0.35	0.02	0.28	0.03	
135	0.36	0.01	0.34	0.01	0.90	0.02	0.46	0.02	0.63	0.01	0.58	0.02	0.33	0.01	0.52	0.02	0.45	0.03	0.13	0.02	0.60	0.02	0.27	0.01	
136	0.49	0.02	0.42	0.02	0.57	0.03	0.22	0.03	0.80	0.02	0.49	0.02	0.58	0.01	0.63	0.02	0.61	0.04	0.69	0.02	0.52	0.02	0.76	0.02	
137	0.53	0.01	0.28	0.02	0.46	0.02	0.29	0.01	0.55	0.02	1.01	0.04	0.23	0.02	1.01	0.01	0.43	0.02	0.35	0.02	0.27	0.04	0.93	0.04	
138	0.49	0.02	0.38	0.01	0.35	0.02	0.69	0.03	0.40	0.01	0.34	0.02	0.91	0.03	0.53	0.02	0.47	0.02	0.58	0.01	0.43	0.01	0.30	0.04	
139	0.44	0.02	0.34	0.03	0.81	0.02	0.45	0.02	0.51	0.02	0.57	0.02	0.19	0.03	0.57	0.02	0.48	0.02	0.42	0.02	0.37	0.02	0.19	0.03	
140	0.51	0.01	0.49	0.02	0.53	0.02	0.72	0.01	0.50	0.02	1.47	0.03	0.45	0.02	0.55	0.01	0.36	0.01	0.26	0.02	2.26	0.02	0.42	0.01	
141	0.21	0.02	0.27	0.03	0.47	0.01	0.31	0.04	1.17	0.04	0.68	0.03	0.36	0.02	0.34	0.01	0.44	0.03	0.38	0.02	0.34	0.02	0.37	0.02	
142	0.26	0.01	0.21	0.04	0.72	0.02	0.31	0.02	0.50	0.01	0.19	0.04	0.26	0.02	0.63	0.01	0.45	0.04	0.52	0.02	0.77	0.01	0.74	0.02	
143	0.30	0.01	0.27	0.01	0.66	0.03	0.24	0.02	0.52	0.02	0.22	0.02	0.47	0.01	0.42	0.01	0.35	0.03	0.33	0.03	0.33	0.01	0.37	0.02	
144	0.44	0.02	0.44	0.01	0.95	0.01	0.58	0.02	0.46	0.02	0.24	0.02	0.21	0.03	0.34	0.01	0.52	0.02	0.44	0.02	0.24	0.01	1.30	0.03	
145	0.32	0.01	0.44	0.02	0.51	0.02	0.59	0.01	0.34	0.01	0.30	0.04	0.30	0.04	0.27	0.02	0.26	0.02	0.33	0.02	0.69	0.01	0.28	0.01	
146	0.70	0.04	0.66	0.01	0.56	0.01	0.43	0.02	0.24	0.02	0.81	0.02	0.32	0.02	0.62	0.01	0.32	0.02	0.48	0.02	0.39	0.02	0.41	0.01	
147	0.39	0.02	0.46	0.01	1.38	0.05	0.41	0.01	0.32	0.01	0.32	0.02	0.35	0.02	0.40	0.01	0.35	0.04	0.39	0.02	0.41	0.02	0.66	0.02	
148	0.28	0.01	0.49	0.02	0.84	0.01	0.59	0.02	0.43	0.01	0.89	0.02	0.38	0.03	0.24	0.01	0.34	0.01	0.59	0.02	0.86	0.01	0.58	0.01	
149	0.46	0.02	0.40	0.01	0.99	0.02	0.43	0.01	0.42	0.02	0.52	0.02	0.28	0.02	0.45	0.02	1.72	0.02	0.57	0.02	0.61	0.01	0.70	0.01	
150	0.38	0.02	0.49	0.02	0.95	0.03	1.15	0.05	0.47	0.02	0.55	0.02	0.29	0.01	0.30	0.01	0.74	0.02	0.46	0.01	0.28	0.01	0.30	0.02	
151	0.73	0.01	0.82	0.02	0.78	0.03	0.48	0.02	0.47	0.02	0.27	0.04	0.30	0.01	0.19	0.02	1.05	0.04	0.39	0.02	0.65	0.03	0.62	0.02	
152	0.44	0.02	0.45	0.01	1.05	0.03	0.83	0.03	0.80	0.02	0.39	0.01	0.55	0.01	0.51	0.01	0.78	0.02	0.76	0.03	0.61	0.03	0.32	0.02	
153	0.71	0.01	0.64	0.01	0.83	0.04	0.55	0.02	0.44	0.01	0.33	0.01	0.52	0.02	0.26	0.04	0.72	0.03	0.44	0.01	0.64	0.03	0.58	0.02	
154	0.70	0.01	1.73	0.02	1.59	0.04	1.18	0.04	0.63	0.03	0.39	0.01	0.33	0.01	0.22	0.03	0.88	0.04	0.24	0.02	0.48	0.02	0.42	0.02	
155	0.25	0.02	1.59	0.06	1.01	0.03	0.76	0.04	0.50	0.02	0.44	0.01	0.41	0.02	0.39	0.04	1.32	0.07	0.37	0.03	0.65	0.02	0.58	0.02	
156	0.44	0.02	1.97	0.03	1.50	0.04	0.76	0.03	0.48	0.02	0.71	0.03	0.45	0.01	0.46	0.01	0.59	0.03	0.54	0.02	1.36	0.10	0.34	0.02	
157	1.02	0.07	0.47	0.02	0.83	0.04	0.75	0.03	0.35	0.03	0.35	0.02	0.39	0.02	0.68	0.01	0.49	0.02	0.54	0.02	0.76	0.03	0.46	0.05	
158	0.48	0.04	0.29	0.01	1.52	0.04	0.38	0.02	0.25	0.03	0.82	0.03	0.98	0.01	1.09	0.04	0.92	0.04	0.31	0.01	1.23	0.02	0.70	0.02	
159	0.45	0.02	0.20	0.03	0.75	0.02	0.60	0.02	0.26	0.04	0.56	0.02	0.28	0.03	0.46	0.02	0.50	0.03	0.39	0.04	0.62	0.03	0.48	0.07	
160	0.64	0.02	0.36	0.02	1.63	0.04	0.40	0.01	0.26	0.04	1.86	0.03	0.56	0.02	0.72	0.02	0.62	0.02	0.32	0.02	1.87	0.03	0.46	0.01	
161	0.24	0.01	0.38	0.02	0.82	0.02	0.82	0.02	0.32	0.03	0.36	0.01	0.28	0.01	1.44	0.04	0.84	0.03	0.29	0.04	1.58	0.02	0.36	0.01	
162	0.74	0.02	0.31	0.01	0.94	0.01	0.71	0.02	0.34	0.02	0.43	0.01	0.29	0.02	0.38	0.03	0.66	0.02	0.28	0.02	0.65	0.02	0.40	0.01	
163	0.29	0.02	0.28	0.01	0.70	0.03	0.61	0.01	0.27	0.03	0.28	0.04	0.31	0.01	0.40	0.02	1.02	0.03	0.57	0.03	0.67	0.02	0.24	0.03	
164	0.49	0.02	0.53	0.02	0.71	0.03			1.44	0.03	0.25	0.04	0.40	0.02	0.80	0.03	0.73	0.03	0.74	0.01	0.54	0.03	0.32	0.01	
165			0.69	0.02	0.82	0.02			0.53	0.04	0.20	0.03	0.43	0.02	0.63	0.02	0.77	0.04	0.60	0.02	0.50	0.02	0.27	0.01	
166			0.92	0.03	0.78	0.03			0.37	0.02	0.22	0.02	0.70	0.04	0.80	0.03	0.95	0.05	1.13	0.06	0.50	0.02	0.82	0.02	
167			0.29	0.02	0.99	0.03			0.34	0.04	0.23	0.02	0.33	0.02	1.05	0.05	0.98	0.03	0.61	0.01	0.72	0.03	0.18	0.02	
168			0.47	0.01	0.62	0.02			0.35	0.04	0.38	0.02	0.48	0.02	0.69	0.03	0.45	0.02	0.46	0.02	0.37	0.02	0.59	0.02	
169			0.60	0.02	0.74	0.02			0.23	0.04	0.32	0.03	0.47	0.01	0.53	0.02	0.68	0.02	0.58	0.01	0.71	0.01	0.51	0.01	
170			1.08	0.04	0.75	0.02			0.40	0.03	0.32	0.04	0.34	0.02	0.68	0.02	0.62	0.06	0.23	0.01	0.49	0.02	0.53	0.01	
171			0.29	0.02	0.75	0.01			0.54	0.04	0.86	0.03	0.32	0.01	1.39	0.03	0.75	0.03	0.42	0.02			0.59	0.02	
172			0.33	0.01	0.59	0.02			0.38	0.03	0.28	0.04	0.49	0.02	1.09	0.02	0.37	0.01	0.41	0.01			0.43	0.01	
173			0.86	0.03	0.85	0.03			0.24	0.03	0.43	0.05	0.37	0.01	0.49	0.02	0.99	0.04	0.48	0.01			0.31	0.01	
174			0.59	0.02	0.88	0.02			0.32	0.01	0.75	0.03	0.36	0.02	0.63	0.03	0.31	0.01	0.32	0.02			0.57	0.02	
175			0.34	0.02	0.66	0.02			0.27	0.03	1.34	0.02	0.42	0.01	0.40	0.01	1.29	0.05	0.42	0.01			0.40	0.01	
176			0.32	0.01	0.76	0.02			0.23	0.03	0.46	0.01	0.59	0.02	0.79	0.01	0.79	0.03	0.37	0.01			0.39	0.02	
177			0.32	0.02	0.68	0.03			0.24	0.02	2.15	0.04	0.32	0.02	1.07	0.01	1.25	0.04	0.46	0.01			0.61	0.02	
178			0.70	0.02	1.35	0.05					0.83	0.04	0.32	0.01	0.90	0.03	0.38	0.03	0.27	0.03			0.41	0.01	
179			0.29	0.01	0.88	0.03					0.50	0.02	0.35	0.02	0.34	0.01	1.10	0.02	0.61	0.03			0.49	0.02	
180			0.50	0.02	0.65	0.03					1.10	0.03	0.37	0.02	0.54	0.01	0.39	0.01	0.90	0.03			0.34	0.01	
181			0.35	0.01	0.34	0.02					0.36	0.02	0.36	0.02	1.78	0.08	0.53	0.02	0.98	0.03			0.46	0.01	
182					0.37	0.01					0.41	0.01	0.41	0.01	0.46	0.02	0.44	0.01	0.39	0.02			0.33	0.01	
183					0.31	0.01							1.02	0.02	1.02	0.02	0.39	0.02	0.46	0.03					
184					1.18	0.02							2.81	0.07	2.81	0.07			0.54	0.03					
185					1.41	0.05							0.51	0.02	0.51	0.02									
186					1.99	0.08							0.27	0.02	0.27	0.02									
187					0.39	0.02							0.29	0.01	0.29	0.01									
188					0.28	0.01							0.28	0.02	0.28	0.02									
189					0.40	0.01																			
190					0.78	0.03																			
191					1.07	0.03																			
192					0.79	0.01																			
193																									
194																									
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Size measurements nematodes Weddell Sea

	H7,1		H7,2		H8,1		H8,2		H9,1		H9,2		H10,1		H10,2		H11,1		H11,2		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
1	1.92	0.04	2.91	0.11	0.72	0.03	0.93	0.05	0.80	0.02	0.97	0.02	2.02	0.06	1.10	0.03	0.72	0.03	1.87	0.05	
2	0.81	0.04	0.73	0.03	0.82	0.03	0.97	0.02	2.37	0.05	2.71	0.03	2.30	0.05	1.40	0.05	1.25	0.05	0.93	0.04	
3	0.75	0.03	1.15	0.03	2.17	0.05	1.16	0.04	0.85	0.02	1.11	0.04	1.99	0.05	0.94	0.04	1.43	0.03	1.02	0.08	
4	1.97	0.06	0.86	0.03	7.05	0.06	0.77	0.03	1.29	0.02	0.97	0.03	3.80	0.07	1.55	0.05	0.77	0.04	1.68	0.03	
5	0.60	0.03	0.88	0.04	0.68	0.03	1.64	0.04	0.97	0.03	0.81	0.04	1.73	0.06	1.31	0.05	0.53	0.02	0.90	0.05	
6	0.55	0.02	1.25	0.03	2.04	0.05	2.52	0.06	1.09	0.05	3.28	0.02	1.56	0.07	1.08	0.04	2.41	0.09	1.72	0.05	
7	3.08	0.06	1.50	0.06	2.26	0.05	0.89	0.06	2.10	0.03	3.61	0.02	1.65	0.08	0.83	0.04	1.01	0.04	1.53	0.03	
8	0.60	0.03	1.23	0.05	1.66	0.03	0.90	0.02	0.83	0.02	2.26	0.04	2.88	0.11	2.37	0.05	1.31	0.05	2.78	0.12	
9	1.83	0.04	1.45	0.06	1.51	0.04	0.72	0.03	0.79	0.04	1.01	0.03	1.95	0.05	1.87	0.04	0.90	0.04	2.48	0.07	
10	0.69	0.03	1.10	0.05	0.93	0.03	0.52	0.03	0.70	0.04	2.03	0.03	0.92	0.05	1.11	0.07	1.11	0.04	1.41	0.06	
11	1.03	0.03	0.65	0.02	5.46	0.05	0.29	0.05	0.86	0.04	1.17	0.03	1.45	0.05	0.97	0.04	0.78	0.03	1.28	0.05	
12	1.14	0.03	1.86	0.03	1.82	0.02	0.37	0.02	0.70	0.02	2.95	0.03	1.06	0.06	0.99	0.04	1.30	0.04	1.79	0.04	
13	0.51	0.02	3.67	0.04	0.84	0.03	1.55	0.04	1.06	0.03	0.46	0.03	1.24	0.03	0.74	0.02	0.97	0.03	0.83	0.02	
14	2.05	0.05	1.04	0.04	1.07	0.04	0.79	0.03	1.07	0.04	0.83	0.02	1.10	0.05	0.75	0.03	0.75	0.03	1.25	0.05	
15	0.47	0.02	1.06	0.03	2.10	0.03	1.34	0.05	1.02	0.03	0.97	0.02	0.95	0.02	1.15	0.03	1.99	0.05	1.15	0.03	
16	2.25	0.04	0.49	0.02	0.83	0.04	2.12	0.04	1.27	0.03	1.39	0.04	0.78	0.02	1.55	0.02	0.88	0.02	0.84	0.03	
17	0.25	0.03	0.64	0.02	0.82	0.02	1.43	0.05	0.81	0.02	1.08	0.03	1.25	0.03	1.43	0.04	1.15	0.04	2.85	0.06	
18	0.50	0.01	1.22	0.05	1.35	0.03	2.17	0.05	1.08	0.05	1.47	0.03	0.58	0.03	0.92	0.03	0.78	0.03	0.89	0.04	
19	1.67	0.05	1.83	0.06	3.42	0.03	1.60	0.04	2.18	0.03	1.07	0.03	0.75	0.02	1.49	0.04	1.22	0.05	0.85	0.03	
20	0.46	0.04	0.71	0.02	2.88	0.03	1.75	0.04	1.48	0.03	1.69	0.04	0.71	0.03	1.76	0.07	0.84	0.03	2.52	0.05	
21	2.75	0.05	2.52	0.06	1.77	0.07	0.67	0.03	2.03	0.04	0.81	0.04	1.70	0.05	0.76	0.03	0.86	0.03	0.50	0.02	
22	0.49	0.02	1.20	0.03	3.85	0.03	1.34	0.03	1.02	0.02	2.30	0.05	1.15	0.03	0.54	0.02	0.71	0.03	1.60	0.04	
23	0.38	0.03	1.36	0.03	1.82	0.03	3.52	0.03	2.83	0.03	0.72	0.02	1.41	0.03	0.75	0.03	0.61	0.02	0.62	0.03	
24	7.49	0.08	1.09	0.03	1.45	0.05	1.02	0.04	1.06	0.03	0.55	0.02	1.12	0.03	0.68	0.04	0.87	0.03	0.97	0.03	
25	0.79	0.04	2.49	0.07	1.75	0.02	2.46	0.07	1.00	0.05	0.52	0.02	0.92	0.05	0.61	0.02	1.22	0.04	1.71	0.03	
26	1.95	0.04	1.95	0.04	2.15	0.03	1.19	0.02	0.69	0.02	2.22	0.03	1.05	0.06	0.76	0.03	0.68	0.03	0.75	0.03	
27	0.69	0.03	1.19	0.04	0.93	0.02	2.01	0.01	1.26	0.02	0.88	0.02	1.38	0.07	0.41	0.02	0.64	0.03	0.98	0.03	
28	0.41	0.02	0.55	0.02	2.17	0.05	1.79	0.03	2.11	0.06	1.31	0.04	1.05	0.07	0.67	0.03	0.74	0.03	0.60	0.02	
29	1.67	0.04	1.42	0.04	0.99	0.04	0.73	0.03	0.84	0.04	0.89	0.03	1.48	0.05	0.86	0.03	0.44	0.02	0.54	0.03	
30	0.58	0.03	2.52	0.05	1.83	0.02	0.74	0.03	0.98	0.03	0.73	0.02	1.16	0.06	1.19	0.02	0.62	0.02	0.76	0.03	
31	0.59	0.02	0.58	0.02	1.23	0.02	0.73	0.03	1.74	0.03	0.42	0.01	0.94	0.07	0.61	0.01	0.71	0.02	2.11	0.05	
32	1.96	0.06	1.04	0.05	1.27	0.02	2.09	0.03	1.21	0.03	1.20	0.04	0.94	0.05	2.41	0.02	0.96	0.03	0.85	0.03	
33	0.71	0.01	1.17	0.05	1.37	0.02	3.35	0.03	1.00	0.02	0.96	0.04	1.41	0.08	0.71	0.03	0.76	0.03	1.27	0.03	
34	0.87	0.05	2.48	0.08	0.94	0.02	2.66	0.08	1.81	0.04	0.94	0.02	1.17	0.06	1.10	0.05	0.77	0.03	0.89	0.03	
35	1.66	0.04	0.71	0.02	0.59	0.01	1.29	0.03	1.19	0.04	1.01	0.03	1.66	0.03	0.51	0.04	0.59	0.02	1.07	0.03	
36	1.28	0.03	1.58	0.03	0.88	0.03	0.95	0.08	1.09	0.04	0.62	0.03	1.70	0.07	0.61	0.03	0.37	0.02	0.72	0.03	
37	0.45	0.02	3.10	0.06	0.87	0.03	1.10	0.03	3.78	0.03	0.71	0.02	1.73	0.04	0.71	0.02	0.80	0.03	1.17	0.03	
38	3.13	0.04	1.09	0.03	1.27	0.02	1.68	0.03	0.91	0.03	1.89	0.03	1.47	0.04	0.41	0.02	0.42	0.02	1.02	0.04	
39	0.54	0.02	1.24	0.03	1.05	0.02	1.80	0.04	1.28	0.03	1.32	0.03	1.21	0.04	0.71	0.02	0.42	0.02	0.73	0.03	
40	0.95	0.04	0.84	0.02	0.66	0.02	1.98	0.03	1.79	0.02	0.82	0.02	1.76	0.04	0.93	0.01	0.60	0.04	1.12	0.03	
41	1.73	0.02	0.90	0.02	0.56	0.02	1.38	0.06	0.97	0.02	0.50	0.02	1.87	0.04	0.65	0.02	0.43	0.02	0.54	0.03	
42	0.80	0.03	2.35	0.06	0.67	0.02	2.05	0.05	0.89	0.02	1.13	0.03	1.20	0.03	0.74	0.03	0.73	0.04	0.55	0.03	
43	0.67	0.03	0.90	0.03	0.92	0.02	0.95	0.03	2.37	0.02	0.79	0.01	1.96	0.02	1.06	0.02	0.46	0.02	1.02	0.07	
44	0.70	0.01	1.02	0.02	0.64	0.02	1.88	0.02	1.24	0.02	1.30	0.04	1.17	0.03	2.57	0.11	0.56	0.02	0.48	0.03	
45	0.65	0.02	1.20	0.03	0.46	0.02	0.85	0.02	1.57	0.03	1.17	0.03	1.28	0.04	1.82	0.05	0.53	0.02	1.16	0.03	
46	0.99	0.05	1.80	0.04	2.09	0.03	1.21	0.02	1.17	0.03	0.82	0.02	1.91	0.05	1.36	0.04	0.78	0.03	0.59	0.03	
47	0.38	0.02	2.05	0.05	0.93	0.02	0.75	0.02	1.10	0.02	1.84	0.02	1.23	0.04	1.49	0.07	0.73	0.03	0.53	0.03	
48	0.83	0.03	1.61	0.04	1.00	0.02	3.69	0.02	0.93	0.02	0.67	0.03	0.88	0.06	2.03	0.07	0.87	0.02	0.91	0.02	
49	1.14	0.04	1.17	0.03	0.62	0.02	1.58	0.04	1.92	0.03	0.51	0.02	0.89	0.05	0.81	0.03	0.75	0.03	0.54	0.03	
50	1.70	0.01	1.43	0.02	0.58	0.02	0.90	0.02	1.39	0.02	1.16	0.03	1.96	0.06	1.36	0.02	0.70	0.02	0.50	0.03	
51	0.75	0.01	2.89	0.04	0.61	0.02	0.74	0.03	1.98	0.02	1.16	0.04	2.64	0.11	0.94	0.03	0.78	0.02	0.55	0.03	
52	0.83	0.02	0.81	0.03	1.09	0.02	1.17	0.02	0.99	0.03	1.64	0.06	1.19	0.04	1.01	0.03	0.67	0.03	0.72	0.03	
53	1.93	0.06	1.23	0.03	0.44	0.02	3.04	0.02	0.89	0.02	1.17	0.03	1.74	0.05	0.82	0.03	0.43	0.02	0.77	0.03	
54	0.47	0.03	1.28	0.05	0.44	0.02	0.75	0.04	0.96	0.02	0.67	0.02	1.03	0.03	1.54	0.05	0.48	0.02	0.67	0.03	
55	0.95	0.02	1.00	0.03	2.63	0.02	0.69	0.04	1.29	0.04	2.23	0.02	1.28	0.03	0.43	0.03	0.61	0.01	0.60	0.02	
56	0.41	0.02	1.76	0.03	0.70	0.02	2.47	0.01	2.05	0.03	0.67	0.02	2.22	0.05	0.71	0.02	0.69	0.02	1.01	0.02	
57	1.12	0.02	3.03	0.10	0.95	0.02	0.94	0.02	0.39	0.03	0.79	0.02	1.11	0.07	1.20	0.05	0.64	0.02	0.68	0.02	
58	0.73	0.02	1.14	0.03	0.98	0.02	0.70	0.03	2.88	0.02	0.46	0.02	0.84	0.03	1.35	0.03	0.46	0.02	0.50	0.02	
59	1.45	0.03	0.81	0.03	1.56	0.04	0.74	0.03	0.45	0.02	1.18	0.02	0.57	0.04	0.70	0.04	0.50	0.02	0.50	0.02	
60	2.74	0.06	1.24	0.03	0.80	0.03	0.53	0.03	2.40	0.02	0.47	0.02	0.96	0.04	1.62	0.08	0.70	0.02	0.45	0.02	
61	0.55	0.03	1.05	0.03	0.80	0.02	0.70	0.02	1.24	0.03	0.64	0.02	0.94	0.05	0.79	0.03	0.48	0.02	0.88	0.02	
62	0.65	0.02	1.23	0.03	1.71	0.04	1.11	0.03	0.48	0.04	2.80	0.06	2.04	0.03	1.02	0.05	0.42	0.03	0.48	0.02	
63	2.32	0.06	0.80	0.02	0.50	0.02	1.13	0.02	0.72	0.02	0.43	0.02	1.39	0.04	0.43	0.02	0.52	0.02	0.72	0.03	
64	1.11	0.02	1.48	0.04	1.21	0.02	1.73	0.02	0.85	0.03	1.16	0.01	0.88	0.03	0.68	0.03	0.42	0.02	0.73	0.03	
65	0.68	0.03	0.82	0.03	2.26	0.03	0.95	0.02	0.50	0.02	0.79	0.02	1.18	0.03	1.15	0.03	0.37	0.02	0.87	0.02	
66	0.57	0.02	0.91	0.02	0.79	0.03	1.46	0.01	0.58	0.02	0.52	0.03	1.27	0.03	0.73	0.02	0.46	0.02	0.57	0.04	
67	0.68	0.02	0.98	0.03	1.84	0.02	1.48	0.02	0.77	0.02	0.54	0.02	0.81	0.02	0.66	0.02	0.44	0.02	0.87	0.03	
68	0.86	0.02	1.09	0.01	1.38	0.03	0.97	0.02	1.27	0.03	0.45	0.02	0.68	0.03	0.70	0.02	0.39	0.02	0.57	0.02	
69	3.26	0.10	0.88	0.04	1.06	0.03	1.02	0.02	0.66	0.02	0.45	0.02	1.48	0.02	0.43	0.02	0.49	0.02	0.57	0.02	
70	0.71	0.02	1.13	0.03	1.20	0.01	1.77	0.03	0.61	0.02	0.47	0.03	1.47	0.03	0.57	0.02	0.44	0.01	0.45	0.03	
71	0.80	0.02	0.69	0.02	0.92	0.02	0.42	0.02	1.28	0.04	1.36	0.04	1.19	0.02	0.52	0.01	0.37	0.01	0.51	0.02	
72	0.73	0.04	0.79	0.02	1.10	0.03	0.67	0.02	0.49	0.03	1.12	0.02	0.86	0.03	0.84	0.03	0.77	0.01	0.48	0.02	
73	0.96	0.03	1.60	0.02	0.82	0.03	0.96	0.02	0.54	0.01	0.81	0.06	0.80	0.03	0.77	0.02	0.34	0.03	0.75	0.02	
74	0.63	0.02	0.76	0.02	0.58	0.01	0.46	0.02	0.57	0.03	2.33	0.07	0.72	0.03	0.77	0.03	0.42	0.02	0.93	0.04	
75	1.28	0.03	1.39	0.02	1.20	0.01	0.64	0.02	0.50	0.02	0.48	0.02	0.71	0.03	0.57	0.02	0.75	0.03	0.53	0.03	
76	0.40	0.03	0.64	0.02	0.49	0.01	0.86	0.02	0.42	0.02	0.42	0.02	0.50	0.02	0.56	0.01	0.41	0.02	1.30	0.05	
77	0.44	0.02	0.62	0.03	0.79	0.01	1.18	0.03	0.38	0.02	0.32	0.03	1.37	0.02	0.69	0.03	0.41	0.02	0.50	0.03	
78	3.81	0.02	0.89	0.02	0.49	0.02	0.54	0.02	0.45	0.02	0.51	0.02	0.77	0.03	0.57	0.03	0.41	0.03	0.48	0.02	
79	0.46	0.02	0.79	0.02	0.75	0.01	0.68	0.02	0.47	0.02	0.50	0.02	0.92	0.03	1.56	0.04	0.46	0.02	1.54	0.04	
80	0.85	0.03	0.86	0.02	0.55	0.02	0.77	0.02	2.13	0.03	1.50	0.02	0.71	0.03	0.39	0.01	1.14	0.03	0.48	0.02	
81	1.08	0.02	0.67	0.03	0.84	0.03	0.63	0.02	0.65	0.02	0.37	0.02	0.63	0.03	0.74	0.02	0.38	0.02	0.72	0.02	
82	0.35	0.02	0.46	0.02	2.31	0.04	0.49	0.03	0.83	0.01	2.27	0.06	0.56	0.02	0.46	0.03	0.39	0.01	0.48	0.02	
83	0.58	0.02	0.84	0.02	0.53	0.02	0.32	0.02	0.61	0.02	0.74	0.03	1.95	0.02	0.71	0.03	0.36	0.01	0.69	0.02	
84	0.56	0.01	0.54	0.02	1.19	0.02	0.43	0.02	0.70	0.02	0.49	0.02	1.20	0.03	0.67	0.01	1.02	0.02	0.52	0.03	
85	0.99	0.01	0.41	0.02	0.77	0.02	0.55	0.02	0.61	0.01	0.67	0.02	0.94	0.03	0.70	0.03	1.41	0.06	1.08	0.03	
86	1.18	0.03	0.73	0.02	0.91	0.03	0.48	0.03	1.51	0.02	2.49	0.03	1.05	0.03	0.74	0.03	1.33	0.03	0.75	0.04	
87	1.01	0.03	0.71	0.02	1.90	0.05	0.42	0.03	0.84	0.02	0.55	0.02	0.49	0.04	1.18	0.05	0.72	0.03	0.95	0.03	
88	1.02	0.04	1.07	0.03	1.25	0.03	0.41	0.03	0.64	0.02	2.12	0.05	0.59	0.04	0.72	0.04	0.75	0.03	0.68	0.01	
89	1.06	0.03	1.05	0.03	0.57	0.01	0.66	0.04	0.45	0.02	0.56	0.02	0.67	0.02	0.52	0.03	0.78	0.03	0.50	0.02	
90	1.36	0.02	1.10	0.02	0.52	0.03	0.42	0.03	0.27	0.03	0.49	0.02	1.03	0.02	0.53	0.02	0.67	0.03	0.52	0.02	
91	0.74	0.02	0.54	0.02	2.47	0.06	0.36	0.03	0.63	0.02	2.67	0.01	1.01	0.03	1.07	0.03	0.80	0.03	0.63	0.02	
92	1.04	0.03	0.76	0.02	0.67	0.02	0.45	0.03	1.52	0.04	3.16	0.06	0.74	0.02	1.16	0.02	0.61	0.03	0.46	0.02	
93	0.42	0.02	0.90	0.02	0.92	0.02	0.69	0.01	3.18	0.05	1.89	0.04	0.49	0.02	0.65	0.03	0.76	0.03	0.54	0.02	
94	2.42	0.02	0.55	0.02	1.74	0.02	0.50	0.03	0.45	0.02	0.76	0.02	0.79	0.03	0.46	0.02	0.74	0.03	1.26	0.03	
95	1.09	0.03	0.45	0.03	0.56	0.01	0.39	0.02	1.00	0.02	0.58	0.02	0.57	0.03	0.54	0.03	0.66	0.04	0.89	0.04	
96	1.40	0.02	0.52	0.02	0.35	0.01	0.66	0.02	0.43	0.03	1.24	0.03	1.06	0.02	0.36	0.02	0.43	0.01	0.58	0.02	
97	1.14	0.03	0.64	0.02	0.75	0.03	0.61	0.01	2.27	0.04	0.47	0.01	0.61	0.03	0.61	0.02	0.28	0.01	1.02	0.05	
98	0.36	0.02	0.77	0.02	0.41	0.01	0.60	0.01	2.73	0.09	0.52	0.01	0.76	0.03	0.46	0.02	0.49	0.02	0.61	0.02	
99	0.48	0.02	0.72	0.02	0.47	0.02	0.45	0.03	1.01	0.04	1.20	0.02	0.43	0.02	0.43	0.01	1.09	0.01	0.47	0.02	
100	0.62	0.02	0.61	0.02	0.44	0.02	0.43	0.02	1.04	0.02	0.49	0.02	0.41	0.02	0.50	0.02	0.41	0.02	0.80	0.02	

Size measurements nematodes Weddell Sea

	H7,1		H7,2		H8,1		H8,2		H9,1		H9,2		H10,1		H10,2		H11,1		H11,2		mm
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	
101	0.45	0.03	0.57	0.01	0.66	0.02	0.52	0.01	0.94	0.03	1.09	0.04	0.73	0.03	1.06	0.04	0.48	0.02	0.76	0.03	
102	1.45	0.04	0.73	0.02	0.66	0.02	0.50	0.02	2.17	0.03	1.12	0.03	0.42	0.01	0.72	0.03	0.35	0.02	0.47	0.02	
103	1.91	0.05	0.47	0.02	0.50	0.02	0.55	0.02	0.83	0.02	0.78	0.02	0.70	0.03	0.69	0.03	0.49	0.02	0.91	0.04	
104	0.73	0.02	0.95	0.01	0.81	0.01	0.37	0.01	0.51	0.02	0.67	0.01	0.42	0.03	0.52	0.02	0.46	0.02	0.86	0.03	
105	0.59	0.02	0.94	0.02	0.70	0.02	0.50	0.03	3.15	0.02	0.50	0.02	0.93	0.02	0.59	0.02	0.43	0.02	1.22	0.04	
106	0.28	0.04	0.63	0.02	2.53	0.04	0.54	0.01	0.63	0.01	2.09	0.03	0.51	0.02	0.38	0.02	0.57	0.03	1.35	0.03	
107	2.25	0.07	0.64	0.03	0.86	0.02	0.36	0.01	0.51	0.02	1.03	0.02	0.55	0.04	0.99	0.05	0.57	0.03	0.76	0.03	
108	0.70	0.02	0.84	0.02	0.73	0.03	0.38	0.03	0.86	0.02	0.55	0.01	0.63	0.02	0.74	0.05	0.45	0.02	0.72	0.03	
109	0.65	0.03	0.30	0.02	0.43	0.03	0.43	0.02	0.80	0.02	0.82	0.02	0.45	0.02	0.56	0.02	0.35	0.01	1.51	0.03	
110	2.16	0.03	0.62	0.02	2.65	0.06	0.49	0.01	0.71	0.01	0.53	0.02	1.00	0.02	0.49	0.01	0.29	0.01	0.50	0.03	
111	0.51	0.02	0.80	0.02	1.05	0.02	0.32	0.02	1.06	0.02	0.28	0.01	0.75	0.02	0.46	0.03	0.42	0.02	0.86	0.03	
112	0.59	0.02	0.81	0.01	0.51	0.03	0.32	0.02	0.57	0.02	0.40	0.01	0.59	0.02	0.41	0.02	0.36	0.03	0.63	0.01	
113	1.22	0.03	0.33	0.02	0.73	0.02	0.40	0.02	0.86	0.03	0.37	0.01	0.52	0.02	0.53	0.02	0.45	0.02	1.33	0.02	
114	1.01	0.03	0.72	0.02	0.89	0.03	0.96	0.01	0.45	0.01	0.29	0.01	0.47	0.03	0.54	0.02	0.46	0.02	0.35	0.02	
115	0.80	0.02	1.11	0.03	0.62	0.02	0.34	0.02	0.93	0.02	0.46	0.02	0.26	0.03	0.31	0.02	0.45	0.02	0.35	0.01	
116	0.87	0.02	0.71	0.03	0.66	0.01	0.41	0.02	0.34	0.01	0.42	0.02	0.53	0.02	0.43	0.02	0.34	0.01	0.48	0.02	
117	0.70	0.01	0.63	0.02	0.56	0.02	0.31	0.02	0.38	0.01	0.48	0.02	0.64	0.02	0.32	0.02	0.38	0.02	0.43	0.02	
118	0.36	0.02	0.41	0.02	0.40	0.01	0.39	0.03	0.66	0.01	0.41	0.02	0.66	0.04	0.40	0.02	0.74	0.02	0.56	0.02	
119	0.47	0.01	0.94	0.02	0.64	0.04	0.40	0.03	0.51	0.01	0.38	0.02	0.48	0.04	0.52	0.02	0.41	0.02	0.44	0.01	
120	0.46	0.02	1.13	0.03	0.50	0.02	0.53	0.02	0.48	0.02	0.37	0.02	0.56	0.03	0.47	0.02	0.45	0.02	0.47	0.02	
121	0.46	0.02	0.82	0.04	0.45	0.01	0.57	0.02	0.37	0.02	0.63	0.03	0.48	0.03	0.56	0.02	0.32	0.01	0.36	0.02	
122	0.70	0.02	1.08	0.01	0.34	0.02	0.35	0.03	1.53	0.02	0.49	0.01	0.71	0.03	0.40	0.02	0.34	0.01	0.35	0.01	
123	0.44	0.02	1.08	0.03	0.64	0.02	0.41	0.01	0.43	0.02	0.49	0.02	0.61	0.02	0.45	0.02	0.47	0.02	0.80	0.03	
124	0.47	0.02	1.35	0.06	0.67	0.03	0.55	0.03	1.17	0.02	0.48	0.02	0.53	0.04	0.38	0.02	0.25	0.03	0.54	0.02	
125	0.39	0.02	0.65	0.03	0.51	0.02	0.59	0.01	0.31	0.02	0.45	0.02	0.47	0.02	0.46	0.02	0.37	0.02	0.36	0.01	
126	0.51	0.02	1.41	0.03	0.37	0.02	0.36	0.02	0.41	0.01	0.50	0.02	0.34	0.02	0.51	0.02	0.45	0.02	0.38	0.02	
127	0.56	0.01	1.04	0.02	0.51	0.02	0.33	0.01	0.48	0.02	0.42	0.02	0.58	0.03	0.46	0.02	1.07	0.06	0.43	0.02	
128	0.21	0.01	1.39	0.04	1.03	0.02	0.41	0.02	0.47	0.04	0.43	0.02	0.52	0.01	0.58	0.02	0.36	0.02	0.38	0.02	
129	0.23	0.03	0.76	0.03	0.42	0.02	0.46	0.02	0.36	0.01	0.38	0.02	0.97	0.02	0.40	0.01	0.35	0.02	0.47	0.02	
130	0.48	0.02	1.88	0.03	0.55	0.01	0.61	0.02	0.50	0.02	0.79	0.03	0.48	0.03	0.33	0.02	0.58	0.03	0.29	0.02	
131	0.53	0.02	1.50	0.06	0.43	0.07	0.67	0.02	0.33	0.02	0.50	0.02	0.57	0.02	0.82	0.02	0.49	0.02	0.56	0.02	
132	0.43	0.02	1.02	0.03	0.88	0.02	1.10	0.01	1.13	0.02	0.29	0.01	0.36	0.02	0.56	0.01	0.46	0.02	0.35	0.01	
133	0.79	0.02	0.96	0.03	0.52	0.02	0.61	0.02	0.86	0.02	0.55	0.01	0.55	0.02	0.39	0.02	0.27	0.01	0.35	0.01	
134	0.37	0.01	0.97	0.03	0.40	0.01	0.38	0.02	0.48	0.03	0.25	0.01	0.51	0.03	0.47	0.02	1.34	0.02	0.35	0.02	
135	0.81	0.02	0.77	0.02	0.47	0.02	0.31	0.02	0.45	0.02	0.40	0.01	0.45	0.02	0.40	0.02	0.44	0.02	0.28	0.03	
136	0.88	0.02	1.11	0.03	0.66	0.03	0.32	0.02	0.49	0.02	0.42	0.02	0.44	0.02	0.45	0.02	0.37	0.02	0.32	0.01	
137	0.46	0.02	1.07	0.02	0.34	0.02	1.20	0.02	0.39	0.01	0.48	0.01	0.40	0.02	0.40	0.02	0.33	0.04	0.46	0.02	
138	0.47	0.02	0.93	0.02	0.45	0.02	0.37	0.02	0.97	0.02	0.27	0.01	0.42	0.02	0.33	0.01	0.48	0.02	0.47	0.02	
139	0.35	0.01	0.72	0.03	0.51	0.01	0.37	0.02	0.28	0.03	0.47	0.02	0.40	0.01	0.47	0.01	0.44	0.02	0.20	0.03	
140	0.71	0.03	0.85	0.04	0.53	0.02	0.43	0.01	0.34	0.01	0.22	0.03	0.44	0.01	0.37	0.02	0.36	0.02	0.53	0.02	
141	0.32	0.01	0.34	0.02	0.36	0.03	0.45	0.03	0.40	0.01	0.55	0.02	0.39	0.02	0.44	0.02	0.37	0.02	0.31	0.02	
142	0.20	0.04	0.40	0.02	0.48	0.01	0.33	0.03	0.35	0.01	2.28	0.02	0.35	0.02	0.50	0.02	0.45	0.02	0.30	0.06	
143	0.32	0.01	0.47	0.03	0.61	0.02	0.74	0.01	0.33	0.02	0.91	0.03	0.40	0.02	0.39	0.02	0.27	0.01	0.27	0.01	
144	0.30	0.01	0.50	0.03	0.48	0.02	0.83	0.03	0.35	0.02	0.38	0.02	0.33	0.02	0.72	0.02	0.45	0.02	0.37	0.02	
145	0.38	0.02	0.41	0.01	0.29	0.02	0.73	0.03	0.27	0.04	0.41	0.02	0.39	0.02	0.37	0.02	0.34	0.02	0.32	0.02	
146	0.41	0.02	0.50	0.02	0.70	0.01	0.42	0.02	0.41	0.01	0.81	0.03	0.34	0.02	0.51	0.02	0.52	0.02	0.44	0.02	
147	0.32	0.02	1.09	0.01	0.75	0.01	1.02	0.04	0.31	0.01	0.67	0.02	0.22	0.03	0.31	0.02	0.22	0.03	0.31	0.02	
148	0.77	0.02	0.54	0.02	0.53	0.01	0.78	0.03	0.33	0.02	0.53	0.02	0.45	0.02	0.46	0.01	0.47	0.02	0.22	0.03	
149	1.59	0.01	4.86	0.03	1.10	0.03	0.86	0.02	0.20	0.03	0.30	0.01	0.36	0.01	0.47	0.02	0.30	0.02	0.45	0.02	
150	1.24	0.01	1.15	0.01	0.32	0.02	0.31	0.02	0.24	0.04	0.23	0.02	0.38	0.01	0.47	0.03	0.33	0.01	0.39	0.03	
151	2.84	0.05	0.77	0.02	0.52	0.02	0.46	0.01	0.44	0.02	0.62	0.01	0.42	0.02	0.50	0.01	0.34	0.02	0.17	0.02	
152	0.85	0.02	0.38	0.02	0.67	0.01	0.26	0.03	0.31	0.03	0.41	0.01	0.21	0.03	0.45	0.02	0.58	0.02	0.35	0.02	
153	0.49	0.01	0.20	0.02	0.47	0.02	0.89	0.03	0.40	0.02	0.80	0.03	0.47	0.02	0.45	0.02	0.94	0.04	0.41	0.02	
154	0.36	0.02	0.80	0.02	0.53	0.02	2.32	0.04	0.64	0.01	0.50	0.02	0.38	0.02	0.47	0.02	0.74	0.04	0.50	0.02	
155	0.21	0.02	0.49	0.01	0.38	0.02	0.84	0.04	1.38	0.02	0.35	0.02	0.35	0.01	0.45	0.01	1.30	0.02	0.21	0.03	
156	0.37	0.01	0.68	0.03	0.59	0.01	0.69	0.03	0.48	0.02	0.56	0.02	0.55	0.03	1.07	0.04	0.99	0.04	0.42	0.02	
157	0.54	0.02	0.43	0.02	0.58	0.02	0.77	0.03	0.50	0.01	0.46	0.02	0.41	0.03	2.07	0.07	1.92	0.03	0.56	0.02	
158	0.36	0.01	0.77	0.02	0.47	0.02	1.57	0.04	0.33	0.01	2.24	0.02	0.46	0.02	0.55	0.01	0.37	0.03	0.26	0.02	
159	0.46	0.02	0.71	0.02	0.89	0.01	1.27	0.03	0.48	0.01	1.22	0.01	0.44	0.01	0.52	0.02	0.73	0.03	0.45	0.01	
160	0.46	0.01	0.50	0.03	0.30	0.01	1.36	0.02	0.40	0.02			0.47	0.02	1.36	0.04	0.81	0.04	0.26	0.01	
161	0.66	0.03	0.77	0.03	0.45	0.01	1.08	0.03	0.45	0.01			0.38	0.02	0.99	0.04	0.50	0.03	0.34	0.02	
162	0.81	0.01	0.69	0.02	0.65	0.01	0.40	0.02	0.16	0.02			0.46	0.01	0.43	0.02	1.63	0.05	0.40	0.02	
163	0.43	0.01	0.51	0.02	0.32	0.01	2.02	0.02	0.42	0.02			0.41	0.02	0.30	0.01	1.00	0.03	0.46	0.02	
164	0.32	0.04	0.66	0.02	0.63	0.02	0.36	0.02	0.54	0.02			0.36	0.02	0.25	0.02	1.09	0.04	0.35	0.02	
165	0.65	0.03	0.75	0.02	0.52	0.02	0.52	0.02	0.66	0.03			0.37	0.02	0.42	0.02	0.46	0.02	0.35	0.02	
166	0.47	0.01	0.80	0.02	0.74	0.02	0.63	0.02	0.44	0.01			0.31	0.02	0.37	0.02	0.44	0.02	0.42	0.02	
167	0.46	0.02	0.84	0.02	0.29	0.02	0.92	0.03	0.31	0.02			0.21	0.02	0.21	0.02	0.46	0.01	0.64	0.02	
168	0.51	0.02	0.60	0.04	0.40	0.01	0.78	0.04	0.65	0.02			0.40	0.02	0.30	0.02	0.29	0.01	0.31	0.01	
169	0.28	0.01	0.53	0.02	1.23	0.02	0.69	0.01	0.62	0.02			0.52	0.02	0.94	0.03	0.40	0.02	0.36	0.01	
170	0.44	0.02	0.72	0.02	0.35	0.02	0.39	0.02	0.47	0.02			0.42	0.02	0.67	0.01	0.25	0.02	0.43	0.02	
171	0.30	0.01	0.40	0.01	0.40	0.02	0.50	0.02	0.60	0.02			0.46	0.02	1.33	0.03	1.05	0.03	0.37	0.02	
172	0.47	0.02	0.45	0.02	0.54	0.01	0.74	0.03	0.98	0.02			0.44	0.02	1.80	0.04	0.45	0.03	0.30	0.02	
173	0.24	0.01	0.90	0.02	0.30	0.02	1.15	0.01	0.44	0.03			0.55	0.03	0.64	0.02	0.31	0.02	0.46	0.02	
174	0.70	0.01	0.61	0.03	0.82	0.01	1.94	0.02	1.27	0.02			0.49	0.02	0.33	0.02	0.22	0.01	0.41	0.02	
175	0.54	0.01	0.36	0.03	0.43	0.02	0.76	0.02	0.65	0.02			0.61	0.01	0.30	0.01	0.40	0.02	0.29	0.02	
176	0.45	0.01	0.87	0.02	0.25	0.01	1.44	0.06	0.37	0.01			0.47	0.02	0.36	0.02	0.41	0.01	0.33	0.02	
177	0.45	0.01	0.62	0.02	0.38	0.02	1.48	0.04	0.65	0.02			0.39	0.02			0.36	0.02	0.20	0.03	
178	0.51	0.02	0.58	0.02	0.36	0.01	1.88	0.06	0.58	0.02			0.38	0.01			0.55	0.03	0.25	0.01	
179			0.54	0.02	0.41	0.01	0.83	0.02	0.60	0.02			0.37	0.02			0.33	0.02	0.32	0.02	
180			0.46	0.01	0.28	0.01			0.25	0.01			0.53	0.02			0.56	0.02	0.40	0.01	
181			0.59	0.02	0.28	0.01							0.27	0.03			0.34	0.02	0.38	0.02	
182			0.51	0.01									0.66	0.02			0.29	0.02	0.32	0.01	
183			0.61	0.02									0.44	0.02			0.34	0.02	0.44	0.02	
184			0.52	0.02									0.32	0.01			0.35	0.02	0.26	0.01	
185													0.39	0.02			0.28	0.02	0.27	0.02	
186													0.46	0.02			0.25	0.01	0.30	0.01	
187													0.45	0.02							
188													0.35	0.02							
189													0.40	0.02							
190													0.44	0.02							
191													0.44	0.02							
192																					
193																					
194																					
195																					
196																					
197																					
198																					
199																					
200																					

Size measurements nematodes Weddell Sea

	K1,1		K1,2		K1,3		K2,1		K2,2		K2,3		K3,1		K3,2		K3,3		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
1	1.41	0.04	0.91	0.03	1.11	0.03	2.08	0.08	1.00	0.04	0.44	0.01	1.87	0.09	0.40	0.03	1.00	0.02	
2	0.80	0.03	1.06	0.06	1.93	0.04	1.73	0.07	1.65	0.04	1.05	0.03	0.57	0.03	0.96	0.02	2.80	0.05	
3	1.35	0.05	1.96	0.06	0.30	0.01	1.39	0.04	2.35	0.07	0.37	0.05	0.55	0.01	0.62	0.02	1.28	0.02	
4	1.07	0.03	1.66	0.03	1.59	0.05	1.20	0.03	1.59	0.10	0.52	0.02	0.32	0.01	0.90	0.01	0.54	0.02	
5	1.09	0.03	0.83	0.04	0.84	0.02	1.12	0.03	1.62	0.04	1.49	0.05	0.51	0.02	1.60	0.05	0.96	0.02	
6	0.91	0.03	0.57	0.03	1.57	0.08	0.85	0.03	0.82	0.04	1.90	0.04	0.93	0.04	0.52	0.02	0.49	0.02	
7	0.57	0.03	0.73	0.02	0.42	0.02	1.25	0.04	2.39	0.05	0.35	0.02	0.42	0.02	0.38	0.02	0.93	0.02	
8	0.58	0.02	0.62	0.02	0.78	0.03	1.33	0.05	4.21	0.16	1.18	0.04	0.36	0.03	0.25	0.01	0.52	0.02	
9	1.69	0.04	0.74	0.03	1.02	0.03	1.27	0.05	2.03	0.05	0.71	0.03	0.37	0.02	1.09	0.03	0.80	0.03	
10	0.78	0.03	1.07	0.03	0.59	0.03	1.71	0.07	1.07	0.02	0.51	0.02	0.43	0.01	0.46	0.02	0.64	0.03	
11	0.33	0.01	2.86	0.09	0.47	0.02	1.71	0.07	2.40	0.10	1.30	0.04	1.11	0.06	0.66	0.02	1.27	0.04	
12	1.16	0.03	2.02	0.07	0.36	0.02	1.43	0.05	1.50	0.04	0.52	0.02	0.60	0.01	0.53	0.02	0.52	0.02	
13	0.80	0.03	1.62	0.02	2.25	0.04	1.73	0.05	1.17	0.04	0.48	0.02	0.49	0.02	1.10	0.03	0.68	0.04	
14	1.98	0.05	0.52	0.03	0.67	0.02	2.67	0.09	0.81	0.04	0.73	0.03	1.10	0.04	0.68	0.02	2.15	0.04	
15	0.93	0.03	0.50	0.01	0.96	0.03	1.43	0.05	0.67	0.03	1.77	0.08	0.42	0.03	0.43	0.02	1.66	0.09	
16	0.85	0.02	0.58	0.03	0.84	0.02	2.02	0.07	1.22	0.04	0.80	0.04	1.52	0.04	0.45	0.02	0.37	0.01	
17	0.56	0.02	0.72	0.02	1.17	0.02	1.32	0.05	0.66	0.04	0.86	0.04	0.65	0.01	0.44	0.04	0.83	0.02	
18	1.05	0.03	0.69	0.02	0.52	0.02	1.78	0.04	1.26	0.03	0.50	0.03	0.59	0.02	1.07	0.04	0.95	0.02	
19	1.81	0.05	1.72	0.08	1.49	0.07	1.26	0.05	1.03	0.07	0.55	0.02	0.23	0.01	0.55	0.01	0.80	0.02	
20	1.61	0.03	0.37	0.02	0.87	0.02	1.58	0.06	0.84	0.02	0.57	0.03	0.33	0.01	0.49	0.02	1.31	0.03	
21	0.85	0.04	0.45	0.02	0.50	0.02	1.25	0.03	1.65	0.04	0.68	0.02	0.45	0.02	0.38	0.02	0.39	0.02	
22	0.85	0.03	1.54	0.04	1.10	0.04	0.75	0.03	0.99	0.02	2.65	0.05	0.79	0.02	0.56	0.01	1.11	0.03	
23	2.21	0.05	0.78	0.03	0.91	0.03	1.58	0.04	1.08	0.04	1.59	0.05	1.33	0.03	0.70	0.02	0.51	0.02	
24	0.80	0.03	1.01	0.03	1.84	0.07	1.99	0.05	0.82	0.03	0.91	0.04	0.75	0.04	0.73	0.02	0.51	0.03	
25	0.34	0.02	0.58	0.03	2.16	0.06	1.21	0.05	0.90	0.03	0.79	0.04	1.19	0.05	0.27	0.01	1.13	0.04	
26	1.08	0.03	1.70	0.08	1.28	0.04	1.53	0.02	1.00	0.02	0.77	0.04	0.38	0.02	0.27	0.01	0.80	0.03	
27	1.35	0.05	0.82	0.04	0.81	0.02	1.41	0.04	1.10	0.05	0.52	0.02	0.44	0.02	0.41	0.01	0.28	0.01	
28	2.73	0.09	0.54	0.02	1.13	0.03	1.95	0.04	0.70	0.04	0.55	0.02	0.48	0.02	0.23	0.01	0.33	0.01	
29	0.82	0.02	0.33	0.02	1.24	0.04	1.38	0.03	0.79	0.04	0.95	0.02	0.40	0.02	0.19	0.02	0.43	0.03	
30	0.67	0.03	0.55	0.02	0.91	0.03	0.87	0.04	0.62	0.05	0.45	0.01	0.53	0.03	0.33	0.01	0.63	0.02	
31	0.54	0.02	0.71	0.02	0.69	0.01	0.56	0.02	1.11	0.03	0.36	0.02	0.56	0.02	0.83	0.02	1.03	0.02	
32	2.38	0.07	1.57	0.09	0.45	0.02	0.65	0.02	0.70	0.02	0.71	0.03	0.61	0.02	0.22	0.01	2.82	0.04	
33	0.56	0.01	1.63	0.05	1.49	0.03	1.15	0.02	1.57	0.04	0.94	0.04	0.62	0.03	1.65	0.09	1.96	0.04	
34	0.69	0.03	0.60	0.02	0.51	0.02	0.54	0.02	1.03	0.04	0.85	0.02	1.00	0.03	0.58	0.02	1.56	0.05	
35	1.70	0.09	0.55	0.03	0.48	0.03	0.73	0.03	1.96	0.04	0.45	0.02	0.61	0.04	0.62	0.03	0.84	0.01	
36	1.61	0.02	0.64	0.03	1.59	0.07	0.83	0.04	0.44	0.01	0.51	0.01	0.23	0.04	0.39	0.01	0.65	0.02	
37	0.55	0.02	0.34	0.02	1.28	0.03	0.77	0.03	0.61	0.03	1.60	0.04	0.42	0.02	0.34	0.02	0.54	0.02	
38	0.36	0.02	0.53	0.03	1.18	0.03	1.07	0.04	0.66	0.03	0.89	0.04	0.59	0.02	0.54	0.02	1.23	0.04	
39	0.61	0.03	1.40	0.02	0.55	0.01	0.74	0.02	0.44	0.02	1.02	0.05	0.67	0.02	1.00	0.02	0.86	0.02	
40	0.39	0.04	0.40	0.02	0.57	0.02	0.92	0.04	0.71	0.02	1.12	0.04	0.61	0.01	0.42	0.02	0.39	0.02	
41	1.77	0.09	0.56	0.01	0.68	0.02	1.05	0.02	0.57	0.02	0.26	0.03	0.40	0.01	0.52	0.02	0.78	0.02	
42	0.92	0.03	0.43	0.02	1.48	0.03	0.42	0.01	1.02	0.02	0.90	0.02	3.33	0.01	0.30	0.01	0.42	0.02	
43	2.56	0.07	0.86	0.02	2.67	0.05	1.63	0.03	0.52	0.01	0.58	0.03	0.40	0.01	0.47	0.02	1.70	0.06	
44	1.18	0.03	0.34	0.01	0.39	0.01	0.87	0.02	0.50	0.02	1.13	0.04	0.93	0.02	0.35	0.01	0.75	0.02	
45	0.59	0.02	1.53	0.08	1.09	0.02	0.66	0.02	0.68	0.02	1.10	0.07	0.82	0.02	0.56	0.02	1.09	0.04	
46	0.53	0.02	0.93	0.04	0.41	0.02	0.35	0.03	1.15	0.03	2.40	0.09	0.56	0.02	0.35	0.01	1.26	0.04	
47	0.66	0.01	0.65	0.02	0.59	0.02	0.69	0.04	1.04	0.03	0.44	0.02	0.32	0.01	0.70	0.01	0.87	0.02	
48	0.58	0.02	0.89	0.03	0.46	0.02	0.58	0.02	1.06	0.02	0.51	0.02	0.51	0.02	0.49	0.02	0.76	0.02	
49	0.55	0.01	0.52	0.03	1.56	0.04	1.44	0.04	0.49	0.02	0.63	0.02	1.20	0.03	0.50	0.02	0.83	0.01	
50	1.69	0.08	0.50	0.02	0.90	0.03	0.88	0.02	0.68	0.02	0.69	0.03	0.56	0.03	0.89	0.05	0.37	0.02	
51	3.71	0.07	1.81	0.02	1.32	0.03	0.47	0.02	1.04	0.01	1.41	0.03	0.43	0.02	0.89	0.05	0.96	0.02	
52	0.53	0.03	1.10	0.05	1.79	0.08	1.68	0.12	0.76	0.03	0.75	0.03	1.26	0.05	0.26	0.02	1.21	0.04	
53	0.54	0.02	0.39	0.01	0.70	0.02	1.05	0.04	0.48	0.02	1.94	0.07	3.07	0.06	0.28	0.02	1.55	0.06	
54	0.77	0.02	0.39	0.02	0.96	0.02	0.65	0.05	0.48	0.01	0.95	0.04	0.78	0.05	0.47	0.02	0.86	0.03	
55	1.37	0.05	0.45	0.01	1.56	0.05	0.72	0.03	0.45	0.02	1.13	0.04	0.46	0.01	0.45	0.01	0.55	0.02	
56	0.98	0.05	1.61	0.09	0.54	0.02	0.76	0.02	0.55	0.02	0.45	0.02	1.16	0.04	0.33	0.02	1.07	0.02	
57	0.39	0.02	0.54	0.02	1.11	0.03	1.45	0.02	0.53	0.02	1.37	0.03	0.27	0.03	0.48	0.01	0.78	0.04	
58	0.73	0.02	0.58	0.02	0.92	0.03	0.56	0.02	0.73	0.02	1.30	0.06	0.40	0.02	0.16	0.03	0.39	0.02	
59	1.95	0.05	0.33	0.04	0.60	0.02	1.29	0.05	0.72	0.01	0.78	0.02	0.55	0.02	0.41	0.02	2.77	0.06	
60	1.31	0.04	0.39	0.05	0.81	0.02	0.48	0.02	1.24	0.04	0.55	0.02	0.51	0.01	0.33	0.02	0.57	0.02	
61	1.00	0.03	1.05	0.06	1.02	0.04	2.09	0.04	0.51	0.01	0.73	0.02	0.71	0.05	0.28	0.04	0.37	0.02	
62	2.13	0.04	0.70	0.02	1.90	0.07	0.67	0.03	0.42	0.01	0.59	0.03	0.59	0.02	0.54	0.02	0.56	0.02	
63	0.77	0.03	0.75	0.02	0.76	0.02	0.85	0.04	0.87	0.03	0.90	0.04	2.88	0.07	0.72	0.05	0.44	0.02	
64	0.35	0.02	0.73	0.02	0.68	0.02	0.87	0.03	0.70	0.02	0.40	0.02	1.40	0.09	0.32	0.01	0.56	0.02	
65	2.09	0.04	0.95	0.03	1.89	0.02	0.73	0.03	0.73	0.06	0.61	0.02	0.93	0.05	1.28	0.03	1.20	0.02	
66	0.61	0.01	0.70	0.03	1.57	0.04	0.85	0.02	1.17	0.03	1.10	0.04	0.24	0.03	0.60	0.01	0.44	0.02	
67	0.59	0.02	0.49	0.02	0.65	0.02	0.99	0.04	1.19	0.04	0.36	0.01	0.58	0.02	0.75	0.02	0.63	0.02	
68	0.43	0.01	0.94	0.02	0.68	0.02	0.90	0.02	1.31	0.02	0.34	0.04	0.28	0.04	0.38	0.02	0.67	0.03	
69	1.47	0.03	0.46	0.01	1.25	0.04	0.82	0.03	0.76	0.04	1.60	0.10	0.63	0.02	0.77	0.01	1.17	0.02	
70	1.71	0.06	0.59	0.02	0.63	0.02	1.24	0.03	0.72	0.03	1.43	0.04	0.47	0.02	0.36	0.01	1.80	0.09	
71	0.93	0.03	1.05	0.04	0.87	0.02	0.55	0.02	1.77	0.02	1.19	0.05	0.66	0.04	3.10	0.11	1.67	0.06	
72	0.45	0.02	1.22	0.02	0.45	0.01	1.29	0.03	1.17	0.04	0.46	0.03	0.94	0.04	0.40	0.02	1.09	0.06	
73	0.63	0.03	0.57	0.02	1.57	0.09	0.13	0.03	0.83	0.03	1.70	0.03	1.21	0.05	0.64	0.02	1.07	0.03	
74	1.41	0.06	0.44	0.03	1.74	0.06	0.49	0.03	1.76	0.04	1.76	0.07	0.43	0.01	0.45	0.02	0.45	0.01	
75	1.29	0.05	0.55	0.01	0.56	0.02	0.64	0.03	0.71	0.02	1.45	0.03	0.43	0.02	0.34	0.02	0.91	0.03	
76	1.67	0.03	0.85	0.03	0.37	0.02	0.66	0.02	1.20	0.03	1.08	0.03	0.40	0.02	0.29	0.01	0.43	0.02	
77	0.45	0.01	0.53	0.03	0.53	0.01	0.39	0.02	1.10	0.04	1.19	0.02	0.42	0.03	0.48	0.02	0.26	0.01	
78	2.25	0.07	1.67	0.08	0.65	0.02	0.81	0.02	0.60	0.03	0.86	0.03	1.59	0.10	0.23	0.04	1.18	0.02	
79	1.04	0.03	0.29	0.02	0.45	0.01	0.61	0.02	0.58	0.02	0.84	0.04	1.80	0.08	0.50	0.03	0.41	0.01	
80	1.05	0.02	0.35	0.01	0.71	0.02	0.53	0.02	0.60	0.02	0.58	0.01	0.61	0.04	0.21	0.03	0.28	0.02	
81	1.70	0.07	1.65	0.10	1.98	0.07	0.54	0.02	0.85	0.04	0.95	0.04	0.59	0.02	2.27	0.08	3.03	0.09	
82	0.51	0.02	0.49	0.02	1.10	0.00	0.37	0.02	1.16	0.03	0.86	0.04	0.36	0.05	0.70	0.05	0.77	0.02	
83	0.88	0.02	2.16	0.07	0.92	0.03	1.39	0.02	0.58	0.03	0.61	0.02	0.47	0.01	0.31	0.01	0.46	0.01	
84	1.25	0.04	0.56	0.02	0.58	0.03	0.39	0.02	0.57	0.02	1.22	0.03	0.51	0.02	0.45	0.02	1.07	0.04	
85	0.56	0.02	0.60	0.03	2.06	0.06	0.90	0.01	0.46	0.02	0.67	0.03	0.51	0.01	0.67	0.03	0.40	0.01	
86	0.48	0.02	0.85	0.03	2.26	0.06	0.75	0.02	0.53	0.03	0.47	0.02	0.50	0.01	0.19	0.02	0.51	0.02	
87	1.33	0.03	0.66	0.03	0.66	0.02	0.46	0.02	0.50	0.03	1.29	0.03	0.80	0.03	0.30	0.01	0.68	0.05	
88	2.11	0.06	0.94	0.02	3.07	0.02	0.42	0.02	0.28	0.04	0.47	0.02	0.54	0.02	0.79	0.01	0.35	0.02	
89	1.38	0.05	0.55	0.03	0.82	0.02	0.62	0.02	0.27	0.04	0.47	0.02	0.38	0.02	0.81	0.04	0.45	0.01	
90	0.52	0.02	0.94	0.03	0.66	0.01	0.65	0.03	0.63	0.02	2.34	0.06	0.96	0.02	0.60	0.02	0.51	0.03	
91	1.99	0.02	0.35	0.01	2.21	0.07	0.45	0.01	0.47	0.03	0.38	0.02	0.40	0.03	0.72	0.02	0.34	0.02	
92	0.43	0.05	1.33	0.04	1.14	0.05	0.83	0.02	0.58	0.03	0.54	0.02	0.50	0.02	0.46	0.01	2.72	0.09	
93	0.88	0.04	2.09	0.11	1.24	0.02	0.88	0.02	0.57	0.02	0.59	0.02	0.62	0.05	2.72	0.10	1.17	0.04	
94	0.43	0.03	0.34	0.02	0.71	0.02	0.63	0.02	0.40	0.02	0.92	0.05	0.44	0.03	3.11	0.06	0.27	0.04	
95	0.36	0.02	0.59	0.02	0.61	0.02	0.54	0.02	0.47	0.02	0.90	0.04	0.72	0.02	1.38	0.02	0.38	0.02	
96	1.93	0.09	0.97	0.03	1.46	0.07	0.76	0.02	0.66	0.04	0.44	0.03	0.18	0.03	1.29	0.02	0.26	0.04	
97	0.92	0.03	0.38	0.02	0.79	0.03	0.72	0.01	0.35	0.01	0.38	0.02	0.33	0.02	0.57	0.02	1.07	0.03	
98	1.50	0.03	0.54	0.03	0.38	0.01	0.74	0.01	0.43	0.01	0.45	0.02	0.50	0.02	1.39	0.04	1.61	0.03	
99	1.15	0.03	0.44	0.02	0.54	0.02	0.55	0.01	0.44	0.01	0.92	0.04	0.41	0.01	0.66	0.02	0.26	0.01	
100	1.21	0.04	1.63	0.08	0.44	0.01	0.45	0.02	0.55	0.01	0.66	0.02	0.55	0.03	0.45	0.01	0.96	0.03	

Size measurements nematodes Weddell Sea

	K1,1		K1,2		K1,3		K2,1		K2,2		K2,3		K3,1		K3,2		K3,3		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
101	2.26	0.08	1.51	0.07	0.78	0.03	0.67	0.02	0.60	0.01	0.46	0.03	3.61	0.14	1.11	0.03	1.97	0.06	
102	0.28	0.04	0.50	0.02	1.73	0.06	0.41	0.02	0.33	0.02	0.84	0.03	0.54	0.03	0.52	0.05	0.53	0.02	
103	1.42	0.05	1.20	0.04	1.86	0.09	1.26	0.10	0.44	0.01	3.01	0.08	0.41	0.01	2.81	0.03	0.31	0.01	
104	0.96	0.02	0.42	0.02	1.34	0.04	0.53	0.02	0.57	0.02	0.53	0.02	0.41	0.01	1.09	0.04	0.40	0.02	
105	0.64	0.02	0.39	0.01	0.84	0.02	1.18	0.01	0.62	0.03	0.52	0.03	0.32	0.02	0.62	0.01	0.29	0.04	
106	1.01	0.03	0.65	0.02	0.45	0.02	0.50	0.02	0.87	0.02	1.67	0.05	0.51	0.02	0.75	0.03	0.71	0.02	
107	0.67	0.02	0.52	0.02	0.94	0.02	0.82	0.01	0.47	0.02	0.40	0.02	0.41	0.02	1.14	0.03	0.61	0.01	
108	4.79	0.10	0.52	0.02	0.49	0.02	0.99	0.02	1.95	0.06	0.62	0.02	0.33	0.01	0.65	0.02	0.29	0.01	
109	0.48	0.02	0.61	0.03	0.51	0.02	0.61	0.02	0.36	0.01	0.64	0.04	0.66	0.02	0.68	0.02	0.66	0.01	
110	0.75	0.03	0.76	0.03	1.20	0.03	0.48	0.02	0.43	0.02	0.57	0.02	0.49	0.01	1.38	0.03	0.46	0.02	
111	1.11	0.03	1.06	0.02	0.54	0.02	0.53	0.04	1.73	0.04	0.58	0.02	0.35	0.02	1.83	0.04	0.60	0.03	
112	0.70	0.04	3.04	0.10	1.17	0.03	0.48	0.02	0.89	0.04	1.72	0.05	0.91	0.05	1.12	0.03	2.77	0.08	
113	0.99	0.03	0.46	0.01	2.44	0.09	0.39	0.01	0.67	0.03	0.56	0.02	0.84	0.02	0.64	0.02	0.38	0.02	
114	1.29	0.04	1.19	0.05	1.33	0.02	0.85	0.02	0.94	0.02	0.53	0.02	0.56	0.02	0.68	0.02	0.43	0.02	
115	1.68	0.10	0.37	0.01	0.55	0.02	0.66	0.02	0.51	0.02	1.08	0.02	0.49	0.02	1.35	0.03	1.29	0.04	
116	2.28	0.10	1.50	0.02	0.38	0.02	0.49	0.02	0.52	0.02	0.68	0.04	0.68	0.03	1.84	0.04	0.46	0.03	
117	2.96	0.08	0.48	0.01	0.42	0.01	0.79	0.02	0.78	0.03	0.39	0.02	0.62	0.05	0.88	0.02	0.38	0.01	
118	0.69	0.02	0.64	0.02	0.52	0.03	0.28	0.04	1.75	0.05	0.29	0.04	0.54	0.02	0.66	0.04	0.49	0.02	
119	2.23	0.05	0.82	0.03	1.38	0.02	0.27	0.03	0.80	0.02	0.66	0.02	0.48	0.02	0.86	0.05	0.42	0.02	
120	0.57	0.03	0.48	0.02	0.86	0.04	0.39	0.01	0.47	0.01	1.07	0.09	0.54	0.01	0.55	0.02	0.39	0.03	
121	0.77	0.02	0.40	0.03	1.14	0.05	0.40	0.02	1.83	0.04	0.59	0.02	0.35	0.06	0.63	0.03	0.41	0.01	
122	0.63	0.02	2.32	0.07	1.49	0.04	0.59	0.02	1.53	0.03	3.30	0.07	0.45	0.01	0.21	0.02	0.36	0.01	
123	0.59	0.03	1.63	0.06	2.14	0.02	0.70	0.02	1.21	0.02	0.52	0.03	0.33	0.01	0.28	0.02	0.44	0.02	
124	1.72	0.03	0.40	0.01	3.10	0.04	0.69	0.02	1.73	0.05	1.60	0.05	0.54	0.02	0.95	0.01	0.50	0.02	
125	3.98	0.13	0.57	0.01	0.60	0.02	0.49	0.02	0.97	0.03	0.55	0.04	0.33	0.01	0.55	0.02	1.21	0.03	
126	0.66	0.01	1.48	0.10	0.56	0.02	0.54	0.02	0.79	0.03	1.83	0.06	0.32	0.01	1.45	0.03	0.61	0.02	
127	0.58	0.02	1.99	0.08	1.16	0.03	0.54	0.02	1.49	0.09	0.55	0.02	0.67	0.02	1.47	0.03	0.50	0.01	
128	1.33	0.04	0.86	0.02	0.54	0.02	0.62	0.03	1.09	0.03	0.62	0.03	0.43	0.03	0.60	0.03	1.61	0.05	
129	0.77	0.02	0.64	0.01	0.63	0.02	0.53	0.02	0.76	0.03	0.64	0.03	0.28	0.03	1.29	0.08	1.07	0.03	
130	1.39	0.05	0.29	0.02	0.90	0.02	0.85	0.02	1.09	0.06	1.11	0.05	0.51	0.01	0.81	0.04	0.34	0.02	
131	0.93	0.02	0.54	0.02	0.90	0.02	0.44	0.02	0.68	0.02	0.91	0.04	0.46	0.01	0.45	0.01	0.30	0.01	
132	0.39	0.01	0.44	0.02	2.10	0.07	0.39	0.02	0.64	0.04	0.79	0.04	0.41	0.01	1.14	0.04	0.40	0.02	
133	0.49	0.03	0.95	0.02	0.91	0.03	0.42	0.02	1.04	0.03	0.54	0.02	0.66	0.02	0.41	0.03	1.18	0.02	
134	1.04	0.03	0.62	0.02	2.32	0.08	1.43	0.06	0.54	0.02	2.24	0.05	0.48	0.01	1.31	0.03	0.38	0.02	
135	0.42	0.01	1.58	0.08	0.59	0.02	0.35	0.02	0.65	0.03	0.44	0.02	0.67	0.03	0.81	0.03	0.72	0.01	
136	2.51	0.08	0.89	0.03	1.38	0.03	0.59	0.02	0.55	0.02	0.48	0.02	0.50	0.02	0.51	0.02	0.35	0.01	
137	1.84	0.05	3.38	0.03	1.09	0.03	0.59	0.02	0.68	0.04	0.54	0.03	2.21	0.03	0.44	0.02	0.44	0.01	
138	0.66	0.02	0.49	0.02	0.76	0.02	0.49	0.02	0.60	0.04	1.40	0.04	0.35	0.02	0.81	0.02	0.49	0.02	
139	0.64	0.02	1.07	0.04	1.75	0.05	0.61	0.02	0.47	0.02	0.86	0.04	0.46	0.02	0.29	0.01	0.48	0.02	
140	1.31	0.09	0.62	0.02	0.56	0.03	0.60	0.02	0.54	0.02	0.65	0.03	0.40	0.01	0.75	0.02	0.63	0.02	
141	0.32	0.01	1.98	0.02	0.69	0.02	0.48	0.02	0.50	0.02	1.09	0.05	0.73	0.01	0.18	0.02	0.33	0.02	
142	0.41	0.02	0.60	0.02	1.73	0.05	0.56	0.03	0.40	0.04	1.08	0.05	0.42	0.02	0.29	0.05	0.99	0.02	
143	0.63	0.03	0.45	0.01	1.68	0.04	0.42	0.02	0.57	0.02	0.70	0.02	0.41	0.02	0.53	0.04	0.39	0.02	
144	1.05	0.03	0.47	0.02	0.82	0.03	0.69	0.04	0.46	0.02	1.55	0.03	0.24	0.01	0.26	0.03	0.93	0.02	
145	0.65	0.02	1.57	0.06	0.39	0.02	0.99	0.02	0.50	0.01	0.43	0.01	0.28	0.02	0.72	0.03	0.34	0.01	
146	2.42	0.07	0.44	0.02	0.59	0.01	0.47	0.02	0.77	0.02	0.71	0.02	0.40	0.01	2.22	0.03	0.38	0.02	
147	1.73	0.09	0.72	0.05	1.64	0.05	0.31	0.01	0.46	0.02	0.80	0.04	1.40	0.05	0.59	0.01	0.42	0.01	
148	2.41	0.07	0.75	0.02	1.54	0.06	0.73	0.01	0.76	0.03	0.69	0.02	0.27	0.01	1.80	0.04	0.68	0.03	
149	0.92	0.03	1.61	0.09	0.55	0.02	0.56	0.03	0.70	0.02	0.80	0.04	0.55	0.02	0.74	0.04	0.89	0.02	
150	0.54	0.02	0.40	0.05	0.81	0.03	0.58	0.02	0.48	0.01	0.70	0.03	0.62	0.04	1.71	0.02	0.44	0.01	
151	1.24	0.04	0.31	0.02	0.93	0.03	0.79	0.01	0.83	0.02	1.30	0.09	0.31	0.04	0.98	0.03	0.94	0.02	
152	0.39	0.03	0.61	0.02	1.62	0.03	0.59	0.02	0.41	0.02	1.59	0.03	0.37	0.01	2.24	0.05	0.84	0.03	
153	0.48	0.02	0.53	0.02	0.36	0.04	0.30	0.02	0.67	0.01	2.14	0.03	0.28	0.01	0.76	0.03	0.36	0.01	
154	0.31	0.02	0.29	0.01	0.76	0.03	0.44	0.03	0.51	0.03	0.65	0.02	0.48	0.02	0.82	0.02	0.29	0.01	
155	0.48	0.03	0.23	0.01	1.50	0.04	0.40	0.01	0.36	0.02	0.86	0.04	1.68	0.07	1.63	0.08	0.56	0.03	
156	0.53	0.01	0.37	0.02	1.73	0.07	0.71	0.02	0.73	0.02	0.49	0.01	0.61	0.01	0.61	0.02	0.41	0.02	
157	1.04	0.06	0.59	0.02	1.50	0.05	1.00	0.02	0.15	0.02	0.82	0.03	0.86	0.04	0.93	0.04	0.38	0.02	
158	0.40	0.01	0.41	0.02	1.48	0.08	0.66	0.04	0.94	0.03	0.76	0.05	0.24	0.01	0.50	0.02	0.53	0.02	
159	2.15	0.06	0.59	0.03	0.51	0.01	0.61	0.02	0.28	0.02	1.49	0.04	0.82	0.03	0.89	0.03	0.45	0.02	
160	2.11	0.07	0.45	0.02	0.36	0.02	0.40	0.01	0.41	0.02	3.08	0.05	1.16	0.04	1.05	0.03	0.42	0.01	
161	0.65	0.03	0.54	0.02	2.04	0.02	1.43	0.03	0.36	0.02	1.69	0.02	0.65	0.02	0.50	0.03	0.62	0.02	
162	1.22	0.04	0.28	0.01	1.93	0.06	0.48	0.01	0.35	0.01	0.85	0.03	0.77	0.02	0.73	0.04	0.69	0.02	
163	0.44	0.03	0.36	0.02	0.47	0.01	0.74	0.04	0.26	0.03	0.81	0.04	0.92	0.03	1.11	0.05	1.11	0.04	
164	1.66	0.05	0.28	0.01	0.53	0.02	0.52	0.02	0.51	0.02	1.54	0.07	0.40	0.02	0.22	0.04	0.40	0.01	
165	0.83	0.02	0.94	0.03	1.69	0.04	0.29	0.02	0.59	0.02	0.58	0.04	0.47	0.02	0.47	0.02			
166	1.11	0.05	3.07	0.02	0.45	0.02	0.85	0.02	0.42	0.01	0.59	0.03	0.46	0.01	0.71	0.03			
167	1.09	0.03	0.38	0.01	1.09	0.03	0.39	0.03	0.45	0.01	0.54	0.02	0.60	0.02	0.86	0.03			
168	2.28	0.02	0.57	0.02	0.92	0.05	0.30	0.02	0.49	0.01	1.61	0.05	0.60	0.02	0.48	0.02			
169	0.87	0.03	0.63	0.02	0.89	0.03	0.43	0.01	0.41	0.03	0.67	0.02	0.31	0.01	0.45	0.01			
170	0.38	0.02	0.37	0.02	0.82	0.02	0.36	0.01	0.58	0.01	0.76	0.04	0.22	0.02	0.42	0.01			
171	0.34	0.01	0.47	0.01	0.51	0.02	0.55	0.01	0.55	0.02	0.70	0.02	0.42	0.02	0.33	0.01			
172	1.72	0.03	0.52	0.01	0.62	0.02	0.64	0.01	1.26	0.02	0.53	0.03	1.51	0.03	0.66	0.03			
173	1.01	0.03	0.49	0.02	2.02	0.07	0.41	0.01	1.15	0.03	1.24	0.05	0.51	0.01	0.31	0.02			
174	1.99	0.03	0.37	0.01	1.09	0.04	0.36	0.01	0.44	0.01	0.44	0.03	0.53	0.02	0.80	0.02			
175	0.47	0.03	0.34	0.01	0.77	0.02	0.58	0.02	0.37	0.01	1.18	0.04	0.76	0.06	1.13	0.04			
176	1.88	0.04	0.39	0.02	1.57	0.05	0.28	0.01	1.62	0.05	0.76	0.04	0.71	0.02	0.40	0.01			
177	0.41	0.03	0.47	0.01	1.02	0.03	0.40	0.02	0.75	0.02	0.23	0.05	0.92	0.02	0.56	0.02			
178	0.76	0.02	0.39	0.01	0.80	0.04	0.36	0.02	0.43	0.02	0.60	0.02	0.70	0.02	0.51	0.02			
179	1.36	0.02			1.01	0.04	0.51	0.01	1.08	0.02	0.48	0.02	0.85	0.02	0.96	0.02			
180	0.26	0.03			1.03	0.03	0.16	0.03	0.65	0.04	0.66	0.02	0.76	0.03	2.56	0.08			
181	0.79	0.05			0.44	0.01	0.20	0.03	1.00	0.01	0.39	0.02	1.78	0.04	0.76	0.02			
182	0.48	0.03			0.33	0.01	0.39	0.01	0.97	0.03	1.20	0.05	0.38	0.01	0.75	0.02			
183	0.59	0.02			0.75	0.03	0.37	0.02	0.52	0.02	0.51	0.03	0.45	0.01	0.88	0.02			
184	0.43	0.01			0.46	0.02	0.41	0.02	1.27	0.02	1.47	0.03	0.38	0.02	0.52	0.02			
185	0.55	0.01			0.77	0.03	0.58	0.02	0.76	0.03	1.44	0.06	0.37	0.01	1.00	0.03			
186	0.73	0.03			0.75	0.02	0.35	0.01	1.04	0.04	1.08	0.05	0.38	0.02	0.61	0.04			
187	0.68	0.02			1.67	0.05	0.29	0.01	0.65	0.02	1.09	0.06			0.46	0.02			
188	0.39	0.01			0.83	0.02	0.39	0.02	0.42	0.01	0.72	0.03							
189	0.52	0.02			0.38	0.01	0.46	0.07	0.43	0.01	0.43	0.02							
190	0.47	0.02			0.40	0.02	0.20	0.03	0.58	0.01	0.62	0.03							
191	0.41	0.01			0.51	0.02	0.37	0.01	0.51	0.02	0.49	0.02							
192					0.48	0.02	0.28	0.03	0.32	0.01	1.39	0.04							
193					1.33	0.03	0.39	0.01	0.28	0.03	0.60	0.03							
194					0.95	0.03	0.67	0.02	0.43	0.02	0.60	0.03							
195					0.38	0.01	0.20	0.03	0.40	0.02	0.86	0.04							
196					0.74	0.03	0.39	0.02	0.31	0.01	0.54	0.02							
197					0.45	0.02	0.39	0.02	0.44	0.01	0.51	0.02							
198					0.63	0.01	0.35	0.02	0.53	0.02	0.50	0.03							
199					0.90	0.03	0.50	0.01	0.46	0.02	0.68	0.03							
200					0.64	0.02					1.05	0.04							

Size measurements nematodes Weddell Sea

	K4,1		K4,2		K4,3		K4,4		K5,1		K5,2		K5,3		K6,1		K6,2		K6,3		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
1	1.18	0.03	0.85	0.03	0.82	0.02	0.93	0.03	0.16	0.01	0.22	0.02	0.71	0.03	0.19	0.03	0.17	0.01	1.16	0.04	
2	0.88	0.03	0.81	0.02	1.71	0.01	0.96	0.06	0.17	0.03	0.25	0.03	0.97	0.03	0.25	0.01	0.17	0.04	0.36	0.02	
3	1.63	0.05	1.03	0.05	1.15	0.03	1.26	0.03	0.20	0.03	0.28	0.02	0.65	0.02	0.26	0.04	0.20	0.03	0.97	0.03	
4	0.57	0.01	0.45	0.01	0.48	0.01	0.90	0.02	0.21	0.01	0.28	0.03	0.74	0.03	0.28	0.01	0.20	0.03	0.56	0.02	
5	0.54	0.03	1.48	0.03	0.61	0.02	0.54	0.03	0.21	0.01	0.29	0.02	0.74	0.03	0.28	0.02	0.22	0.04	1.15	0.03	
6	0.82	0.02	1.50	0.06	1.04	0.02	0.87	0.03	0.21	0.02	0.33	0.04	2.23	0.06	0.29	0.01	0.22	0.03	1.71	0.05	
7	0.29	0.02	1.44	0.03	2.54	0.07	0.39	0.01	0.22	0.02	0.33	0.04	1.28	0.03	0.29	0.02	0.23	0.02	0.97	0.04	
8	0.50	0.02	0.74	0.04	0.41	0.01	0.48	0.02	0.23	0.03	0.33	0.02	0.95	0.04	0.30	0.01	0.23	0.01	0.80	0.03	
9	0.67	0.03	0.98	0.04	0.60	0.02	0.74	0.03	0.24	0.02	0.33	0.01	0.57	0.02	0.31	0.02	0.23	0.01	1.14	0.04	
10	0.55	0.04	1.04	0.07	0.86	0.03	0.84	0.02	0.24	0.01	0.34	0.04	0.87	0.03	0.31	0.02	0.24	0.03	0.33	0.02	
11	2.41	0.05	0.58	0.02	0.96	0.02	0.61	0.02	0.24	0.01	0.34	0.02	1.88	0.04	0.31	0.02	0.25	0.02	0.54	0.02	
12	0.96	0.02	0.37	0.05	1.10	0.03	1.03	0.02	0.26	0.01	0.35	0.04	1.84	0.04	0.31	0.01	0.25	0.03	0.80	0.03	
13	0.51	0.02	0.59	0.02	1.15	0.06	0.48	0.03	0.27	0.02	0.36	0.03	0.75	0.02	0.32	0.02	0.26	0.04	0.54	0.03	
14	0.58	0.03	0.61	0.03	0.85	0.02	0.82	0.03	0.28	0.01	0.36	0.02	0.50	0.08	0.33	0.02	0.27	0.03	0.47	0.03	
15	1.10	0.04	0.71	0.03	0.31	0.02	1.95	0.03	0.28	0.03	0.36	0.02	2.48	0.06	0.33	0.02	0.27	0.02	1.07	0.06	
16	1.76	0.04	1.40	0.04	0.87	0.03	0.52	0.02	0.29	0.04	0.37	0.02	0.84	0.03	0.33	0.02	0.28	0.02	1.64	0.05	
17	0.67	0.02	0.71	0.02	0.81	0.02	0.41	0.01	0.30	0.05	0.37	0.01	0.87	0.02	0.34	0.02	0.29	0.02	0.63	0.02	
18	0.55	0.01	0.75	0.04	1.21	0.04	0.33	0.01	0.33	0.02	0.37	0.03	0.71	0.04	0.34	0.01	0.30	0.01	1.78	0.05	
19	0.67	0.03	0.44	0.02	0.57	0.02	1.15	0.03	0.34	0.03	0.38	0.03	1.14	0.02	0.35	0.02	0.30	0.03	1.79	0.05	
20	0.34	0.02	2.23	0.04	0.31	0.04	1.45	0.05	0.34	0.02	0.38	0.01	2.39	0.02	0.35	0.03	0.30	0.02	0.94	0.02	
21	1.42	0.03	0.92	0.02	0.64	0.02	0.58	0.02	0.34	0.01	0.38	0.02	0.70	0.02	0.35	0.02	0.31	0.02	0.75	0.03	
22	0.36	0.02	0.89	0.04	1.31	0.04	1.79	0.03	0.35	0.01	0.38	0.03	0.65	0.02	0.36	0.02	0.32	0.02	0.45	0.02	
23	1.19	0.04	0.53	0.02	0.41	0.01	0.45	0.02	0.35	0.02	0.39	0.04	2.27	0.05	0.36	0.02	0.32	0.01	1.33	0.05	
24	0.73	0.03	0.99	0.03	1.22	0.03	0.74	0.03	0.35	0.02	0.40	0.02	2.30	0.06	0.36	0.02	0.32	0.02	0.61	0.02	
25	0.40	0.02	0.50	0.02	1.23	0.04	0.39	0.02	0.35	0.03	0.41	0.02	0.78	0.02	0.37	0.02	0.32	0.02	1.34	0.03	
26	0.51	0.03	0.51	0.02	0.70	0.02	0.52	0.02	0.35	0.01	0.41	0.01	0.57	0.02	0.37	0.02	0.33	0.05	0.33	0.02	
27	0.96	0.04	0.67	0.03	0.49	0.02	0.45	0.01	0.36	0.02	0.42	0.01	1.95	0.05	0.37	0.02	0.33	0.01	0.41	0.02	
28	0.52	0.01	1.22	0.04	0.43	0.01	0.36	0.02	0.36	0.02	0.42	0.01	0.84	0.02	0.38	0.02	0.34	0.02	0.76	0.02	
29	0.73	0.04	1.24	0.05	0.42	0.01	0.39	0.01	0.36	0.02	0.43	0.01	0.83	0.02	0.38	0.02	0.34	0.03	2.08	0.06	
30	0.43	0.01	0.61	0.03	0.65	0.02	1.69	0.03	0.37	0.04	0.43	0.03	1.20	0.03	0.39	0.01	0.34	0.01	0.79	0.04	
31	4.10	0.10	1.72	0.03	0.99	0.02	0.50	0.02	0.37	0.01	0.44	0.03	1.26	0.02	0.39	0.02	0.35	0.02	1.22	0.04	
32	0.45	0.01	0.60	0.02	0.46	0.01	0.51	0.02	0.37	0.02	0.45	0.02	1.21	0.04	0.39	0.01	0.35	0.02	0.40	0.02	
33	0.52	0.02	0.55	0.03	0.90	0.02	1.21	0.04	0.38	0.02	0.45	0.02	0.87	0.03	0.39	0.02	0.35	0.02	1.46	0.04	
34	0.38	0.04	1.14	0.03	0.59	0.02	0.39	0.01	0.38	0.01	0.47	0.03	0.83	0.02	0.40	0.02	0.35	0.02	0.57	0.02	
35	0.57	0.02	0.80	0.02	1.15	0.02	0.81	0.03	0.39	0.01	0.48	0.02	0.63	0.02	0.40	0.02	0.36	0.01	0.57	0.01	
36	0.32	0.01	0.76	0.03	0.62	0.02	0.95	0.03	0.40	0.02	0.49	0.01	2.02	0.05	0.40	0.02	0.36	0.02	0.35	0.02	
37	0.89	0.06	0.53	0.02	0.41	0.02	1.11	0.06	0.40	0.02	0.51	0.02	0.82	0.03	0.40	0.02	0.36	0.01	0.45	0.03	
38	0.51	0.02	0.46	0.02	0.77	0.02	0.49	0.01	0.40	0.02	0.52	0.01	1.44	0.05	0.40	0.02	0.36	0.02	1.06	0.04	
39	0.63	0.02	0.44	0.01	0.80	0.02	0.93	0.06	0.40	0.02	0.52	0.02	1.20	0.02	0.41	0.03	0.37	0.02	1.37	0.02	
40	0.81	0.11	1.49	0.04	0.62	0.02	0.66	0.02	0.41	0.02	0.52	0.06	1.27	0.04	0.41	0.02	0.37	0.02	1.29	0.04	
41	0.75	0.02	0.88	0.02	0.88	0.02	1.36	0.02	0.41	0.02	0.52	0.02	0.59	0.02	0.41	0.02	0.38	0.02	2.30	0.08	
42	0.77	0.02	0.57	0.02	0.26	0.01	0.87	0.03	0.41	0.02	0.53	0.03	0.43	0.02	0.41	0.02	0.38	0.02	1.39	0.04	
43	0.54	0.02	0.34	0.02	0.53	0.01	1.27	0.04	0.41	0.01	0.53	0.02	1.03	0.02	0.42	0.02	0.38	0.01	0.72	0.04	
44	0.26	0.01	0.34	0.02	0.58	0.02	0.51	0.01	0.42	0.01	0.54	0.02	0.85	0.03	0.42	0.07	0.38	0.02	0.71	0.03	
45	0.87	0.02	0.78	0.03	0.93	0.02	0.76	0.02	0.42	0.02	0.56	0.01	1.91	0.04	0.43	0.02	0.38	0.01	1.76	0.04	
46	4.16	0.09	0.38	0.02	0.55	0.02	0.41	0.02	0.42	0.01	0.57	0.02	0.53	0.02	0.43	0.02	0.38	0.02	0.87	0.04	
47	0.66	0.04	0.36	0.02	0.37	0.05	0.97	0.03	0.43	0.02	0.57	0.03	0.73	0.03	0.43	0.02	0.39	0.02	0.64	0.03	
48	0.34	0.02	0.54	0.02	0.38	0.02	0.67	0.02	0.43	0.03	0.58	0.07	0.65	0.02	0.43	0.02	0.39	0.02	0.71	0.03	
49	0.39	0.02	0.57	0.02	0.33	0.01	0.97	0.03	0.44	0.02	0.58	0.07	0.79	0.02	0.43	0.02	0.40	0.02	1.90	0.04	
50	1.16	0.03	1.06	0.03	1.98	0.06	1.22	0.02	0.44	0.02	0.59	0.03	1.02	0.02	0.44	0.02	0.41	0.01	0.38	0.02	
51	0.32	0.05	0.87	0.03	1.76	0.02	0.54	0.02	0.44	0.02	0.59	0.02	0.61	0.02	0.44	0.02	0.41	0.02	0.57	0.02	
52	0.28	0.02	0.23	0.01	1.30	0.04	0.55	0.02	0.44	0.02	0.59	0.02	0.50	0.02	0.45	0.02	0.42	0.02	0.43	0.02	
53	0.32	0.01	0.36	0.02	0.50	0.02	0.72	0.03	0.44	0.02	0.60	0.02	0.62	0.03	0.45	0.02	0.42	0.01	0.74	0.02	
54	0.24	0.01	2.10	0.05	0.54	0.02	0.37	0.01	0.45	0.03	0.61	0.03	0.81	0.02	0.45	0.02	0.42	0.02	0.74	0.02	
55	0.77	0.02	1.07	0.02	0.64	0.02	1.17	0.03	0.45	0.02	0.62	0.03	1.18	0.04	0.45	0.02	0.42	0.02	0.78	0.03	
56	1.14	0.09	0.95	0.03	0.29	0.05	0.86	0.03	0.45	0.01	0.63	0.03	1.87	0.03	0.45	0.02	0.42	0.02	2.48	0.04	
57	0.71	0.04	0.62	0.01	0.61	0.01	0.59	0.01	0.45	0.03	0.63	0.02	1.00	0.03	0.46	0.02	0.42	0.02	1.75	0.04	
58	1.78	0.08	0.53	0.02	0.49	0.01	0.48	0.02	0.46	0.02	0.64	0.03	0.85	0.02	0.46	0.02	0.43	0.03	0.68	0.02	
59	0.80	0.02	0.34	0.01	0.52	0.01	0.57	0.02	0.46	0.02	0.64	0.02	0.46	0.02	0.47	0.02	0.43	0.02	0.58	0.02	
60	0.73	0.02	0.53	0.02	1.31	0.03	0.93	0.03	0.46	0.02	0.66	0.02	0.49	0.02	0.47	0.02	0.43	0.01	0.68	0.03	
61	0.82	0.02	1.21	0.03	1.18	0.03	1.25	0.02	0.47	0.02	0.66	0.01	1.41	0.04	0.48	0.02	0.43	0.02	3.27	0.04	
62	0.81	0.03	1.49	0.04	1.90	0.07	0.59	0.02	0.47	0.03	0.67	0.02	0.53	0.02	0.48	0.02	0.43	0.02	0.61	0.02	
63	0.79	0.03	0.41	0.02	1.02	0.03	0.61	0.02	0.47	0.03	0.67	0.02	0.40	0.02	0.48	0.02	0.43	0.02	1.27	0.04	
64	0.25	0.03	0.53	0.03	1.12	0.03	0.23	0.01	0.47	0.02	0.68	0.02	0.48	0.02	0.48	0.03	0.44	0.02	0.33	0.02	
65	0.66	0.03	0.83	0.03	2.93	0.02	0.89	0.03	0.47	0.06	0.68	0.01	1.38	0.03	0.50	0.02	0.44	0.02	1.52	0.04	
66	0.43	0.02	0.49	0.02	0.47	0.01	0.42	0.01	0.47	0.02	0.69	0.03	1.98	0.03	0.50	0.03	0.44	0.02	0.73	0.02	
67	1.26	0.05	0.56	0.02	0.44	0.01	0.50	0.02	0.48	0.02	0.69	0.02	0.54	0.02	0.50	0.02	0.44	0.02	0.40	0.02	
68	1.66	0.04	0.67	0.01	0.79	0.03	0.42	0.01	0.48	0.02	0.69	0.02	0.74	0.02	0.51	0.02	0.44	0.01	0.93	0.04	
69	0.66	0.02	0.61	0.02	0.34	0.01	0.55	0.02	0.48	0.05	0.70	0.03	3.69	0.04	0.51	0.03	0.44	0.02	0.56	0.02	
70	0.46	0.01	0.43	0.01	0.42	0.04	1.03	0.03	0.50	0.03	0.70	0.02	1.56	0.03	0.52	0.02	0.45	0.01	0.41	0.02	
71	0.65	0.04	0.56	0.02	0.78	0.02	0.35	0.02	0.50	0.02	0.71	0.02	0.51	0.02	0.52	0.03	0.45	0.02	0.77	0.03	
72	0.89	0.02	2.21	0.07	0.68	0.02	0.69	0.02	0.51	0.02	0.71	0.02	0.81	0.03	0.52	0.04	0.45	0.03	0.64	0.02	
73	1.02	0.02	0.45	0.01	0.53	0.02	0.58	0.02	0.52	0.02	0.71	0.03	0.78	0.02	0.52	0.03	0.47	0.02	0.74	0.04	
74	0.41	0.02	0.54	0.02	0.74	0.03	0.40	0.01	0.52	0.02	0.72	0.03	0.55	0.03	0.53	0.03	0.47	0.02	0.73	0.04	
75	0.44	0.02	0.70	0.02	0.55	0.01	0.32	0.01	0.53	0.02	0.73	0.02	0.85	0.03	0.53	0.02	0.47	0.02	1.31	0.04	
76	0.72	0.03	0.74	0.02	0.82	0.02	0.40	0.02	0.53	0.02	0.74	0.01	0.47	0.02	0.53	0.02	0.47	0.01	0.86	0.03	
77	1.72	0.04	0.46	0.01	0.59	0.02	1.61	0.04	0.54	0.02	0.76	0.02	1.10	0.03	0.54	0.02	0.48	0.02	0.81	0.02	
78	0.40	0.02	0.58	0.01	0.35	0.04	0.58	0.01	0.54	0.01	0.77	0.02	0.62	0.02	0.54	0.03	0.48	0.02	1.13	0.03	
79	0.37	0.02	1.90	0.03	0.70	0.02	0.37	0.02	0.55	0.02	0.77	0.02	1.13	0.02	0.54	0.04	0.48	0.03	0.76	0.02	
80	0.64	0.01	1.33	0.02	0.68	0.02	1.88	0.04	0.56	0.01	0.78	0.02	0.61	0.02	0.54	0.03	0.48	0.02	0.71	0.02	
81	0.52	0.02	0.84	0.04	0.44	0.02	0.46	0.01	0.56	0.02	0.78	0.03	1.70	0.03	0.55	0.04	0.48	0.02	1.40	0.06	
82	0.41	0.03	2.00	0.03	0.32	0.01	0.77	0.03	0.57	0.02	0.78	0.03	1.35	0.03	0.55	0.01	0.48	0.02	0.45	0.02	
83	0.66	0.03	0.56	0.01	0.40	0.01	1.10	0.03	0.57	0.03	0.79	0.03	1.14	0.02	0.56	0.04	0.49	0.02	1.04	0.02	
84	0.43	0.02	0.45	0.01	0.29	0.01	0.82	0.02	0.57	0.02	0.80	0.03	1.82	0.06	0.58	0.01	0.49	0.03	0.73	0.03	
85	0.62	0.02	0.61	0.02	1.10	0.01	1.01	0.03	0.58	0.02	0.83	0.02	0.88	0.02	0.58	0.02	0.50	0.02	1.40	0.06	
86	0.63	0.03	0.29	0.02	0.29	0.01	0.68	0.02	0.58	0.02	0.83	0.03	0.33	0.02	0.58	0.03	0.50	0.01	3.09	0.10	
87	0.47	0.02	0.59	0.02	1.10	0.01	0.27	0.03	0.59	0.02	0.84	0.05	0.92	0.02	0.59	0.02	0.50	0.02	1.03	0.02	
88	0.60	0.02	0.64	0.02	1.22	0.03	0.71	0.02	0.60	0.02	0.84	0.03	0.72	0.02	0.59	0.02	0.51	0.02	0.52	0.02	
89	1.49	0.03	0.37	0.01	0.72	0.02	0.85	0.02	0.61	0.03	0.84	0.02	0.31	0.02	0.60	0.03	0.51	0.02	0.66	0.02	
90	0.47	0.02	0.65	0.03	0.36	0.02	0.40	0.02	0.62	0.02	0.84	0.02	0.98	0.04	0.61	0.02	0.51	0.05	0.64	0.02	
91	0.25	0.03	0.23	0.03	0.36	0.02	0.86	0.03	0.62	0.03	0.86	0.03	1.02	0.02	0.62	0.03	0.52	0.02	0.34	0.02	
92	0.69	0.02	0.26	0.04	1.00	0.03	0.94	0.02	0.64	0.02	0.88	0.02	0.81	0.02	0.63	0.01	0.52	0.03	0.31	0.02	
93	0.62	0.03	1.18	0.03	0.30	0.01	0.26	0.01	0.65	0.02	0.89	0.03	0.91	0.02	0.63	0.04	0.52	0.03	0.69	0.02	
94	0.45	0.02	0.74	0.03	0.40	0.01	0.45	0.01	0.66	0.03	0.90	0.03	1.32	0.06	0.63	0.01	0.52	0.02	0.53	0.02	
95	0.47	0.02	0.48	0.01	0.93	0.03	1.16	0.03	0.68	0.03	0.91	0.02	1.95	0.03	0.63	0.02	0.52	0.02	0.37	0.02	
96	2.23	0.04	0.89	0.04	0.83	0.02	2.04	0.03	0.68	0.03	0.91	0.02	1.34	0.04	0.63	0.02	0.53	0.02	0.86	0.03	
97	0.34	0.01	0.71	0.03	1.78	0.02	0.39	0.02	0.69	0.03	0.91	0.04	0.93	0.03	0.64	0.02	0.54	0.01	1.83	0.07	
98	0.25	0.01	0.43	0.02	1.03	0.03	0.31	0.01	0.70	0.03	0.91	0.03	0.59	0.02	0.64	0.01	0.54	0.03	0.76	0.02	
99	0.38	0.01	1.99	0.06	0.57	0.02	0.27	0.01	0.71	0.03	0.92	0.02	0.78	0.02	0.65	0.04	0.55	0.02	1.78	0.04	
100	0.72	0.02	0.46	0.02	0.83	0.03	0.77	0.02	0.73	0.02	0.92	0.03	1.74	0.03	0.65	0.03	0.55	0.02	1.62	0.05	

Size measurements nematodes Weddell Sea

	K4,1		K4,2		K4,3		K4,4		K5,1		K5,2		K5,3		K6,1		K6,2		K6,3		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
101	0.63	0.02	0.39	0.02	0.39	0.01	0.49	0.02	0.74	0.02	0.93	0.03	0.74	0.02	0.66	0.03	0.56	0.01	0.77	0.03	
102	0.30	0.01	0.59	0.02	0.69	0.02	0.36	0.02	0.74	0.03	0.93	0.03	0.61	0.02	0.68	0.02	0.56	0.02	0.65	0.02	
103	0.96	0.05	0.57	0.02	0.38	0.01	1.24	0.05	0.75	0.03	0.95	0.04	0.43	0.02	0.69	0.04	0.56	0.03	0.61	0.01	
104	0.66	0.04	0.67	0.03	0.38	0.01	1.05	0.03	0.75	0.05	0.97	0.02	1.30	0.01	0.70	0.03	0.57	0.04	0.90	0.04	
105	0.46	0.02	0.58	0.03	0.40	0.01	0.37	0.01	0.75	0.03	0.98	0.02	1.10	0.03	0.70	0.02	0.57	0.01	0.68	0.03	
106	0.28	0.02	0.45	0.02	0.44	0.02	0.82	0.01	0.76	0.02	0.98	0.02	1.34	0.05	0.70	0.03	0.57	0.03	1.94	0.05	
107	0.66	0.03	1.36	0.03	0.63	0.01	1.14	0.03	0.76	0.03	0.99	0.05	0.55	0.02	0.71	0.03	0.57	0.02	1.24	0.02	
108	0.24	0.02	0.41	0.01	0.36	0.01	0.36	0.01	0.76	0.03	1.00	0.03	0.64	0.02	0.71	0.03	0.57	0.02	0.86	0.03	
109	0.46	0.02	0.33	0.01	1.82	0.04	0.49	0.03	0.79	0.02	1.00	0.04	1.07	0.02	0.72	0.03	0.57	0.03	1.54	0.02	
110	0.42	0.02	0.84	0.02	0.39	0.01	0.38	0.01	0.79	0.02	1.00	0.02	1.34	0.03	0.73	0.03	0.58	0.03	1.42	0.03	
111	0.30	0.01	0.39	0.01	0.37	0.01	0.66	0.02	0.80	0.03	1.02	0.03	0.44	0.02	0.73	0.03	0.59	0.03	0.64	0.03	
112	0.35	0.01	0.38	0.03	0.39	0.01	3.75	0.12	0.80	0.03	1.02	0.03	1.31	0.03	0.73	0.03	0.59	0.02	1.39	0.05	
113	0.47	0.01	0.43	0.01	0.97	0.02	0.34	0.01	0.80	0.02	1.03	0.03	0.83	0.03	0.73	0.03	0.59	0.02	0.41	0.02	
114	0.59	0.01	0.87	0.03	0.47	0.02	0.53	0.03	0.81	0.02	1.03	0.03	0.59	0.02	0.73	0.03	0.60	0.03	0.71	0.03	
115	0.58	0.01	0.53	0.02	0.62	0.02	0.64	0.04	0.82	0.03	1.03	0.03	0.87	0.02	0.74	0.03	0.61	0.02	0.89	0.02	
116	0.86	0.02	0.70	0.03	0.31	0.04	0.37	0.02	0.82	0.03	1.05	0.02	0.66	0.01	0.74	0.03	0.62	0.03	1.57	0.05	
117	0.46	0.03	0.28	0.04	1.51	0.03	0.30	0.02	0.83	0.03	1.05	0.04	0.74	0.02	0.76	0.05	0.62	0.03	0.67	0.02	
118	0.81	0.04	2.07	0.04	0.86	0.03	0.31	0.01	0.83	0.05	1.05	0.03	0.45	0.02	0.77	0.03	0.63	0.03	1.06	0.04	
119	0.46	0.03	0.54	0.02	0.59	0.02	0.32	0.01	0.83	0.05	1.06	0.04	0.39	0.01	0.77	0.03	0.63	0.02	1.15	0.03	
120	0.31	0.01	0.83	0.05	0.38	0.01	0.36	0.01	0.84	0.03	1.06	0.03	1.71	0.05	0.77	0.06	0.64	0.01	0.75	0.03	
121	0.39	0.02	0.60	0.02	2.39	0.04	0.63	0.02	0.84	0.04	1.07	0.03	2.54	0.06	0.79	0.03	0.65	0.02	1.11	0.05	
122	0.60	0.03	0.70	0.01	0.88	0.02	1.41	0.03	0.86	0.04	1.08	0.03	0.64	0.02	0.79	0.02	0.65	0.01	0.41	0.02	
123	0.74	0.02	0.67	0.01	0.36	0.01	3.37	0.06	0.86	0.03	1.08	0.03	1.69	0.04	0.79	0.04	0.67	0.02	0.61	0.03	
124	0.71	0.03			0.34	0.01	0.33	0.04	0.86	0.04	1.09	0.03	0.74	0.02	0.80	0.02	0.67	0.04	0.75	0.03	
125	0.64	0.02			0.25	0.01	0.29	0.01	0.87	0.03	1.11	0.03	0.37	0.02	0.81	0.03	0.67	0.01	0.66	0.03	
126	0.71	0.02			0.42	0.05	0.75	0.02	0.87	0.03	1.11	0.03	0.50	0.03	0.81	0.03	0.68	0.03	0.74	0.03	
127	0.73	0.03			1.21	0.04	0.44	0.01	0.88	0.02	1.13	0.02	0.47	0.03	0.84	0.03	0.70	0.03	0.91	0.03	
128	0.63	0.04			0.32	0.01	1.09	0.03	0.88	0.02	1.14	0.04	1.01	0.03	0.85	0.03	0.71	0.02	0.67	0.02	
129	1.54	0.03			0.58	0.02	0.44	0.02	0.88	0.04	1.14	0.06	0.93	0.02	0.85	0.03	0.72	0.02	0.98	0.04	
130	0.43	0.01			0.28	0.01	0.53	0.02	0.89	0.03	1.14	0.04	1.86	0.04	0.85	0.03	0.72	0.03	1.02	0.04	
131	0.36	0.01			1.33	0.04	0.48	0.02	0.89	0.03	1.15	0.04	0.78	0.02	0.85	0.02	0.73	0.03	1.01	0.05	
132	0.35	0.02			0.39	0.01	0.31	0.01	0.90	0.07	1.16	0.03	0.94	0.03	0.85	0.04	0.74	0.02	0.75	0.02	
133	0.48	0.02			0.38	0.01	4.01	0.08	0.90	0.03	1.16	0.04	0.64	0.02	0.86	0.03	0.74	0.02	0.76	0.04	
134	0.44	0.01			0.79	0.02	0.81	0.01	0.90	0.04	1.16	0.04	0.63	0.02	0.86	0.04	0.76	0.02	1.00	0.04	
135	0.35	0.01			0.41	0.02	0.41	0.01	0.91	0.04	1.18	0.04	0.65	0.02	0.87	0.03	0.77	0.02	0.87	0.03	
136	0.50	0.01			0.27	0.01	0.38	0.01	0.91	0.04	1.19	0.03	0.98	0.03	0.87	0.02	0.77	0.03	0.56	0.03	
137	0.45	0.02					0.79	0.02	0.92	0.03	1.19	0.04	1.88	0.03	0.88	0.06	0.78	0.03	0.79	0.03	
138	0.56	0.02					0.54	0.01	0.92	0.04	1.20	0.04	0.87	0.02	0.88	0.04	0.78	0.03	0.97	0.04	
139	0.50	0.02					0.48	0.04	0.94	0.07	1.24	0.03	0.89	0.03	0.88	0.03	0.78	0.02	1.33	0.02	
140	0.42	0.03					0.37	0.03	0.94	0.04	1.27	0.08	0.72	0.03	0.88	0.03	0.81	0.03	0.63	0.02	
141	0.42	0.01					0.69	0.01	0.95	0.04	1.28	0.03	1.14	0.04	0.90	0.02	0.82	0.03	0.79	0.03	
142	0.45	0.01					0.47	0.02	0.95	0.03	1.29	0.03	0.55	0.02	0.90	0.04	0.82	0.03	0.37	0.02	
143	0.44	0.02					0.86	0.01	0.96	0.03	1.31	0.07	1.75	0.03	0.92	0.02	0.83	0.02	0.69	0.02	
144	0.42	0.02					3.37	0.12	0.98	0.03	1.32	0.04	0.79	0.02	0.92	0.04	0.84	0.03	0.46	0.02	
145	0.68	0.02					0.52	0.01	1.00	0.04	1.35	0.03	0.81	0.02	0.93	0.03	0.85	0.01	1.44	0.02	
146	0.38	0.02					1.09	0.03	1.01	0.03	1.37	0.03	0.35	0.02	0.93	0.04	0.85	0.01	0.84	0.03	
147							0.46	0.02	1.01	0.04	1.37	0.04	1.09	0.03	0.94	0.03	0.85	0.03	0.51	0.02	
148							0.41	0.01	1.04	0.04	1.52	0.02	0.20	0.02	0.94	0.05	0.86	0.02	0.49	0.03	
149							0.57	0.02	1.04	0.03	1.58	0.03	1.13	0.03	0.94	0.04	0.89	0.03	1.59	0.03	
150							1.91	0.03	1.05	0.01	1.62	0.03	2.05	0.03	0.94	0.02	0.91	0.02	0.42	0.02	
151							1.98	0.02	1.06	0.03	1.79	0.04	0.83	0.02	0.95	0.04	0.92	0.04	0.91	0.03	
152							0.96	0.03	1.06	0.04	1.87	0.05	0.42	0.02	0.97	0.04	0.94	0.01	0.33	0.05	
153							0.48	0.01	1.08	0.03	1.88	0.05	0.54	0.02	0.97	0.02	0.95	0.04	0.91	0.03	
154							1.09	0.02	1.09	0.04	1.99	0.04	0.35	0.05	0.98	0.03	0.95	0.02	0.73	0.02	
155							0.32	0.01	1.09	0.03	2.04	0.05	1.15	0.03	0.99	0.03	1.01	0.02	0.68	0.02	
156							0.39	0.02	1.13	0.04	2.05	0.05	0.67	0.02	1.10	0.04	1.04	0.03	0.37	0.02	
157							0.51	0.02	1.17	0.02	2.09	0.05	0.57	0.02	1.11	0.04	1.06	0.02	0.37	0.02	
158							0.45	0.02	1.17	0.03	2.14	0.04	1.06	0.03	1.12	0.04	1.06	0.04	0.42	0.02	
159							0.47	0.01	1.18	0.04	2.19	0.07	0.45	0.02	1.13	0.03	1.07	0.04	0.44	0.02	
160							0.42	0.01	1.18	0.03	2.25	0.04	2.38	0.02	1.13	0.02	1.09	0.03	0.44	0.02	
161							0.32	0.01	1.18	0.03	2.43	0.07	0.45	0.02	1.13	0.03	1.12	0.02	1.03	0.03	
162							0.61	0.02	1.18	0.03	2.47	0.10	0.54	0.02	1.14	0.02	1.13	0.02	0.87	0.04	
163							0.33	0.01	1.21	0.04	2.65	0.03	0.32	0.01	1.15	0.03	1.22	0.03	0.84	0.03	
164							0.41	0.01	1.22	0.03	4.61	0.05	0.40	0.01	1.15	0.05	1.41	0.05	0.51	0.02	
165							0.42	0.01	1.24	0.03			0.38	0.02	1.24	0.02	1.41	0.02	0.87	0.02	
166							0.33	0.02	1.24	0.04			0.46	0.01	1.28	0.03	1.41	0.04	0.43	0.02	
167							0.42	0.01	1.28	0.04			1.01	0.03	1.29	0.05	1.54	0.02	0.42	0.02	
168							0.70	0.03	1.28	0.05			0.85	0.02	1.30	0.06	1.71	0.07	0.42	0.02	
169							0.39	0.01	1.29	0.03			0.49	0.02	1.30	0.03	2.38	0.04	0.30	0.02	
170							0.53	0.02	1.32	0.03			0.60	0.02	1.34	0.04	3.23	0.06	0.77	0.02	
171							0.48	0.02	1.40	0.04			0.84	0.02	1.46	0.09			0.52	0.02	
172							0.33	0.01	1.41	0.05			0.65	0.02	1.47	0.01			0.37	0.02	
173							0.28	0.04	1.42	0.04			0.93	0.03	1.48	0.09			0.42	0.02	
174							0.96	0.03	1.45	0.04			0.30	0.01	1.53	0.03			0.49	0.02	
175							0.39	0.01	1.50	0.07			0.77	0.02	1.56	0.07			0.45	0.02	
176							0.41	0.01	1.59	0.03			0.43	0.02	1.56	0.05			0.51	0.02	
177							0.36	0.01	1.64	0.06			0.34	0.02	1.56	0.05			0.84	0.02	
178							0.42	0.01	1.69	0.04			2.28	0.03	1.65	0.08			0.43	0.02	
179									1.69	0.07			0.29	0.01	1.74	0.06			0.54	0.02	
180									1.72	0.04			0.43	0.02	2.34	0.03			0.53	0.02	
181									1.81	0.03			1.41	0.02	2.35	0.04			0.81	0.01	
182									1.81	0.03			0.49	0.02	2.58	0.02			0.41	0.02	
183									1.94	0.05			1.52	0.03	2.61	0.08			0.31	0.02	
184									1.96	0.03			0.50	0.02	2.62	0.02			0.42	0.02	
185									1.98	0.03			0.48	0.02	2.79	0.04			0.42	0.01	
186									2.01	0.06			0.38	0.02	2.89	0.10			0.39	0.02	
187									2.04	0.05			0.43	0.01					0.36	0.01	
188									2.12	0.04			0.80	0.02					0.25	0.03	
189									2.15	0.04			0.27	0.01					0.40	0.02	
190									3.14	0.06			0.82	0.02					1.77	0.02	
191									6.29	0.12			0.81	0.02					0.37	0.01	
192									10.45	0.05			0.76	0.01					0.36	0.02	
193													0.63	0.01					0.73	0.03	
194													0.42	0.01					0.78	0.02	
195													0.68	0.01					0.46	0.02	
196													0.65	0.01					0.50	0.02	
197													0.23	0.01					0.60	0.01	
198													0.45	0.01					0.44	0.01	
199																			0.40	0.02	
200																			0.65	0.01	

Size measurements nematodes Weddell Sea

K2	0-1 cm,1		0-1 cm,2		1-2 cm,1		1-2 cm,2		2-3 cm,1		2-3 cm,2		3-4 cm,1		3-4 cm,2		4-5 cm,1		4-5 cm,2		5-10 cm,1		5-10 cm,2		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
1	1.43	0.08	1.86	0.05	0.79	0.02	1.07	0.02	0.87	0.04	0.58	0.02	0.77	0.03	1.13	0.04	2.89	0.05			1.85	0.03	2.71	0.06	
2	0.81	0.04	1.19	0.08	1.11	0.04	0.40	0.01	2.09	0.08	0.32	0.01	2.91	0.14	1.74	0.04	0.91	0.02			1.81	0.05	1.02	0.06	
3	2.18	0.10	1.31	0.08	1.14	0.04	0.64	0.02	1.17	0.06	0.33	0.01	2.29	0.06	0.87	0.03	1.74	0.04			2.10	0.05	1.76	0.07	
4	2.52	0.08	0.69	0.04	1.04	0.08	0.55	0.03	1.29	0.09	0.40	0.02	2.23	0.07	2.09	0.07	1.12	0.03			3.30	0.12	0.97	0.06	
5	1.00	0.06	1.61	0.10	0.64	0.03	0.30	0.01	4.68	0.08	0.38	0.01	1.46	0.07	2.02	0.06	1.44	0.03			2.79	0.11	1.68	0.11	
6	1.88	0.04	1.42	0.09	1.01	0.03	0.67	0.02	3.00	0.10	0.31	0.01	1.22	0.04	1.02	0.06	1.65	0.04			0.69	0.04	3.43	0.09	
7	0.65	0.03	1.30	0.04	0.85	0.05	0.31	0.02	1.08	0.05	0.31	0.01	0.88	0.04	0.61	0.03	0.96	0.03			1.09	0.08	0.81	0.04	
8	1.28	0.05	0.99	0.04	1.10	0.07	0.21	0.01	1.10	0.08	0.44	0.01	1.73	0.03	1.19	0.04	1.15	0.02			1.10	0.03	0.90	0.05	
9	1.09	0.06	1.42	0.09	1.55	0.05	1.15	0.02	1.48	0.11	1.51	0.07	1.66	0.04	1.87	0.04	1.01	0.06			1.86	0.04	0.81	0.03	
10	0.67	0.04	1.19	0.06	0.95	0.03	0.52	0.02	0.80	0.04	1.80	0.07	2.77	0.07	0.77	0.05	0.70	0.02			1.45	0.04	1.48	0.08	
11	1.10	0.03	1.63	0.06	1.28	0.05	0.58	0.01	0.82	0.05	1.30	0.05	0.98	0.03	1.95	0.06	1.15	0.03			2.00	0.04	1.92	0.03	
12	1.18	0.05	1.33	0.05	0.70	0.04	0.27	0.01	1.51	0.06	1.57	0.05	1.52	0.03	1.84	0.04	1.52	0.05			0.85	0.02	3.50	0.07	
13	0.59	0.03	0.82	0.04	1.75	0.04	0.79	0.02	2.66	0.08	1.56	0.05	1.41	0.04	1.60	0.03	2.21	0.05			2.30	0.04	0.99	0.02	
14	0.84	0.04	1.26	0.04	0.79	0.05	0.29	0.01	0.82	0.04	0.69	0.04	1.59	0.04	1.01	0.03	1.72	0.04			0.36	0.02	2.10	0.05	
15	0.61	0.07	0.94	0.05	0.81	0.03	0.34	0.01	2.06	0.05	2.54	0.07	1.91	0.04	0.66	0.02	2.04	0.09			1.90	0.09	0.96	0.04	
16	0.39	0.04	2.18	0.09	0.78	0.03	2.77	0.09	1.12	0.04	1.39	0.03	0.79	0.05	0.81	0.02	1.74	0.05			1.71	0.04	2.19	0.05	
17	0.61	0.03	0.97	0.05	0.74	0.04	1.62	0.05	0.86	0.04	1.29	0.04	1.94	0.05	1.06	0.03	1.15	0.04			0.74	0.01	0.97	0.03	
18	2.38	0.06	1.69	0.05	0.74	0.04	1.50	0.10	0.54	0.02	1.53	0.06	1.27	0.04	0.83	0.02	1.08	0.03			1.62	0.04	1.46	0.06	
19	0.77	0.06	2.30	0.06	1.06	0.03	0.57	0.08	0.83	0.04	1.12	0.03	1.82	0.04	2.03	0.07	1.36	0.04			0.99	0.02	0.99	0.06	
20	0.91	0.04	0.67	0.03	1.09	0.05	2.06	0.07	1.31	0.05	0.43	0.01	1.15	0.02	0.70	0.02	1.23	0.04			2.84	0.02	0.38	0.02	
21	0.69	0.05	0.24	0.04	0.88	0.03	1.57	0.03	0.22	0.05	0.72	0.02	0.80	0.02	1.04	0.03	1.99	0.05			0.78	0.02	0.42	0.01	
22	1.28	0.08	0.39	0.01	0.92	0.02	0.41	0.07	0.88	0.04	0.76	0.02	2.30	0.05	1.09	0.04	2.08	0.04			2.70	0.04	0.28	0.01	
23	0.81	0.08	0.23	0.01	1.11	0.04	0.48	0.05	0.75	0.04	0.36	0.02	1.11	0.03	0.80	0.03	2.38	0.05			0.32	0.02	0.40	0.01	
24	2.55	0.10	0.34	0.02	1.01	0.04	1.80	0.10	1.16	0.05	0.53	0.02	0.71	0.02	0.86	0.03	2.32	0.05			0.24	0.04	0.81	0.01	
25	0.68	0.08	0.46	0.02	2.77	0.10	1.35	0.04	0.88	0.03	0.59	0.02	0.71	0.03	1.18	0.02	2.66	0.05			0.33	0.02	0.42	0.01	
26	0.53	0.03	0.73	0.01	1.44	0.04	2.69	0.05	2.76	0.06	0.42	0.03	1.20	0.04	1.08	0.03	1.59	0.03			1.83	0.05	0.64	0.01	
27	1.22	0.09	0.30	0.01	2.00	0.11	1.84	0.04	2.10	0.04	0.52	0.03	2.28	0.05	0.78	0.03	2.38	0.05			1.38	0.03	0.46	0.02	
28	0.58	0.02	0.46	0.01	0.88	0.03	0.67	0.03	1.45	0.04	0.90	0.02	3.41	0.10	0.62	0.02	1.37	0.06			0.37	0.01	0.60	0.01	
29	2.23	0.09	0.33	0.01	0.79	0.04	0.66	0.04	1.88	0.04	0.38	0.03	0.87	0.03	0.85	0.02	1.20	0.04			0.44	0.01	0.82	0.02	
30	0.73	0.04	0.55	0.02	1.32	0.04	0.90	0.04	1.14	0.06	0.79	0.02	2.23	0.05	0.73	0.02	2.33	0.06			0.47	0.02	0.25	0.01	
31	0.57	0.03	0.29	0.02	0.86	0.05	0.87	0.04	0.91	0.05	0.40	0.01	1.39	0.04	0.82	0.02	1.56	0.05			0.44	0.02	0.54	0.01	
32	1.13	0.07	0.31	0.01	1.47	0.03	1.55	0.04	1.95	0.04	0.21	0.03	0.70	0.02	0.56	0.02	1.28	0.04			0.43	0.05	0.88	0.02	
33	0.55	0.02	0.48	0.02	0.70	0.03	0.70	0.04	2.28	0.09	0.36	0.01	2.36	0.06	0.43	0.02	2.01	0.06			0.95	0.03	0.45	0.01	
34	0.89	0.03	0.37	0.02	1.12	0.02	0.75	0.04	0.79	0.03	0.48	0.02	2.10	0.04	1.48	0.03	1.80	0.03					0.63	0.01	
35	1.17	0.04	0.17	0.03	0.91	0.03	0.41	0.02	1.45	0.08	0.30	0.01	2.05	0.04	0.69	0.02	1.31	0.04					0.33	0.01	
36	0.72	0.04	0.31	0.01	1.07	0.02	0.25	0.01	2.26	0.11	1.01	0.03	1.13	0.03	0.43	0.03	1.45	0.03					0.68	0.02	
37	0.56	0.02	1.12	0.04	0.86	0.05	0.27	0.01	1.80	0.05	1.02	0.08	1.32	0.04	0.68	0.02	1.86	0.04					0.22	0.02	
38	0.56	0.02	0.43	0.03	0.67	0.04	0.29	0.01	0.71	0.03	1.83	0.04	1.44	0.04	0.57	0.02	1.18	0.04					0.67	0.01	
39	0.61	0.02	1.80	0.02	0.46	0.02	0.50	0.02	1.89	0.03	1.51	0.03	1.12	0.03	0.81	0.02	2.54	0.07					0.76	0.02	
40	2.02	0.05	0.60	0.02	1.18	0.04	0.30	0.01	3.44	0.11	1.83	0.04	1.51	0.04	0.52	0.02	2.37	0.05					0.82	0.02	
41	0.74	0.05	0.91	0.02	0.76	0.03	0.17	0.02	2.07	0.06	0.74	0.04	2.07	0.06	0.89	0.03	1.54	0.07					0.81	0.03	
42	0.52	0.02	0.61	0.03	0.75	0.03	0.49	0.01	1.06	0.06	1.32	0.06	2.57	0.06	0.65	0.02	0.86	0.03					0.76	0.03	
43	1.03	0.04	0.79	0.02	0.91	0.03	0.30	0.01	1.19	0.03	1.15	0.04	1.09	0.04	0.63	0.02	0.97	0.03					0.32	0.01	
44	0.58	0.03	0.72	0.02	0.81	0.02	1.41	0.09	2.50	0.09	1.53	0.04	1.99	0.04	0.72	0.02	0.86	0.01					0.66	0.02	
45	0.56	0.03	0.56	0.02	0.82	0.03	3.16	0.10	1.28	0.06	1.34	0.03	1.75	0.05	0.79	0.02	1.03	0.02					1.51	0.03	
46	0.72	0.03	0.57	0.02	1.15	0.05	1.45	0.05	3.04	0.08	1.49	0.04	2.23	0.05	0.42	0.01	1.47	0.04					0.82	0.02	
47	2.74	0.04	0.41	0.03	0.55	0.03	1.67	0.11	0.65	0.04	1.15	0.03	1.34	0.05	0.61	0.02	0.57	0.01					1.04	0.03	
48	0.56	0.02	1.21	0.02	1.85	0.05	1.91	0.07	0.52	0.02	1.01	0.03	1.56	0.05	0.76	0.02	0.56	0.02					1.52	0.03	
49	0.48	0.02	0.66	0.03	0.57	0.02	0.76	0.04	1.84	0.04	1.73	0.04	1.08	0.03	0.74	0.02	0.83	0.02					2.67	0.04	
50	0.55	0.02	0.43	0.02	0.52	0.02	0.82	0.04	2.14	0.10	1.01	0.03	1.30	0.03	0.56	0.03	1.63	0.04					1.59	0.04	
51	0.38	0.02	0.41	0.03	0.66	0.03	2.20	0.10	1.66	0.04	1.12	0.04	2.70	0.09	0.74	0.02	0.65	0.02					0.79	0.04	
52	0.57	0.03	0.77	0.03	1.23	0.03	1.29	0.05	2.05	0.04	0.95	0.03	1.56	0.04	0.66	0.03	0.67	0.02					0.62	0.03	
53	0.49	0.03	0.61	0.03	0.56	0.03	1.44	0.09	1.41	0.03	1.01	0.03	1.81	0.05	0.75	0.02	1.23	0.03					1.11	0.03	
54	1.36	0.04	1.01	0.02	0.82	0.02	0.94	0.02	2.11	0.03	1.04	0.03	1.57	0.05	0.53	0.02	0.52	0.01					1.21	0.03	
55	0.56	0.03	0.26	0.01	0.52	0.02	0.59	0.04	1.03	0.02	0.86	0.03	1.14	0.04	0.80	0.01	1.94	0.05					2.03	0.06	
56	0.67	0.02	0.24	0.01	0.54	0.02	0.63	0.02	0.91	0.03	1.04	0.03	1.24	0.04	0.82	0.02	2.67	0.03					1.39	0.03	
57	0.53	0.02	0.40	0.02	1.75	0.03	0.81	0.04	1.11	0.03	1.03	0.02	1.85	0.05	0.47	0.01	0.83	0.03					1.01	0.03	
58	0.67	0.03	0.59	0.03	0.61	0.02	1.85	0.02	0.82	0.03	0.89	0.02	2.18	0.05	0.45	0.01	2.22	0.05					1.08	0.03	
59	0.49	0.04	0.30	0.01	0.80	0.04	0.66	0.02	1.76	0.06	1.23	0.03	2.05	0.08	0.72	0.02	0.82	0.03					0.90	0.02	
60	0.50	0.01	0.38	0.01	1.04	0.02	0.72	0.02	1.14	0.04	0.91	0.02	1.75	0.07	0.80	0.03	1.66	0.06					1.11	0.03	
61	0.45	0.02	0.38	0.01	0.91	0.03	0.48	0.02	1.43	0.03	0.71	0.02	1.52	0.07	0.74	0.02	1.29	0.03					0.83	0.03	
62	0.47	0.03	0.41	0.01	0.54	0.03	0.98	0.02	1.72	0.04	0.45	0.02	0.99	0.03	0.60	0.02	1.17	0.04					1.02	0.02	
63	0.50	0.03	0.47	0.01	0.79	0.04	0.45	0.02	1.67	0.05	0.54	0.02	1.01	0.03	0.42	0.01	0.89	0.03					1.20	0.04	
64	1.16	0.02	0.28	0.01	0.67	0.04	0.69	0.02	0.88	0.05	0.34	0.02	1.99	0.05	0.40	0.02	1.22	0.04					0.83	0.04	
65	0.48	0.03	0.38	0.01	0.79	0.03	0.64	0.03	1.16	0.02	0.42	0.02	2.32	0.06	0.50	0.02	1.62	0.04					0.96	0.04	
66	0.45	0.02	0.22	0.04	0.45	0.02	0.49	0.02	2.34	0.05	0.44	0.01	0.98	0.03	0.76	0.01	3.65	0.03					0.65	0.03	
67	0.30	0.01	0.21	0.03	0.43	0.02	0.72	0.03	1.18	0.03	0.18	0.04	0.99	0.03	0.35	0.02	1.42	0.03					0.81	0.02	
68	0.31	0.05	0.59	0.03	0.43	0.02	1.03	0.02	1.03	0.03	0.43	0.02	1.16	0.04	0.58	0.01	1.13	0.03					0.96	0.02	
69	0.24	0.04	0.25	0.01	0.62	0.03	0.82	0.02	0.63	0.03	1.00	0.02	1.48	0.05	0.57	0.02	2.19	0.06					1.18	0.03	
70	0.48	0.02	0.45	0.02	0.68	0.02	0.65	0.02	1.10	0.03	0.46	0.01	1.76	0.05	0.75	0.03	0.75	0.03					0.22	0.04	
71	0.45	0.02	0.36	0.03	0.56	0.01	0.61	0.02	0.69	0.02	0.73	0.02	1.29	0.04	0.26	0.02	1.11	0.03					0.54	0.01	
72	0.41	0.01	0.32	0.02	0.45	0.02	0.53	0.03	0.45	0.01	0.26	0.02	1.06	0.03	0.59	0.01	1.08	0.04					2.19	0.01	
73	0.62	0.02	0.39	0.01	0.39	0.01	0.48	0.02	0.88	0.02	0.40	0.02	1.03	0.03	0.46	0.02	0.71	0.02					0.24	0.05	
74	0.45	0.02	0.15	0.01	0.50	0.02	0.52	0.03	1.95	0.04	0.53	0.01	0.81	0.02	0.44	0.02	1.14	0.04					0.78	0.01	
75	0.81	0.04	1.33	0.05	1.30	0.03	0.59	0.02	0.78	0.04	0.55	0.02	1.10	0.03	1.13	0.04	1.36	0.03					0.30	0.04	
76	0.42	0.02	0.68	0.02	0.51	0.02	0.74	0.02	0.75	0.02	0.48	0.01	0.82	0.02	0.77	0.03	1.47	0.03					0.19	0.05	
77	1.15	0.04	0.15	0.03	0.59	0.02	0.60	0.11	1.05	0.04	0.80	0.03	1.08	0.03	0.46	0.01	1.25	0.04					0.46	0.02	
78	0.28	0.04	0.35	0.03	0.36	0.01	0.46	0.02	0.88	0.02	0.72	0.02	1.23	0.03	0.49	0.01	0.38	0.02					0.29	0.04	
79	0.31	0.01	0.41	0.02	0.77	0.02	0.46	0.02	0.61	0.02	0.82	0.03	1.05	0.04	0.59	0.02	0.47	0.01					0.53	0.02	
80	0.22	0.04	0.67	0.04	0.65	0.03	0.53	0.01	0.99	0.02	1.86	0.03	0.84	0.03	0.37	0.01	0.26	0.03					0.60	0.02	
81	0.80	0.03	0.57	0.03	0.89	0.03	0.52	0.01	0.52	0.02	0.53	0.02	1.18	0.03	0.56	0.02	0.61	0.02					1.03	0.02	
82	0.23	0.03	0.34	0.03	0.69	0.02	0.65	0.02	0.50	0.02	1.00	0.03	1.13	0.04	0.52	0.02	0.82	0.04					0.25	0.04	
83	0.22	0.04	0.50	0.02	0.53	0.01	0.76	0.01	0.67	0.02	0.63	0.02	1.02	0.03	0.56	0.02	1.17	0.04					0.92	0.03	
84	0.36	0.02	0.34	0.02	0.58	0.02	0.43	0.01	0.51	0.02	0.62	0.02	1.07	0.03	0.28	0.02	1.14	0.03					2.07	0.03	
85	0.62	0.02	0.26	0.01	0.80	0.05	0.65	0.02	0.88	0.02	1.93	0.03	1.32	0.02	0.65	0.02	0.91	0.02					1.43	0.04	
86	0.50	0.02	0.46	0.02	1.23	0.04	0.37	0.02	1.77	0.04	0.67	0.02	1.08	0.03	0.56	0.01	0.54	0.02					2.06	0.04	
87	0.53	0.02	0.54	0.02	0.58	0.02	0.47	0.02	0.66	0.02	0.71	0.02	1.40	0.02	1.13	0.02	0.72	0.02					1.48	0.03	
88	0.41	0.05	0.54	0.03	0.85	0.04	0.35	0.02	0.78	0.04	0.55	0.02	1.18	0.04	0.61	0.02	1.46	0.02					1.01	0.03	
89	0.49	0.02	0.66	0.02	0.47	0.01	0.78	0.02	0.56	0.03	0.58	0.02	1.39	0.03	0.49	0.01	0.97	0.02					0.93	0.04	
90	0.48	0.02	0.29	0.02	0.44	0.02	0.83	0.01	0.77	0.02	0.51	0.02	1.19	0.04	0.36	0.01	1.57	0.03					2.35	0.05	
91	0.68	0.02	0.32	0.01	0.65	0.02	0.50	0.01	0.29	0.04	1.57	0.03	1.05	0.02	0.36	0.02	1.18	0.04					2.26	0.05	
92	0.35	0.02	0.45	0.02	0.47	0.02	0.60	0.02	0.41	0.01	1.82	0.04	0.74	0.02	0.63	0.01	1.10	0.04					1.66	0.07	
93	0.60	0.03	0.29	0.01	1.34	0.02	0.59	0.02	1.12	0.03	0.65	0.03	1.08	0.03	0.29	0.01	0.90	0.03					0.24	0.04	
94	0.51	0.02	0.68	0.02	0.75	0.02	0.61	0.03	0.47	0.02	0.94	0.02	1.18	0.03	0.68	0.02	1.16	0.03					0.53	0.01	
95	0.28	0.01	0.56	0.03	0.67	0.02	0.58	0.04	0.40	0.01	0.44	0.02	1.46	0.03	0.56	0.03	0.73	0.02					0.55	0.02	
96	0.39	0.02	0.32	0.01	0.38	0.02	0.73	0.01	0.43	0.06	1.60	0.03	1.70	0.03	0.32	0.01	0.44	0.03					0.20	0.05	
97	0.67	0.02	0.50	0.01	0.89	0.05	0.56	0.02	0.58	0.02	0.88	0.03	0.57	0.02	0.50	0.01	0.70	0.02					0.22	0.04	
98	0.82	0.03	0.72	0.02	0.84	0.04	0.49	0.02	1.17	0.02	0.82	0.03	1.15	0.04	0.72	0.02	1.05	0.02					0.49	0.03	
99	0.19	0.03	0.48	0.01	0.90	0.03	0.73	0.01	0.74	0.02	2.25	0.02	1.07	0.03	0.48	0.01	0.63	0.02					0.95	0.02	
100	0.33	0.01	0.93	0.01	1.07	0.05			0.56	0.02	0.48	0.01	1.46	0.04	0.93	0.01							0.41	0.06	

Size measurements nematodes Weddell Sea

K3	0-1 cm,1		0-1 cm,2		1-2 cm,1		1-2 cm,2		2-3 cm,1		2-3 cm,2		3-4 cm,1		3-4 cm,2		4-5 cm,1		4-5 cm,2		5-10 cm,1		5-10 cm,2		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
1	1.15	0.04	1.06	0.04	2.97	0.04	0.30	0.02	1.80	0.07	0.56	0.01	1.06	0.03	1.55	0.03	2.08	0.04	1.51	0.03	1.16	0.04			
2	0.52	0.02	0.98	0.04	1.49	0.03	0.54	0.02	0.89	0.06	0.94	0.04	0.53	0.02	1.08	0.03	2.49	0.06	1.19	0.03	0.97	0.03			
3	0.79	0.03	1.44	0.03	1.14	0.03	0.30	0.01	0.74	0.02	0.51	0.02	1.16	0.03	1.49	0.03	2.10	0.06	2.44	0.06	1.92	0.09			
4	0.83	0.05	0.28	0.01	0.64	0.02	1.12	0.02	0.90	0.03	1.53	0.06	2.95	0.10	0.75	0.02	2.44	0.07	2.86	0.05	0.82	0.03			
5	0.49	0.01	1.38	0.06	0.61	0.02	1.19	0.03	1.10	0.03	0.61	0.02	1.06	0.03	1.07	0.03	0.92	0.04	2.42	0.05	1.32	0.06			
6	0.79	0.03	0.32	0.04	1.14	0.03	0.43	0.01	0.84	0.02	0.64	0.02	1.96	0.06	0.84	0.03	1.27	0.05	2.87	0.05	0.95	0.04			
7	0.71	0.02	0.44	0.02	4.02	0.04	0.47	0.02	1.16	0.03	1.14	0.05	3.43	0.10	0.42	0.03	1.19	0.04	1.84	0.04	0.87	0.03			
8	0.74	0.02	0.68	0.03	1.80	0.04	1.13	0.05	1.04	0.03	0.70	0.02	1.50	0.08	1.05	0.03	3.05	0.10	1.75	0.04	1.89	0.11			
9	0.42	0.02	0.35	0.02	1.04	0.03	0.59	0.02	1.05	0.03	1.13	0.03	0.94	0.04	0.87	0.01	2.64	0.09	1.19	0.04	2.25	0.05			
10	0.96	0.06	0.67	0.02	1.12	0.04	0.47	0.02	1.07	0.03	0.74	0.02	1.76	0.04	1.03	0.03	0.38	0.05	2.84	0.05	1.35	0.07			
11	0.47	0.03	0.80	0.01	1.15	0.04	0.98	0.02	0.63	0.02	0.47	0.02	1.70	0.09	2.49	0.06	2.84	0.09	1.13	0.03	3.56	0.11			
12	0.40	0.01	0.33	0.02	1.21	0.04	0.42	0.02	0.57	0.02	1.32	0.02	1.87	0.05	0.91	0.02	2.20	0.05	1.71	0.05	0.95	0.07			
13	0.31	0.01	1.63	0.04	2.32	0.08	0.50	0.02	0.36	0.02	1.08	0.03	1.13	0.05	0.74	0.01	1.09	0.04	1.90	0.04	5.21	0.09			
14	0.79	0.02	0.62	0.03	1.50	0.07	0.59	0.03	0.44	0.02	1.11	0.04	2.23	0.05	1.17	0.04	2.06	0.06	2.04	0.05	1.98	0.05			
15	1.01	0.03	0.43	0.02	1.13	0.04	0.59	0.03	0.56	0.02	1.57	0.04	1.02	0.04	1.20	0.04	1.39	0.03	1.20	0.06	1.19	0.08			
16	0.77	0.02	0.44	0.02	1.25	0.09	0.35	0.06	0.46	0.01	1.27	0.06	0.73	0.03	0.19	0.04	1.01	0.03	2.46	0.06	0.95	0.05			
17	0.30	0.01	0.58	0.02	0.88	0.03	1.22	0.04	0.36	0.02	1.35	0.05	0.59	0.05	0.89	0.03	2.25	0.04	1.13	0.02	1.81	0.09			
18	0.40	0.01	0.49	0.02	0.96	0.04	0.86	0.02	0.33	0.01	1.09	0.03	1.12	0.04	1.04	0.04	2.37	0.06	0.29	0.05	0.89	0.05			
19	0.60	0.01	0.47	0.02	0.86	0.03	2.20	0.04	0.57	0.02	0.93	0.06	1.28	0.04	0.61	0.01	1.03	0.03	0.70	0.04	1.54	0.05			
20	0.35	0.01	0.45	0.02	4.34	0.07	0.59	0.03	0.38	0.02	0.96	0.03	1.07	0.03	1.00	0.01	1.50	0.04	1.03	0.03	0.72	0.04			
21	0.31	0.02	0.54	0.02	0.58	0.02	0.47	0.02	0.38	0.01	0.70	0.02	1.21	0.03	0.94	0.02	0.48	0.02	1.71	0.04	0.89	0.05			
22	0.54	0.02	0.48	0.03	0.38	0.04	0.48	0.02	0.40	0.01	1.03	0.02	1.12	0.03	1.11	0.03	0.50	0.02	1.34	0.04	1.08	0.03			
23	0.24	0.01	0.77	0.03	0.52	0.01	0.45	0.01	0.33	0.02	2.77	0.07	2.26	0.06	1.81	0.06	1.00	0.03	2.24	0.05	2.10	0.05			
24	0.37	0.01	1.28	0.02	0.79	0.02	0.59	0.02	0.45	0.02	1.15	0.03	1.15	0.04	0.67	0.01	0.50	0.02	2.89	0.09	0.95	0.02			
25	0.40	0.02	0.85	0.03	0.24	0.01	0.63	0.03	1.11	0.03	0.97	0.03	2.18	0.05	1.12	0.03	0.96	0.02	1.78	0.04	2.19	0.05			
26	0.38	0.02	0.34	0.02	0.29	0.01	0.37	0.01	0.81	0.04	0.41	0.03	1.20	0.04	0.93	0.02	0.58	0.02	1.21	0.03	2.40	0.06			
27	0.54	0.02	0.45	0.02	0.25	0.01	1.18	0.02	1.14	0.04	0.48	0.01	1.06	0.03	0.62	0.02	0.64	0.01	0.84	0.03	1.17	0.03			
28	0.25	0.01	0.75	0.02	0.30	0.03	0.74	0.03	0.94	0.03	0.93	0.02	1.10	0.03	0.45	0.02	0.87	0.03	0.62	0.05	1.68	0.05			
29	0.56	0.03	1.32	0.03	0.66	0.02	0.48	0.02	1.20	0.03	2.54	0.05	1.07	0.03	0.53	0.01	0.65	0.02	0.72	0.01	1.04	0.03			
30	0.56	0.01	0.50	0.03	0.31	0.01	0.65	0.02	0.90	0.03	1.20	0.03	1.17	0.03	0.34	0.01	0.48	0.01	0.53	0.02	1.04	0.03			
31	1.80	0.03	0.53	0.03	0.27	0.01	0.74	0.04	1.10	0.03	0.16	0.02	1.11	0.03	0.39	0.01	0.50	0.02	1.38	0.03	0.81	0.02			
32	0.39	0.02	0.36	0.05	0.31	0.02	0.63	0.02	0.64	0.03	0.84	0.02	1.09	0.04	0.53	0.02	0.41	0.02	1.02	0.05	1.90	0.03			
33	0.93	0.03	0.46	0.02	0.26	0.01	1.42	0.04	0.78	0.02	1.07	0.01	0.70	0.01	1.15	0.03	0.46	0.01	2.66	0.09	0.86	0.02			
34	0.63	0.03	0.40	0.01	0.59	0.03	1.07	0.02	1.07	0.03	0.96	0.03	0.50	0.02	0.37	0.02	0.58	0.01	1.09	0.03	1.05	0.03			
35	0.33	0.02	0.45	0.02	0.25	0.02	0.77	0.04	1.12	0.04	0.92	0.03	0.46	0.03	2.92	0.09	0.31	0.01	0.96	0.03	1.62	0.03			
36	3.61	0.12	0.28	0.02	0.29	0.01	0.55	0.03	1.11	0.04	1.03	0.03	0.65	0.01	0.65	0.02	2.62	0.03	0.43	0.02	1.76	0.04			
37	0.52	0.02	0.59	0.02	1.24	0.04	2.11	0.05	1.13	0.04	1.04	0.03	0.43	0.01	0.50	0.01	2.21	0.03	0.49	0.01	0.50	0.04			
38	0.46	0.02	0.78	0.02	0.99	0.04	1.31	0.03	1.96	0.04	1.27	0.03	0.73	0.02	2.66	0.07	0.87	0.02	0.43	0.01	1.76	0.04			
39	1.28	0.03	0.81	0.01	0.88	0.05	0.80	0.03	1.08	0.03	0.70	0.02	0.63	0.02	0.60	0.02	0.67	0.02	1.54	0.03	1.07	0.03			
40	0.66	0.03	0.94	0.04	0.75	0.02	1.24	0.02	1.14	0.03	1.16	0.03	0.41	0.01	1.53	0.03	1.02	0.02	0.48	0.01	1.44	0.04			
41	1.11	0.03	0.49	0.02	0.54	0.03	0.94	0.04	0.65	0.03	0.72	0.01	0.55	0.02	0.75	0.02	0.96	0.02	0.69	0.01	1.50	0.04			
42	0.52	0.01	0.49	0.03	1.01	0.04	0.44	0.02	1.06	0.04	0.56	0.02	0.64	0.02	0.77	0.02	0.89	0.03	0.87	0.02	1.01	0.03			
43	2.45	0.03	0.71	0.03	0.60	0.03	0.45	0.03	0.85	0.04	1.13	0.04	0.41	0.02	0.84	0.02	1.88	0.04	0.36	0.02	1.69	0.04			
44	0.52	0.01	0.47	0.02	1.15	0.03	0.57	0.02	0.65	0.03	1.24	0.05	0.62	0.02	0.85	0.02	1.71	0.03	1.42	0.02	1.17	0.03			
45	0.44	0.01	0.57	0.02	0.90	0.03	0.83	0.04	1.04	0.03	1.13	0.03	0.25	0.04	1.12	0.03	0.73	0.02	0.74	0.02	1.05	0.03			
46	0.31	0.01	0.47	0.01	1.10	0.04	1.20	0.04	1.88	0.03	0.97	0.04	0.46	0.02	0.88	0.02	0.61	0.02	2.00	0.05	0.98	0.03			
47	0.35	0.01	0.41	0.01	0.84	0.04	0.40	0.02	1.39	0.05	1.11	0.04	0.50	0.02	0.64	0.03	1.83	0.04	0.71	0.02	1.82	0.04			
48	0.64	0.02	0.35	0.02	1.10	0.04	0.60	0.02	0.80	0.03	1.52	0.03	0.48	0.01	0.45	0.02	1.17	0.03	3.10	0.10	1.11	0.03			
49	0.61	0.02	0.43	0.03	1.06	0.04	0.35	0.02	0.96	0.03	0.66	0.02	1.10	0.04	0.61	0.02	0.69	0.03	3.04	0.09	0.60	0.03			
50	0.56	0.02	0.32	0.01	0.92	0.05	0.70	0.04	1.28	0.05	0.87	0.02	1.11	0.03	1.40	0.03	1.61	0.03	1.11	0.04	0.81	0.02			
51	0.51	0.01	0.24	0.02	1.13	0.03	0.52	0.02	1.17	0.05	0.84	0.02	0.89	0.03	0.85	0.02	1.09	0.03	1.98	0.05	0.70	0.02			
52	0.40	0.02	1.45	0.06	1.45	0.03	0.52	0.02	0.61	0.03	0.83	0.03	1.07	0.04	0.78	0.01	0.77	0.02	1.73	0.10	0.76	0.02			
53	0.40	0.03	0.35	0.01	0.89	0.03	0.28	0.01	1.08	0.04	0.37	0.01	0.77	0.02	0.94	0.03	0.56	0.02	0.60	0.02	0.96	0.03			
54	0.56	0.02	0.37	0.02	0.50	0.02	0.37	0.03	1.06	0.03	1.06	0.03	1.09	0.01	1.18	0.04	0.98	0.03	1.10	0.02	0.57	0.02			
55	1.11	0.03	0.17	0.03	1.16	0.03	0.42	0.02	1.17	0.04	0.66	0.02	1.10	0.04	0.84	0.01	0.98	0.02	2.38	0.06	1.15	0.03			
56	0.34	0.04	0.38	0.03	1.09	0.03	0.74	0.02	0.95	0.03	0.53	0.01	1.08	0.03	0.87	0.02	1.78	0.04	2.28	0.05	0.86	0.02			
57	0.40	0.01	0.48	0.03	0.91	0.03	0.91	0.02	1.18	0.04	0.70	0.03	1.09	0.03	0.61	0.03	1.38	0.06	2.23	0.05	0.42	0.01			
58	0.40	0.01	0.33	0.02	1.36	0.03	0.26	0.01	1.07	0.03	0.51	0.02	0.97	0.03	0.49	0.02	0.81	0.03	2.50	0.04	0.68	0.02			
59	0.48	0.01	0.54	0.03	1.17	0.04	0.44	0.02	0.72	0.04	0.39	0.01	0.87	0.03	0.71	0.02	1.22	0.04	0.81	0.02	0.62	0.02			
60	0.48	0.02	0.37	0.02	0.87	0.02	0.30	0.02	2.25	0.06	0.55	0.02	1.10	0.03	2.69	0.11	1.01	0.03	1.59	0.04	0.99	0.03			
61	0.57	0.02	0.70	0.03	0.90	0.02	0.33	0.01	0.67	0.02	1.14	0.04	1.09	0.03	0.67	0.02	0.99	0.02	1.07	0.03	0.88	0.01			
62	0.68	0.03	0.50	0.02	0.98	0.03	0.58	0.02	0.92	0.03	1.28	0.06	1.03	0.03	1.01	0.03	1.11	0.03	2.19	0.03	0.58	0.01			
63	0.95	0.02	0.60	0.02	1.09	0.03	1.94	0.03	0.68	0.03	1.11	0.04	1.13	0.04	0.73	0.02	1.17	0.03	0.44	0.01	0.63	0.02			
64	1.88	0.04	0.57	0.02	1.11	0.03	0.60	0.03	0.58	0.03	1.15	0.03	1.16	0.04	1.03	0.03	0.48	0.02	0.53	0.02	0.34	0.02			
65	0.56	0.01	0.60	0.03	0.84	0.02	1.57	0.07	0.66	0.03	1.12	0.03	1.07	0.03	2.62	0.05	0.73	0.02	0.40	0.01	0.38	0.01			
66	0.59	0.03	0.74	0.01	0.53	0.03	0.50	0.02	1.19	0.04	1.09	0.03	1.12	0.04	1.44	0.03	0.63	0.02	0.79	0.02	0.37	0.01			
67	0.96	0.01	0.39	0.02	0.49	0.02	0.56	0.01	1.06	0.04	2.12	0.06	2.03	0.03	2.12	0.03	0.85	0.03	0.54	0.02	0.35	0.01			
68	0.60	0.02	1.24	0.02	0.63	0.02	0.28	0.03	0.72	0.03	0.66	0.02	1.02	0.03	0.68	0.01	0.62	0.02	1.20	0.02	0.64	0.01			
69	0.46	0.01	0.65	0.02	1.08	0.04	0.48	0.01	1.05	0.03	0.60	0.02	1.09	0.03	1.20	0.03	1.12	0.03	0.52	0.01	0.82	0.02			
70	1.06	0.01	0.38	0.02	1.11	0.03	0.38	0.01	1.07	0.04	1.08	0.03	1.10	0.03	1.88	0.05	0.57	0.02	0.61	0.01	0.34	0.02			
71	0.24	0.01	0.26	0.02	0.57	0.03	2.09	0.02	0.63	0.04	0.73	0.02	1.08	0.04	0.43	0.01	1.35	0.03	0.59	0.01	0.57	0.01			
72	0.55	0.02	0.24	0.02	1.43	0.04	0.90	0.03	0.60	0.02	0.56	0.02	0.69	0.02	1.89	0.04	0.83	0.02	0.98	0.02	0.45	0.01			
73	0.55	0.02	0.47	0.01	1.16	0.06	1.36	0.02	1.14	0.03	1.08	0.04	0.86	0.02	1.08	0.04	0.57	0.02	0.58	0.01	1.13	0.05			
74	0.49	0.02	0.59	0.03	0.49	0.01	1.09	0.03	1.03	0.03	2.67	0.04	1.09	0.03	2.87	0.08	1.11	0.04	0.57	0.01	1.95	0.04			
75	0.28	0.01	0.54	0.02	1.11	0.03	0.86	0.04	0.93	0.03	1.46	0.04	0.78	0.02	1.70	0.03	1.13	0.04	1.63	0.01	0.96	0.04			
76	0.51	0.01	0.76	0.02	0.44	0.01	0.50	0.01	0.97	0.04	1.47	0.04	0.70	0.04	1.78	0.04	1.15	0.04	1.12	0.03	1.05	0.03			
77	0.30	0.02	0.64	0.04	0.39	0.02	0.55	0.02	1.03	0.04	1.72	0.03	0.71	0.02	2.03	0.04	0.82	0.03	0.98	0.01	1.08	0.03			
78	0.31	0.01	0.51	0.02	0.64	0.02	0.96	0.04			1.16	0.03	0.81	0.03	2.46	0.05	1.04	0.04	1.00	0.02	0.79	0.02			
79	0.38	0.02	1.32	0.05	0.41	0.02	0.81	0.03			0.88	0.02	0.73	0.02	1.98	0.15	0.67	0.02	0.99	0.02	1.14	0.03			
80	0.38	0.02	0.28	0.02	0.24	0.01	0.64	0.02			0.86	0.03	1.05	0.03	2.38	0.05	0.78	0.02	0.42	0.01	0.57	0.02			
81	0.34	0.02	0.78	0.02	0.34	0.02	0.45	0.02			1.45	0.03	0.77	0.02	1.07	0.04	1.20	0.04	0.78	0.01	1.02	0.03			
82	0.58	0.02	0.34	0.02	0.28	0.04	0.70	0.02			1.16	0.03	1.06	0.03	1.78	0.04	0.71	0.02	1.11	0.02	2.16	0.03			
83	0.52	0.02	0.59	0.01	0.40	0.01	0.62	0.02			0.75	0.03	0.68	0.02	2.39	0.04	0.93	0.03	0.52	0.01	1.12	0.03			
84	0.40	0.01	0.75	0.03	0.27	0.01	0.45	0.02			2.48	0.05	1.14	0.05	0.99	0.04	0.82	0.02	0.74	0.02	0.91	0.03			
85	0.63	0.02	0.48	0.02	0.29	0.01	0.46	0.02			1.64	0.05	0.31	0.01	1.22	0.03	0.68	0.02	0.51	0.02	0.91	0.03			
86	0.42	0.01	2.70	0.08	0.69	0.01	0.30	0.02			1.28	0.03	0.31	0.01	2.49	0.06	1.13	0.04			1.83	0.04			
87	0.58	0.02	0.91	0.02	0.33	0.01	0.73	0.02			1.95	0.04	0.76	0.01	2.35	0.06	0.59	0.02			0.97	0.02			
88	1.00	0.02	0.40	0.03	0.27	0.01	0.58	0.02			0.93	0.02	0.69	0.02	2.65	0.08	0.71	0.02			1.29	0.03			
89	0.60	0.02	1.23	0.02	0.30	0.02	0.41	0.01			1.05	0.03	0.38	0.01	1.80	0.05	1.66	0.05			1.04	0.03			
90	0.26	0.02	0.69	0.03	0.47	0.02	0.61	0.03			2.36	0.06	0.58	0.01	1.82	0.04	0.97	0.02			1.31	0.04			
91	0.32	0.02	0.51	0.02	1.01	0.03	0.52	0.02			1.11	0.03	0.48	0.02	1.94	0.06	0.81	0.02			1.07	0.03			
92	0.39	0.01	0.44	0.02	0.50	0.02	0.87	0.04			1.20	0.03	0.42	0.01	1.97	0.05	1.06	0.03			0.66	0.03			
93	0.56	0.01	0.53	0.01	2.53	0.03	0.44	0.02			0.79	0.02	0.37	0.02	2.16	0.04	1.00	0.03			1.85	0.03			
94	0.35	0.02	0.46	0.02	1.07	0.03	0.61	0.02			0.95	0.03	0.61	0.02	2.27	0.04	1.18	0.03			1.28	0.04			
95	0.64	0.03	0.25	0.01	1.09	0.03	0.52	0.01			0.19	0.02	0.41	0.02	0.52	0.02	0.55	0.02			1.44	0.05			
96	0.49	0.02	0.35	0.01	0.43	0.02	1.00	0.02			1.58	0.03	0.46	0.01	0.77	0.02	0.89	0.02			1.00	0.02			
97	0.60	0.02	1.10	0.07	0.48	0.02	0.43	0.02			0.19	0.02	0.39	0.01	1.16	0.04	1.06	0.03			1.13	0.03			
98	0.50	0.01	0.63	0.03	1.22	0.04	1.71	0.09			0.50	0.01	1.11	0.04	0.84	0.03	1.07	0.03			2.51	0.05			
99	0.60	0.03	0.76	0.04	1.24	0.03	0.51	0.02			0.59	0.02	0.52	0.02	1.27	0.03	0.77	0.03			1.26	0.05			
100	0.49	0.01	0.57	0.03	2.27	0.02	0.87	0.04			0.95	0.03	0.28	0.01	1.73	0.04	1.00	0.03			1.05	0.03			

Size measurements nematodes Weddell Sea

K5	0-1 cm,1		0-1 cm,2		1-2 cm,1		1-2 cm,2		2-3 cm,1		2-3 cm,2		3-4 cm,1		3-4 cm,2		4-5 cm,1		4-5 cm,2		5-10 cm,1		5-10 cm,2		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
1	1.08	0.06	1.49	0.03	2.50	0.09	1.42	0.03	1.22	0.04	1.16	0.05	3.49	0.04	1.66	0.03	1.20	0.03	1.07	0.04	1.39	0.04	1.58	0.03	
2	0.55	0.02	0.65	0.02	2.41	0.07	0.53	0.02	1.26	0.04	1.82	0.11	1.16	0.03	1.31	0.04	2.50	0.05	1.06	0.02	1.24	0.04	2.27	0.03	
3	0.73	0.04	0.91	0.03	0.58	0.03	0.31	0.04	0.93	0.03	0.33	0.04	2.49	0.04	0.71	0.02	1.32	0.03	2.16	0.04	1.16	0.03	1.18	0.05	
4	0.91	0.03	1.35	0.03	1.59	0.05	1.22	0.04	1.00	0.03	0.38	0.05	1.12	0.03	1.09	0.03	0.91	0.02	1.36	0.04	1.33	0.04	1.52	0.04	
5	3.03	0.11	2.37	0.05	2.10	0.08	3.04	0.05	1.13	0.03	0.71	0.02	0.98	0.03	1.38	0.03	1.20	0.04	1.55	0.05	1.24	0.04	1.36	0.04	
6	0.97	0.04	0.66	0.02	1.12	0.04	0.45	0.04	1.42	0.05	1.09	0.04	2.31	0.05	1.32	0.05	1.33	0.04	1.03	0.03	1.17	0.04	1.70	0.06	
7	1.35	0.09	0.34	0.06	2.68	0.04	0.61	0.02	1.10	0.03	1.44	0.03	2.29	0.03	1.15	0.03	1.46	0.08	1.08	0.04	2.33	0.05	1.51	0.03	
8	0.98	0.02	1.97	0.02	0.92	0.02	1.99	0.04	1.03	0.03	1.71	0.07	2.24	0.07	1.64	0.09	2.65	0.03	1.24	0.04	1.04	0.03	2.05	0.03	
9	0.83	0.02			2.48	0.05	1.29	0.03	1.28	0.04	1.22	0.03	1.22	0.04	1.13	0.03	1.20	0.04	1.07	0.03	1.14	0.03	1.46	0.03	
10	2.10	0.02			2.23	0.05	1.27	0.04	0.62	0.02	1.05	0.03	1.86	0.05	0.87	0.02	1.07	0.04	1.49	0.03	1.24	0.04	1.09	0.03	
11	1.21	0.04			0.57	0.03	1.77	0.07	2.26	0.02	0.95	0.03	1.25	0.04	1.46	0.03	1.27	0.03	1.86	0.04	1.20	0.04	1.25	0.04	
12	1.14	0.03			1.84	0.04	1.37	0.05	0.95	0.03	1.03	0.03	0.94	0.03	1.08	0.03	1.17	0.03	1.21	0.04	1.22	0.04	0.98	0.03	
13	1.86	0.04			1.14	0.03	2.00	0.10	1.02	0.03	0.65	0.03	2.29	0.05	0.66	0.02	1.93	0.06	0.88	0.02	1.28	0.04	1.77	0.04	
14	0.42	0.07			1.24	0.03	0.74	0.02	1.04	0.03	0.93	0.02	1.14	0.04	0.79	0.02	1.17	0.03	1.09	0.03	1.06	0.05	1.18	0.03	
15	0.74	0.04			1.22	0.03	0.47	0.06	0.88	0.03	0.88	0.02	1.31	0.05	1.09	0.02	1.32	0.04	0.69	0.02	0.96	0.02	1.12	0.03	
16	1.59	0.03			2.91	0.10	1.50	0.05	0.59	0.02	1.27	0.03	1.30	0.04	1.66	0.03	1.12	0.04	0.71	0.02	1.32	0.03	1.16	0.04	
17	1.63	0.03			1.58	0.05	1.17	0.04	1.23	0.04	1.04	0.03	1.22	0.04	1.31	0.03	1.00	0.03	1.39	0.04	0.64	0.02	1.09	0.03	
18	2.19	0.04			2.10	0.03	1.02	0.04	1.25	0.04	1.06	0.03	1.01	0.03	1.04	0.04	0.98	0.03	1.30	0.04	0.95	0.03	1.07	0.03	
19	0.70	0.02			1.91	0.04	1.16	0.05	1.28	0.03	1.97	0.03	1.17	0.04	0.65	0.02	0.94	0.04	0.86	0.02	1.30	0.04	0.94	0.03	
20	1.22	0.06			1.10	0.04	0.98	0.02	1.31	0.03	2.55	0.08	1.20	0.04	0.75	0.02	1.24	0.04	1.15	0.04	1.12	0.03	1.59	0.03	
21	1.12	0.03			2.00	0.05	0.68	0.02	1.33	0.05	1.81	0.07	0.93	0.02	0.89	0.02	1.29	0.05	1.99	0.05	1.08	0.03	1.34	0.04	
22	1.75	0.03			2.01	0.03	1.26	0.02	1.33	0.06	2.30	0.04	1.06	0.03	0.51	0.04	1.23	0.04	1.35	0.03	1.11	0.03	1.05	0.03	
23	0.43	0.02			1.28	0.04	2.00	0.02	1.22	0.04	0.90	0.04	1.13	0.03	0.95	0.03	1.20	0.04	1.04	0.03	1.08	0.03	1.46	0.03	
24	0.68	0.02			1.03	0.03	2.43	0.04	1.00	0.03	1.25	0.02	1.13	0.04	0.91	0.02	1.30	0.04	1.15	0.03	1.02	0.03	0.97	0.02	
25	2.76	0.07			1.21	0.04	0.40	0.01	1.31	0.04	3.03	0.02	1.26	0.04	0.34	0.04	0.99	0.03	0.36	0.01	1.19	0.03	0.94	0.03	
26	1.55	0.03			1.28	0.04	0.31	0.05	0.69	0.03	1.16	0.02	1.20	0.04	0.83	0.02	1.19	0.03	1.53	0.02	1.14	0.03	0.51	0.02	
27	0.83	0.02			1.21	0.03			2.33	0.05	1.97	0.04	0.83	0.03	0.60	0.02	0.93	0.02	0.68	0.02	1.16	0.04	0.66	0.02	
28	1.23	0.04			1.02	0.03			2.74	0.05	1.50	0.03	1.13	0.03	1.06	0.04	0.67	0.03	0.63	0.02	1.05	0.04	0.94	0.03	
29	1.05	0.03			0.95	0.02			2.67	0.04	1.22	0.04	1.12	0.03	0.64	0.02	1.23	0.04	0.72	0.02	0.98	0.03	1.14	0.02	
30	0.78	0.02			2.04	0.04			1.21	0.04	1.38	0.04	0.98	0.03	0.48	0.01	1.15	0.03	0.53	0.06	1.21	0.04	0.68	0.02	
31	0.56	0.02			1.79	0.04			1.11	0.04	1.11	0.03	1.19	0.04	1.14	0.03	0.87	0.02	0.31	0.04	0.58	0.02	1.15	0.03	
32	1.16	0.03			2.56	0.04			1.17	0.04	2.08	0.03	1.16	0.04	1.27	0.04	0.89	0.03	0.41	0.04	1.21	0.04	1.18	0.02	
33	0.54	0.03			1.14	0.04			0.94	0.03	1.17	0.03	1.20	0.04	0.55	0.02	0.72	0.02	1.46	0.03	1.01	0.02	0.55	0.01	
34	0.93	0.02			0.71	0.02			1.04	0.03	0.66	0.02	0.94	0.02	0.62	0.02	0.88	0.03	0.67	0.02	0.94	0.02	0.88	0.02	
35	0.53	0.02			1.18	0.04			1.14	0.04	0.74	0.03	1.01	0.03	0.67	0.02	0.86	0.02	0.31	0.05	1.24	0.04	0.69	0.03	
36	0.86	0.02			1.29	0.03			1.03	0.02	0.66	0.02	1.31	0.04	0.42	0.01	0.99	0.03	1.13	0.03	1.16	0.03	1.26	0.04	
37	0.58	0.02			1.18	0.03			1.27	0.04	0.75	0.03	1.58	0.03	0.49	0.02	0.96	0.03	1.77	0.04	0.71	0.02	0.62	0.02	
38	0.95	0.02			1.03	0.03			1.04	0.02	0.85	0.03	1.04	0.03	0.79	0.02	0.76	0.02	0.93	0.03	0.90	0.02	0.99	0.03	
39	0.70	0.02			1.17	0.04			1.06	0.03	0.41	0.06	0.94	0.03	0.98	0.03	0.58	0.02	1.24	0.04	1.25	0.04	0.70	0.03	
40	0.57	0.01			0.90	0.02			0.49	0.02	0.42	0.06	0.81	0.03	0.72	0.02	0.64	0.02	0.35	0.04	0.77	0.02	1.04	0.03	
41	1.03	0.03			1.12	0.03			1.04	0.03	0.54	0.06	1.23	0.04	1.03	0.03	0.53	0.02	0.48	0.01	0.91	0.03	0.99	0.03	
42	0.56	0.02			1.17	0.05			1.09	0.03	1.11	0.04	1.19	0.04	0.58	0.11	0.70	0.02	0.49	0.02	0.98	0.03	0.91	0.03	
43	0.56	0.02			1.24	0.04			0.98	0.02	0.76	0.02	1.15	0.04	0.36	0.04	1.11	0.03	1.16	0.04	1.10	0.03	1.08	0.04	
44	0.57	0.02			1.39	0.02			1.15	0.04	0.87	0.02	1.24	0.03	0.66	0.02	1.03	0.03			0.75	0.02	0.58	0.02	
45	0.56	0.02			1.24	0.04			1.14	0.03	1.76	0.04	1.34	0.03	0.65	0.02	0.67	0.02			0.75	0.02	1.65	0.08	
46	0.70	0.02			1.18	0.03			1.03	0.03	0.35	0.05	0.70	0.02	0.31	0.02	1.66	0.04			1.10	0.03	1.80	0.04	
47	1.38	0.03			1.11	0.03			1.05	0.03	0.56	0.02	0.92	0.02	0.95	0.03	1.21	0.05			0.99	0.02	1.45	0.03	
48	0.73	0.03			1.01	0.02			1.18	0.03	0.72	0.02	1.25	0.04	1.01	0.03	0.97	0.03			0.86	0.03	0.77	0.02	
49	0.55	0.02			0.97	0.02			1.17	0.03	0.33	0.05	1.14	0.03			0.56	0.02			1.14	0.03	0.64	0.02	
50	0.34	0.01			1.41	0.04			1.05	0.03	1.05	0.03	1.01	0.03			0.91	0.03			0.69	0.04	0.63	0.02	
51	0.52	0.02			0.52	0.03			1.17	0.03	0.57	0.02	1.18	0.04			0.91	0.02			1.00	0.03	0.54	0.03	
52	0.59	0.02			1.14	0.03			1.17	0.03	0.38	0.02	1.79	0.03			0.92	0.03			1.04	0.04	0.56	0.02	
53	2.06	0.04			0.71	0.02			0.73	0.02	0.70	0.02	1.10	0.03			0.97	0.02			1.01	0.03	0.54	0.02	
54	0.63	0.02			0.70	0.02			1.27	0.03	0.48	0.02	0.98	0.03			0.71	0.02			1.02	0.02	0.68	0.02	
55	0.61	0.02			1.56	0.04			1.20	0.04	0.84	0.03	0.96	0.03			1.22	0.04			1.17	0.03	1.16	0.02	
56	0.56	0.02			0.93	0.02			1.19	0.04	0.48	0.01	0.98	0.03			0.59	0.02			0.93	0.03	0.35	0.04	
57	0.46	0.02			0.92	0.05			1.14	0.04	0.72	0.01	1.24	0.04			1.10	0.03			1.41	0.04	0.69	0.02	
58	0.83	0.05			1.22	0.02			1.19	0.04	0.45	0.01	0.93	0.02			1.32	0.04			1.08	0.03	1.00	0.03	
59	0.45	0.01			1.32	0.06			2.31	0.05			0.98	0.04			1.14	0.03			1.41	0.03	0.48	0.01	
60	0.55	0.02			0.59	0.02			1.08	0.02			1.09	0.04			0.78	0.02			0.71	0.02	0.61	0.02	
61	0.62	0.02			0.54	0.02			1.06	0.03			1.15	0.03			0.77	0.02			1.17	0.03	0.39	0.05	
62	0.41	0.02			1.18	0.03			0.75	0.02			1.32	0.04			0.82	0.02			0.90	0.02	0.61	0.03	
63	2.61	0.03			0.65	0.04			2.28	0.04			1.23	0.04			0.45	0.01			1.22	0.04	0.61	0.02	
64	0.52	0.01			0.69	0.02			0.88	0.02			0.92	0.02			0.50	0.02			1.06	0.03	0.52	0.02	
65	0.60	0.02			1.89	0.03			1.19	0.03			0.79	0.02			0.71	0.01			0.60	0.02	0.45	0.04	
66	0.36	0.01			1.31	0.03			0.75	0.02			0.91	0.02			0.51	0.02			0.63	0.02	0.70	0.02	
67	0.54	0.02			0.64	0.02			0.91	0.02			1.20	0.03			1.14	0.03			1.18	0.04	0.36	0.04	
68	0.37	0.02			0.53	0.03			1.11	0.03			1.15	0.03			0.63	0.02			1.29	0.04	0.30	0.02	
69	0.83	0.02			0.64	0.03			0.49	0.02			1.24	0.04			0.64	0.01			0.45	0.03	0.52	0.02	
70	0.45	0.02			0.87	0.03			0.70	0.02			0.97	0.03			0.48	0.02			0.67	0.02	0.45	0.02	
71	0.62	0.02			0.83	0.02			1.17	0.04			1.23	0.04							0.62	0.01	0.85	0.03	
72	0.44	0.03			0.53	0.02			1.06	0.05			1.03	0.03							1.27	0.06	0.86	0.02	
73	1.51	0.04			0.75	0.02			0.96	0.03			1.19	0.04							0.68	0.02	0.28	0.03	
74	0.57	0.01			0.40	0.01			1.21	0.05			1.05	0.03							0.66	0.02	0.49	0.02	
75	0.27	0.03			0.34	0.01			0.72	0.02			1.24	0.03							0.93	0.02	0.95	0.02	
76	0.58	0.02			0.48	0.02			1.22	0.04			1.03	0.03							0.67	0.02	0.52	0.01	
77	0.44	0.03			0.49	0.02			1.14	0.04			1.16	0.03							0.67	0.02	0.81	0.02	
78	0.55	0.02			0.51	0.02			0.93	0.03			0.62	0.02							0.58	0.02	0.45	0.01	
79	0.60	0.02			0.68	0.02			0.47	0.02			0.64	0.02							0.72	0.02	0.87	0.03	
80	0.62	0.01			0.34	0.02			0.70	0.03			0.64	0.02							0.34	0.04	0.56	0.02	
81	0.79	0.02			0.23	0.03			0.59	0.02			0.69	0.02							0.78	0.02	0.51	0.03	
82	0.34	0.02			0.41	0.01			0.58	0.02			0.71	0.02							0.59	0.02	0.75	0.02	
83	0.64	0.02			0.48	0.02			1.25	0.03			0.81	0.02							0.63	0.02			
84	2.60	0.08			0.44	0.01			1.07	0.04			0.56	0.02							0.59	0.01			
85	0.62	0.03			0.43	0.01			2.88	0.04			1.04	0.03							0.77	0.02			
86	0.62	0.03			0.56	0.02			0.86	0.02			1.01	0.03							0.89	0.02			
87					0.62	0.02			1.11	0.04			0.88	0.02							0.62	0.02			
88					0.47	0.02			1.16	0.03			0.66	0.02							0.62	0.02			
89					1.84	0.01			1.16	0.03			0.59	0.01							0.81	0.02			
90					0.66	0.02			0.47	0.02			0.59	0.03							0.44	0.02			
91					1.10	0.03			0.44	0.02			0.42	0.01							0.44	0.02			
92					0.34	0.02			0.41	0.05			0.58	0.02							0.75	0.02			
93					0.47	0.02			0.76	0.01			0.44	0.01							0.65	0.02			
94									0.31	0.02			0.59	0.08							0.38	0.01			
95									2.74	0.02			0.31	0.05											
96									1.21	0.04			0.97	0.03											
97									0.34	0.01			0.68	0.02											
98									1.09	0.03															
99									0.66	0.02															
100									0.97	0.01															

Size measurements nematodes Weddell Sea

K6	0-1 cm,1		0-1 cm,2		1-2 cm,1		1-2 cm,2		2-3 cm,1		2-3 cm,2		3-4 cm,1		3-4 cm,2		4-5 cm,1		4-5 cm,2		5-10 cm,1		5-10 cm,2		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
1	0.20	0.01	0.21	0.01	0.25	0.01	0.25	0.03	0.19	0.02	0.31	0.02	0.29	0.03			0.31	0.01	0.37	0.01	0.31	0.02	0.39	0.01	
2	0.25	0.01	0.22	0.01	0.34	0.02	0.25	0.03	0.31	0.01	0.33	0.01	0.29	0.01			0.34	0.01	0.38	0.01	0.34	0.01	0.40	0.01	
3	0.26	0.01	0.26	0.01	0.37	0.02	0.30	0.02	0.33	0.01	0.34	0.01	0.29	0.04			0.36	0.01	0.39	0.01	0.41	0.01	0.51	0.01	
4	0.26	0.01	0.28	0.01	0.38	0.02	0.34	0.02	0.34	0.02	0.35	0.01	0.30	0.01			0.50	0.02	0.50	0.01	0.42	0.01	0.55	0.01	
5	0.28	0.01	0.29	0.02	0.38	0.02	0.34	0.02	0.35	0.02	0.35	0.01	0.36	0.02			0.57	0.02	0.52	0.01	0.44	0.01	0.65	0.02	
6	0.29	0.03	0.29	0.01	0.39	0.02	0.36	0.02	0.36	0.02	0.35	0.02	0.40	0.01			0.57	0.01	0.53	0.02	0.50	0.02	0.91	0.02	
7	0.32	0.01	0.30	0.01	0.39	0.03	0.37	0.02	0.37	0.02	0.38	0.02	0.41	0.01			0.66	0.02	0.59	0.02	0.53	0.01	1.43	0.01	
8	0.32	0.01	0.32	0.02	0.40	0.04	0.37	0.02	0.38	0.01	0.38	0.02	0.44	0.01			0.67	0.02	0.61	0.02	0.55	0.02	1.63	0.02	
9	0.32	0.02	0.33	0.02	0.40	0.02	0.38	0.02	0.38	0.02	0.39	0.02	0.52	0.02			0.68	0.02	0.61	0.01	0.58	0.02			
10	0.32	0.01	0.33	0.01	0.41	0.02	0.39	0.02	0.38	0.01	0.40	0.02	0.54	0.01			0.69	0.02	0.66	0.01	0.60	0.04			
11	0.32	0.01	0.34	0.02	0.41	0.02	0.39	0.02	0.40	0.02	0.41	0.02	0.56	0.02			0.69	0.02	0.67	0.02	0.60	0.02			
12	0.32	0.01	0.35	0.02	0.41	0.02	0.39	0.02	0.42	0.02	0.41	0.04	0.58	0.01			0.70	0.02	0.68	0.02	0.68	0.02			
13	0.34	0.02	0.35	0.02	0.42	0.02	0.40	0.02	0.42	0.02	0.42	0.02	0.58	0.02			0.73	0.02	0.71	0.01	0.74	0.03			
14	0.35	0.01	0.35	0.02	0.42	0.02	0.40	0.01	0.43	0.02	0.43	0.02	0.64	0.02			0.84	0.03	0.73	0.01	0.84	0.03			
15	0.35	0.02	0.35	0.01	0.42	0.02	0.40	0.02	0.47	0.02	0.43	0.02	0.64	0.02			0.85	0.04	0.84	0.02	1.66	0.04			
16	0.35	0.02	0.35	0.02	0.43	0.02	0.40	0.02	0.48	0.02	0.44	0.02	0.68	0.10			0.93	0.01	0.99	0.03					
17	0.36	0.02	0.37	0.02	0.43	0.02	0.40	0.02	0.49	0.03	0.44	0.02	0.68	0.02			0.94	0.03	1.11	0.03					
18	0.36	0.01	0.38	0.02	0.44	0.03	0.41	0.02	0.49	0.02	0.44	0.02	0.68	0.01			0.98	0.03	1.14	0.04					
19	0.36	0.01	0.38	0.02	0.46	0.02	0.42	0.03	0.49	0.02	0.44	0.02	0.69	0.01			1.09	0.01	1.23	0.02					
20	0.36	0.02	0.39	0.02	0.46	0.02	0.43	0.02	0.49	0.03	0.45	0.02	0.71	0.02			1.14	0.03	1.39	0.02					
21	0.38	0.02	0.39	0.01	0.47	0.03	0.43	0.02	0.50	0.02	0.46	0.02	0.72	0.02			1.15	0.01	1.43	0.03					
22	0.38	0.02	0.39	0.02	0.47	0.02	0.43	0.01	0.50	0.02	0.46	0.02	0.73	0.02			1.29	0.02	1.51	0.04					
23	0.38	0.02	0.39	0.02	0.47	0.04	0.43	0.02	0.54	0.02	0.47	0.02	0.75	0.01			1.51	0.03	1.70	0.04					
24	0.39	0.01	0.39	0.01	0.49	0.03	0.43	0.02	0.55	0.02	0.47	0.02	0.75	0.03			1.71	0.02	1.81	0.04					
25	0.40	0.02	0.40	0.02	0.50	0.02	0.44	0.02	0.55	0.02	0.47	0.02	0.76	0.01			1.75	0.04	1.84	0.03					
26	0.40	0.02	0.41	0.02	0.50	0.02	0.44	0.02	0.57	0.03	0.48	0.02	0.82	0.03			1.79	0.06	1.97	0.05					
27	0.40	0.03	0.41	0.02	0.52	0.02	0.44	0.02	0.57	0.02	0.48	0.02	0.84	0.02			1.86	0.03							
28	0.41	0.02	0.42	0.02	0.53	0.02	0.44	0.02	0.60	0.02	0.49	0.02	0.84	0.03			1.87	0.03							
29	0.41	0.02	0.42	0.02	0.56	0.02	0.44	0.02	0.62	0.01	0.49	0.02	0.85	0.04			1.91	0.04							
30	0.41	0.01	0.43	0.02	0.57	0.02	0.45	0.02	0.62	0.01	0.50	0.02	0.86	0.03			2.44	0.07							
31	0.42	0.01	0.43	0.02	0.58	0.02	0.45	0.02	0.65	0.02	0.51	0.05	0.89	0.03											
32	0.42	0.02	0.43	0.02	0.60	0.02	0.45	0.02	0.69	0.02	0.52	0.02	0.89	0.01											
33	0.43	0.02	0.43	0.02	0.61	0.02	0.45	0.02	0.70	0.02	0.52	0.03	0.92	0.05											
34	0.43	0.02	0.43	0.02	0.61	0.03	0.46	0.02	0.70	0.03	0.53	0.02	0.95	0.04											
35	0.44	0.02	0.44	0.02	0.67	0.02	0.46	0.02	0.70	0.02	0.54	0.01	0.99	0.02											
36	0.44	0.03	0.45	0.06	0.68	0.03	0.46	0.02	0.70	0.03	0.56	0.02	1.00	0.01											
37	0.44	0.02	0.45	0.02	0.69	0.03	0.47	0.02	0.71	0.01	0.57	0.02	1.01	0.02											
38	0.44	0.02	0.46	0.02	0.69	0.03	0.49	0.02	0.71	0.02	0.59	0.02	1.07	0.01											
39	0.45	0.02	0.46	0.02	0.69	0.03	0.49	0.02	0.73	0.02	0.65	0.03	1.17	0.06											
40	0.45	0.01	0.47	0.02	0.71	0.03	0.49	0.02	0.75	0.05	0.69	0.03	1.18	0.02											
41	0.45	0.02	0.47	0.02	0.72	0.02	0.50	0.02	0.75	0.03	0.69	0.03	1.22	0.01											
42	0.46	0.01	0.48	0.01	0.73	0.03	0.50	0.02	0.75	0.01	0.71	0.03	1.26	0.03											
43	0.46	0.02	0.48	0.02	0.77	0.03	0.52	0.01	0.78	0.04	0.71	0.02	1.38	0.02											
44	0.46	0.02	0.48	0.02	0.79	0.02	0.52	0.02	0.80	0.04	0.74	0.02	1.48	0.08											
45	0.47	0.03	0.49	0.03	0.79	0.02	0.53	0.03	0.81	0.02	0.77	0.03	1.50	0.08											
46	0.47	0.01	0.50	0.02	0.80	0.03	0.53	0.02	0.82	0.03	0.80	0.02	1.54	0.02											
47	0.48	0.02	0.50	0.02	0.80	0.03	0.55	0.02	0.84	0.02	0.81	0.02	1.69	0.05											
48	0.48	0.03	0.50	0.04	0.80	0.02	0.56	0.02	0.84	0.03	0.81	0.02	1.83	0.04											
49	0.48	0.02	0.52	0.02	0.81	0.04	0.56	0.03	0.88	0.04	0.83	0.02	1.84	0.02											
50	0.49	0.03	0.55	0.02	0.82	0.02	0.56	0.02	0.89	0.02	0.85	0.04	2.04	0.04											
51	0.50	0.02	0.56	0.02	0.82	0.02	0.57	0.02	0.91	0.02	0.85	0.04	2.17	0.03											
52	0.50	0.02	0.58	0.01	0.82	0.03	0.58	0.03	0.95	0.03	0.86	0.02	5.57	0.09											
53	0.50	0.02	0.58	0.02	0.83	0.04	0.58	0.01	0.95	0.02	0.87	0.02													
54	0.51	0.02	0.58	0.03	0.84	0.02	0.59	0.01	0.95	0.04	0.88	0.04													
55	0.51	0.01	0.59	0.02	0.84	0.03	0.61	0.02	0.97	0.04	0.90	0.03													
56	0.51	0.02	0.60	0.03	0.84	0.03	0.62	0.02	1.01	0.02	0.91	0.01													
57	0.52	0.02	0.61	0.03	0.84	0.03	0.63	0.02	1.02	0.04	0.92	0.04													
58	0.52	0.02	0.62	0.02	0.85	0.03	0.67	0.03	1.10	0.04	0.94	0.02													
59	0.53	0.02	0.63	0.02	0.86	0.03	0.68	0.03	1.20	0.02	0.95	0.04													
60	0.53	0.02	0.63	0.01	0.86	0.03	0.70	0.03	1.32	0.04	0.96	0.04													
61	0.53	0.03	0.64	0.02	0.87	0.04	0.71	0.03	1.48	0.02	0.98	0.03													
62	0.55	0.02	0.64	0.03	0.89	0.04	0.71	0.03	1.60	0.03	1.00	0.04													
63	0.55	0.02	0.66	0.02	0.90	0.03	0.72	0.03	1.71	0.03	1.01	0.05													
64	0.55	0.03	0.68	0.02	0.90	0.03	0.74	0.04	1.91	0.07	1.01	0.04													
65	0.56	0.02	0.71	0.03	0.90	0.03	0.74	0.03	1.92	0.02	1.03	0.03													
66	0.56	0.02	0.72	0.02	0.92	0.02	0.76	0.03	2.00	0.02	1.06	0.03													
67	0.56	0.02	0.72	0.02	0.93	0.02	0.76	0.03	2.01	0.05	1.07	0.05													
68	0.58	0.03	0.76	0.03	0.93	0.04	0.77	0.03	2.13	0.02	1.07	0.02													
69	0.60	0.03	0.81	0.02	0.94	0.03	0.82	0.03	2.27	0.04	1.07	0.05													
70	0.61	0.02	0.83	0.02	0.98	0.04	0.83	0.02			1.08	0.04													
71	0.61	0.01	0.84	0.03	1.00	0.04	0.84	0.04			1.09	0.03													
72	0.64	0.01	0.86	0.03	1.00	0.04	0.85	0.03			1.11	0.04													
73	0.68	0.02	0.90	0.03	1.02	0.03	0.89	0.04			1.12	0.04													
74	0.72	0.02	0.91	0.04	1.03	0.04	0.92	0.03			1.16	0.03													
75	0.72	0.02	0.91	0.03	1.03	0.04	0.92	0.03			1.24	0.05													
76	0.76	0.02	0.93	0.03	1.03	0.04	0.95	0.03			1.26	0.04													
77	0.79	0.03	0.93	0.02	1.04	0.03	0.96	0.04			1.32	0.02													
78	0.80	0.01	0.96	0.02	1.08	0.04	0.97	0.04			1.44	0.05													
79	0.82	0.02	0.97	0.02	1.09	0.05	0.98	0.04			1.48	0.04													
80	0.83	0.03	0.97	0.03	1.10	0.04	1.01	0.01			1.50	0.05													
81	0.83	0.04	0.97	0.04	1.17	0.04	1.03	0.04			1.51	0.04													
82	0.84	0.02	0.97	0.01	1.17	0.04	1.04	0.03			1.63	0.03													
83	0.86	0.04	0.98	0.03	1.19	0.02	1.05	0.04			1.73	0.02													
84	0.87	0.03	0.98	0.03	1.27	0.05	1.05	0.03			1.99	0.07													
85	0.88	0.03	0.99	0.02	1.28	0.03	1.05	0.04			2.14	0.05													
86	0.90	0.03	1.00	0.05	1.29	0.04	1.05	0.04			2.17	0.09													
87	0.90	0.04	1.02	0.04	1.34	0.04	1.06	0.04			2.20	0.05													
88	0.90	0.03	1.04	0.03	1.35	0.03	1.07	0.04			2.22	0.05													
89	0.91	0.05	1.07	0.03	1.41	0.03	1.08	0.04			2.23	0.05													
90	0.92	0.01	1.09	0.04	1.42	0.02	1.08	0.04			2.48	0.05													
91	0.92	0.02	1.15	0.06	1.43	0.04	1.12	0.02			2.66	0.07													
92	0.92	0.03	1.16	0.06	1.43	0.04	1.13	0.04			3.35	0.07													
93	0.95	0.04	1.17	0.03	1.48	0.05	1.14	0.04																	
94	0.97	0.02	1.23	0.05	1.56	0.05	1.14	0.05																	
95	1.01	0.02	1.25	0.04	1.65	0.05	1.18	0.03																	
96	1.07	0.03	1.26	0.05	1.68	0.08	1.39	0.04																	
97	1.10	0.03	1.27	0.04	1.69	0.06	1.41	0.06																	
98	1.12	0.04	1.33	0.05	1.72	0.04	1.47	0.05																	
99	1.21	0.05	1.44	0.03	1.81	0.05	1.49	0.06																	
100	1.27	0.04	1.47	0.05	1.92	0.08	1.50	0.03																	

Appendix 8

Nematode size measurements, Signy
L: length (mm)
W: width (mm)
Apr 27: (date, 2 replicates pooled)

Size measurements nematodes Signy

1991	Apr 27		May 14		May 28		Jun 11		Jun 26		Jul 12		Jul 28		Aug 10		Aug 23		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
1	0.31	0.02	0.33	0.02	0.44	0.02	0.31	0.02	0.51	0.02	0.51	0.02	0.30	0.02	0.24	0.02	0.38	0.02	
2	0.36	0.02	0.34	0.02	0.50	0.02	0.31	0.02	0.52	0.02	0.52	0.02	0.31	0.02	0.30	0.02	0.39	0.06	
3	0.36	0.02	0.34	0.02	0.63	0.04	0.31	0.02	0.57	0.11	0.57	0.11	0.33	0.02	0.32	0.02	0.40	0.02	
4	0.36	0.02	0.35	0.02	0.63	0.05	0.32	0.02	0.58	0.03	0.58	0.03	0.34	0.02	0.33	0.02	0.42	0.02	
5	0.36	0.02	0.36	0.02	0.64	0.03	0.34	0.02	0.58	0.03	0.58	0.03	0.36	0.02	0.34	0.02	0.43	0.02	
6	0.37	0.02	0.36	0.02	0.65	0.02	0.39	0.02	0.58	0.03	0.58	0.03	0.37	0.02	0.34	0.02	0.43	0.02	
7	0.38	0.02	0.37	0.02	0.67	0.03	0.39	0.02	0.59	0.03	0.59	0.03	0.38	0.02	0.35	0.02	0.46	0.02	
8	0.38	0.02	0.38	0.02	0.67	0.04	0.40	0.02	0.61	0.04	0.61	0.04	0.39	0.02	0.36	0.02	0.46	0.02	
9	0.39	0.02	0.38	0.02	0.67	0.03	0.41	0.02	0.65	0.05	0.65	0.05	0.40	0.02	0.37	0.02	0.47	0.02	
10	0.39	0.02	0.39	0.02	0.71	0.03	0.42	0.02	0.65	0.03	0.65	0.03	0.40	0.02	0.39	0.02	0.47	0.02	
11	0.39	0.02	0.39	0.02	0.72	0.04	0.43	0.02	0.66	0.03	0.66	0.03	0.42	0.02	0.39	0.02	0.47	0.02	
12	0.39	0.02	0.40	0.02	0.73	0.03	0.43	0.02	0.67	0.03	0.67	0.03	0.43	0.02	0.40	0.02	0.49	0.02	
13	0.39	0.02	0.40	0.02	0.74	0.04	0.44	0.02	0.67	0.03	0.67	0.03	0.43	0.02	0.40	0.02	0.49	0.02	
14	0.39	0.02	0.42	0.02	0.74	0.03	0.45	0.02	0.68	0.03	0.68	0.03	0.44	0.02	0.41	0.02	0.50	0.02	
15	0.40	0.02	0.43	0.02	0.76	0.03	0.45	0.02	0.68	0.02	0.68	0.02	0.45	0.02	0.41	0.02	0.51	0.02	
16	0.40	0.03	0.43	0.02	0.76	0.03	0.45	0.02	0.69	0.02	0.69	0.02	0.45	0.02	0.42	0.02	0.51	0.02	
17	0.41	0.02	0.43	0.02	0.76	0.04	0.45	0.02	0.69	0.03	0.69	0.03	0.45	0.02	0.42	0.02	0.51	0.02	
18	0.41	0.02	0.43	0.02	0.78	0.03	0.45	0.02	0.69	0.03	0.69	0.03	0.45	0.02	0.43	0.02	0.51	0.02	
19	0.42	0.02	0.43	0.02	0.78	0.03	0.45	0.02	0.69	0.03	0.69	0.03	0.45	0.02	0.43	0.02	0.52	0.03	
20	0.43	0.02	0.44	0.02	0.79	0.03	0.45	0.02	0.70	0.03	0.70	0.03	0.46	0.02	0.44	0.02	0.52	0.02	
21	0.43	0.02	0.44	0.02	0.79	0.04	0.45	0.02	0.71	0.03	0.71	0.03	0.46	0.02	0.45	0.02	0.53	0.03	
22	0.44	0.02	0.44	0.02	0.79	0.04	0.45	0.02	0.72	0.03	0.72	0.03	0.46	0.02	0.45	0.02	0.53	0.02	
23	0.44	0.02	0.45	0.02	0.80	0.03	0.45	0.02	0.72	0.03	0.72	0.03	0.46	0.02	0.45	0.02	0.53	0.02	
24	0.44	0.02	0.45	0.02	0.80	0.04	0.46	0.02	0.73	0.03	0.73	0.03	0.47	0.02	0.45	0.02	0.53	0.02	
25	0.44	0.02	0.45	0.02	0.81	0.04	0.46	0.02	0.73	0.03	0.73	0.03	0.47	0.02	0.45	0.02	0.53	0.02	
26	0.44	0.02	0.45	0.02	0.81	0.03	0.47	0.02	0.73	0.03	0.73	0.03	0.47	0.02	0.46	0.02	0.54	0.03	
27	0.45	0.02	0.45	0.02	0.81	0.04	0.47	0.02	0.74	0.03	0.74	0.03	0.48	0.02	0.46	0.02	0.54	0.02	
28	0.46	0.02	0.46	0.02	0.82	0.04	0.48	0.02	0.74	0.03	0.74	0.03	0.48	0.02	0.46	0.02	0.54	0.02	
29	0.46	0.02	0.46	0.02	0.82	0.04	0.48	0.02	0.75	0.03	0.75	0.03	0.48	0.02	0.46	0.03	0.54	0.02	
30	0.46	0.02	0.46	0.02	0.82	0.04	0.48	0.02	0.75	0.03	0.75	0.03	0.49	0.02	0.46	0.02	0.54	0.08	
31	0.46	0.02	0.46	0.03	0.82	0.04	0.48	0.02	0.75	0.03	0.75	0.03	0.49	0.02	0.47	0.02	0.55	0.02	
32	0.46	0.02	0.46	0.02	0.83	0.04	0.48	0.02	0.76	0.03	0.76	0.03	0.49	0.03	0.49	0.03	0.55	0.02	
33	0.46	0.02	0.47	0.02	0.83	0.04	0.49	0.02	0.76	0.03	0.76	0.03	0.49	0.02	0.51	0.03	0.55	0.02	
34	0.47	0.02	0.47	0.02	0.83	0.04	0.49	0.03	0.76	0.03	0.76	0.03	0.50	0.02	0.51	0.02	0.55	0.02	
35	0.47	0.02	0.47	0.02	0.83	0.03	0.50	0.02	0.77	0.03	0.77	0.03	0.50	0.02	0.51	0.02	0.56	0.02	
36	0.47	0.02	0.47	0.02	0.83	0.04	0.52	0.02	0.77	0.03	0.77	0.03	0.50	0.06	0.52	0.03	0.56	0.02	
37	0.48	0.02	0.48	0.02	0.84	0.04	0.52	0.03	0.77	0.03	0.77	0.03	0.50	0.02	0.52	0.02	0.56	0.02	
38	0.48	0.02	0.48	0.02	0.84	0.04	0.52	0.02	0.78	0.04	0.78	0.04	0.50	0.02	0.52	0.03	0.56	0.02	
39	0.48	0.03	0.49	0.02	0.84	0.04	0.52	0.02	0.78	0.03	0.78	0.03	0.51	0.02	0.53	0.03	0.57	0.03	
40	0.49	0.02	0.50	0.03	0.84	0.04	0.52	0.02	0.79	0.03	0.79	0.03	0.51	0.02	0.53	0.02	0.57	0.02	
41	0.49	0.02	0.50	0.02	0.84	0.04	0.52	0.03	0.79	0.04	0.79	0.04	0.51	0.02	0.54	0.03	0.57	0.02	
42	0.50	0.03	0.50	0.02	0.85	0.04	0.53	0.01	0.79	0.04	0.79	0.04	0.51	0.06	0.54	0.03	0.57	0.02	
43	0.50	0.02	0.50	0.03	0.85	0.04	0.53	0.02	0.79	0.03	0.79	0.03	0.51	0.02	0.55	0.03	0.57	0.02	
44	0.51	0.03	0.51	0.02	0.86	0.04	0.54	0.02	0.80	0.03	0.80	0.03	0.52	0.02	0.55	0.03	0.57	0.02	
45	0.51	0.03	0.51	0.02	0.86	0.03	0.55	0.02	0.80	0.03	0.80	0.03	0.52	0.02	0.55	0.02	0.58	0.02	
46	0.51	0.02	0.51	0.02	0.86	0.04	0.55	0.02	0.81	0.03	0.81	0.03	0.52	0.02	0.55	0.03	0.59	0.02	
47	0.52	0.03	0.52	0.02	0.86	0.03	0.55	0.03	0.81	0.03	0.81	0.03	0.53	0.02	0.55	0.03	0.59	0.02	
48	0.52	0.03	0.52	0.03	0.87	0.04	0.56	0.03	0.81	0.04	0.81	0.04	0.53	0.02	0.55	0.03	0.60	0.02	
49	0.52	0.02	0.52	0.02	0.87	0.04	0.56	0.02	0.81	0.04	0.81	0.04	0.54	0.02	0.56	0.03	0.60	0.02	
50	0.52	0.02	0.52	0.02	0.87	0.02	0.57	0.03	0.81	0.03	0.81	0.03	0.54	0.03	0.56	0.03	0.61	0.02	
51	0.52	0.02	0.52	0.02	0.88	0.03	0.57	0.03	0.82	0.03	0.82	0.03	0.54	0.02	0.56	0.04	0.61	0.02	
52	0.53	0.03	0.52	0.02	0.88	0.03	0.58	0.03	0.82	0.04	0.82	0.04	0.54	0.02	0.56	0.03	0.62	0.02	
53	0.54	0.03	0.52	0.03	0.88	0.04	0.58	0.11	0.82	0.04	0.82	0.04	0.54	0.02	0.56	0.02	0.62	0.02	
54	0.54	0.02	0.52	0.02	0.89	0.04	0.58	0.02	0.82	0.04	0.82	0.04	0.54	0.02	0.56	0.03	0.62	0.02	
55	0.54	0.03	0.53	0.03	0.89	0.04	0.58	0.02	0.83	0.04	0.83	0.04	0.54	0.02	0.56	0.03	0.62	0.03	
56	0.54	0.02	0.53	0.02	0.90	0.04	0.58	0.03	0.83	0.03	0.83	0.03	0.55	0.02	0.56	0.03	0.62	0.02	
57	0.54	0.02	0.54	0.02	0.90	0.04	0.58	0.08	0.83	0.04	0.83	0.04	0.56	0.02	0.57	0.02	0.62	0.02	
58	0.55	0.02	0.54	0.03	0.91	0.04	0.58	0.02	0.83	0.04	0.83	0.04	0.56	0.02	0.57	0.02	0.63	0.02	
59	0.55	0.03	0.54	0.02	0.91	0.04	0.60	0.03	0.83	0.04	0.83	0.04	0.56	0.02	0.58	0.03	0.63	0.02	
60	0.55	0.03	0.55	0.03	0.91	0.04	0.60	0.03	0.83	0.03	0.83	0.03	0.56	0.03	0.58	0.02	0.63	0.03	
61	0.56	0.02	0.55	0.02	0.91	0.04	0.60	0.03	0.84	0.04	0.84	0.04	0.56	0.02	0.58	0.02	0.63	0.03	
62	0.56	0.03	0.55	0.04	0.91	0.04	0.61	0.03	0.84	0.04	0.84	0.04	0.56	0.02	0.58	0.03	0.63	0.03	
63	0.56	0.03	0.55	0.02	0.92	0.04	0.61	0.03	0.84	0.03	0.84	0.03	0.56	0.02	0.58	0.02	0.64	0.05	
64	0.56	0.03	0.55	0.02	0.92	0.04	0.61	0.02	0.84	0.04	0.84	0.04	0.57	0.03	0.58	0.04	0.64	0.07	
65	0.57	0.03	0.56	0.03	0.92	0.04	0.62	0.02	0.84	0.04	0.84	0.04	0.58	0.03	0.58	0.03	0.64	0.03	
66	0.57	0.03	0.56	0.03	0.92	0.04	0.63	0.02	0.84	0.04	0.84	0.04	0.59	0.02	0.58	0.03	0.64	0.03	
67	0.57	0.02	0.56	0.02	0.93	0.05	0.63	0.02	0.84	0.03	0.84	0.03	0.59	0.03	0.59	0.03	0.65	0.03	
68	0.58	0.03	0.57	0.03	0.93	0.04	0.63	0.03	0.84	0.03	0.84	0.03	0.59	0.02	0.59	0.03	0.65	0.02	
69	0.58	0.03	0.57	0.03	0.93	0.04	0.63	0.03	0.85	0.04	0.85	0.04	0.60	0.02	0.59	0.02	0.65	0.02	
70	0.58	0.02	0.57	0.02	0.93	0.04	0.64	0.02	0.85	0.04	0.85	0.04	0.60	0.02	0.59	0.02	0.65	0.03	
71	0.59	0.03	0.57	0.02	0.94	0.03	0.64	0.02	0.85	0.04	0.85	0.04	0.60	0.02	0.59	0.03	0.65	0.03	
72	0.59	0.04	0.57	0.03	0.94	0.03	0.64	0.03	0.85	0.04	0.85	0.04	0.60	0.04	0.59	0.03	0.66	0.05	
73	0.59	0.02	0.57	0.02	0.95	0.04	0.65	0.03	0.85	0.03	0.85	0.03	0.61	0.03	0.59	0.02	0.66	0.03	
74	0.60	0.03	0.57	0.02	0.95	0.04	0.65	0.03	0.85	0.03	0.85	0.03	0.61	0.02	0.60	0.03	0.66	0.02	
75	0.61	0.02	0.58	0.03	0.96	0.03	0.68	0.03	0.86	0.03	0.86	0.03	0.61	0.03	0.60	0.03	0.66	0.02	
76	0.61	0.02	0.58	0.03	0.96	0.04	0.69	0.03	0.86	0.03	0.86	0.03	0.61	0.02	0.60	0.02	0.66	0.03	
77	0.61	0.03	0.58	0.03	0.96	0.03	0.70	0.03	0.86	0.04	0.86	0.04	0.61	0.03	0.60	0.03	0.67	0.02	
78	0.61	0.03	0.58	0.02	0.96	0.04	0.71	0.03	0.86	0.04	0.86	0.04	0.61	0.03	0.60	0.03	0.67	0.02	
79	0.61	0.04	0.58	0.03	0.97	0.04	0.71	0.02	0.86	0.04	0.86	0.04	0.61	0.03	0.60	0.03	0.68	0.02	
80	0.62	0.04	0.58	0.02	0.98	0.04	0.71	0.03	0.86	0.04	0.86	0.04	0.62	0.02	0.60	0.03	0.69	0.02	
81	0.62	0.02	0.59	0.02	0.98	0.05	0.72	0.03	0.86	0.04	0.86	0.04	0.62	0.03	0.60	0.02	0.69	0.03	
82	0.62	0.03	0.59	0.02	0.98	0.04	0.72	0.04	0.86	0.04	0.86	0.04	0.62	0.03	0.60	0.02	0.69	0.02	
83	0.63	0.03	0.59	0.03	0.98	0.04	0.72	0.03	0.86	0.03	0.86	0.03	0.62	0.03	0.60	0.02	0.70	0.02	
84	0.64	0.02	0.59	0.02	1.01	0.04	0.72	0.03	0.86	0.04	0.86	0.04	0.63	0.02	0.60	0.02	0.70	0.03	
85	0.64	0.03	0.59	0.03	1.02	0.04	0.72	0.03	0.86	0.04	0.86	0.04	0.63	0.03	0.61	0.02	0.70	0.03	
86	0.64	0.02	0.60	0.03	1.03	0.04	0.73	0.03	0.86	0.04	0.86	0.04	0.64	0.03	0.61	0.03	0.71	0.02	
87	0.64	0.03	0.60	0.03	1.04	0.04	0.73	0.03	0.86	0.04	0.86	0.04	0.64	0.03	0.62	0.02	0.71	0.02	
88	0.65	0.03	0.60	0.02	1.04	0.03	0.73	0.03	0.87	0.03	0.87	0.03	0.64	0.02	0.62	0.02	0.71	0.03	
89	0.65	0.03	0.60	0.04	1.04	0.04	0.73	0.03	0.87	0.03	0.87	0.03	0.64	0.03	0.62	0.02	0.72	0.03	
90	0.65	0.02	0.60	0.02	1.04	0.05	0.73	0.03	0.87	0.04	0.87	0.04	0.64	0.02	0.62	0.02	0.72	0.03	
91	0.65	0.03	0.60	0.02	1.05	0.04	0.73	0.03	0.87	0.04	0.87	0.04	0.64	0.04	0.62	0.03	0.72	0.03	
92	0.65	0.03	0.60	0.03	1.06	0.04	0.74	0.03	0.87	0.04	0.87	0.04	0.65	0.03	0.63	0.03	0.72	0.03	
93	0.66	0.03	0.61	0.03	1.08	0.04	0.74	0.03	0.87	0.04	0.87	0.04	0.65	0.03	0.63	0.02	0.72	0.03	
94	0.66	0.03	0.61	0.02	1.08	0.04	0.74	0.03	0.87	0.04	0.87	0.04	0.65	0.02	0.63	0.03	0.73	0.03	
95	0.66	0.04	0.61	0.02	1.08	0.04	0.75	0.03	0.88	0.04	0.88	0.04	0.65	0.03	0.63	0.02	0.73	0.03	
96	0.67	0.03	0.61	0.02	1.08	0.03	0.75	0.03	0.88	0.04	0.88	0.04	0.66	0.03	0.65	0.03	0.73	0.03	
97	0.67	0.03	0.61	0.03	1.09	0.04	0.75	0.03	0.88	0.04	0.88	0.04	0.66	0.03	0.65	0.02	0.73	0.03	
98	0.67	0.03	0.62	0.03	1.09	0.04	0.75	0.04	0.88	0.04	0.88	0.04	0.66	0.03	0.65	0.03	0.74	0.03	
99	0.68	0.03	0.62	0.02	1.11	0.05	0.75	0.03	0.88	0.03	0.88	0.03	0.66	0.03	0.66	0.02	0.74	0.03	
100	0.68	0.02	0.62	0.02	1.11	0.05	0.76	0.03	0.88	0.04	0.88	0.04	0.66	0.05	0.66	0.03	0.74	0.03	

Size measurements nematodes Signy

1991	Apr 27		May 14		May 28		Jun 11		Jun 26		Jul 12		Jul 28		Aug 10		Aug 23		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
101	0.68	0.03	0.62	0.03	1.13	0.05	0.77	0.03	0.88	0.04	0.88	0.04	0.66	0.03	0.67	0.03	0.74	0.04	
102	0.68	0.03	0.62	0.02	1.13	0.04	0.77	0.03	0.88	0.04	0.88	0.04	0.67	0.03	0.67	0.03	0.74	0.02	
103	0.68	0.03	0.62	0.03	1.13	0.05	0.77	0.03	0.88	0.03	0.88	0.03	0.67	0.03	0.67	0.03	0.75	0.03	
104	0.69	0.03	0.62	0.02	1.13	0.05	0.77	0.04	0.88	0.03	0.88	0.03	0.67	0.03	0.68	0.03	0.77	0.03	
105	0.69	0.06	0.63	0.02	1.14	0.04	0.77	0.03	0.89	0.04	0.89	0.04	0.67	0.03	0.68	0.03	0.77	0.03	
106	0.70	0.04	0.63	0.03	1.14	0.04	0.77	0.03	0.89	0.03	0.89	0.03	0.67	0.03	0.69	0.03	0.77	0.02	
107	0.70	0.03	0.63	0.02	1.14	0.04	0.77	0.03	0.89	0.04	0.89	0.04	0.67	0.02	0.69	0.03	0.77	0.03	
108	0.70	0.03	0.63	0.02	1.15	0.05	0.77	0.03	0.89	0.04	0.89	0.04	0.67	0.03	0.70	0.05	0.77	0.03	
109	0.70	0.03	0.63	0.02	1.15	0.04	0.78	0.03	0.89	0.04	0.89	0.04	0.68	0.03	0.70	0.03	0.77	0.04	
110	0.70	0.03	0.64	0.02	1.16	0.04	0.78	0.04	0.89	0.04	0.89	0.04	0.68	0.03	0.70	0.03	0.78	0.03	
111	0.70	0.03	0.64	0.03	1.16	0.06	0.78	0.03	0.90	0.04	0.90	0.04	0.68	0.02	0.70	0.03	0.78	0.03	
112	0.71	0.03	0.65	0.03	1.17	0.06	0.78	0.03	0.90	0.04	0.90	0.04	0.68	0.02	0.70	0.02	0.78	0.02	
113	0.71	0.03	0.65	0.03	1.17	0.05	0.78	0.03	0.90	0.04	0.90	0.04	0.68	0.03	0.70	0.03	0.78	0.03	
114	0.71	0.03	0.65	0.02	1.18	0.05	0.79	0.03	0.90	0.03	0.90	0.03	0.69	0.03	0.71	0.03	0.78	0.03	
115	0.71	0.04	0.65	0.03	1.18	0.04	0.79	0.04	0.90	0.03	0.90	0.03	0.69	0.03	0.71	0.03	0.78	0.03	
116	0.71	0.03	0.66	0.03	1.18	0.04	0.80	0.03	0.90	0.03	0.90	0.03	0.69	0.03	0.71	0.03	0.78	0.03	
117	0.71	0.02	0.66	0.03	1.20	0.05	0.80	0.04	0.90	0.04	0.90	0.04	0.69	0.03	0.71	0.03	0.78	0.02	
118	0.72	0.03	0.66	0.02	1.20	0.05	0.80	0.03	0.90	0.04	0.90	0.04	0.69	0.03	0.72	0.03	0.78	0.04	
119	0.72	0.03	0.66	0.03	1.20	0.05	0.80	0.03	0.90	0.04	0.90	0.04	0.70	0.03	0.72	0.03	0.79	0.03	
120	0.72	0.03	0.66	0.05	1.21	0.05	0.80	0.04	0.90	0.04	0.90	0.04	0.70	0.03	0.73	0.03	0.79	0.03	
121	0.72	0.03	0.66	0.03	1.21	0.04	0.81	0.04	0.91	0.04	0.91	0.04	0.70	0.03	0.73	0.03	0.79	0.03	
122	0.73	0.03	0.67	0.02	1.22	0.05	0.81	0.03	0.91	0.04	0.91	0.04	0.70	0.04	0.73	0.03	0.79	0.03	
123	0.73	0.03	0.67	0.05	1.22	0.05	0.81	0.04	0.91	0.04	0.91	0.04	0.70	0.03	0.73	0.03	0.80	0.03	
124	0.73	0.03	0.67	0.03	1.23	0.05	0.81	0.03	0.91	0.04	0.91	0.04	0.71	0.04	0.74	0.03	0.80	0.03	
125	0.73	0.03	0.67	0.03	1.23	0.03	0.81	0.03	0.91	0.04	0.91	0.04	0.71	0.03	0.74	0.03	0.80	0.04	
126	0.73	0.03	0.67	0.03	1.23	0.05	0.81	0.03	0.91	0.04	0.91	0.04	0.71	0.02	0.74	0.03	0.81	0.02	
127	0.73	0.03	0.67	0.03	1.24	0.06	0.81	0.03	0.92	0.03	0.92	0.03	0.71	0.03	0.74	0.03	0.81	0.04	
128	0.73	0.03	0.67	0.03	1.24	0.06	0.81	0.03	0.92	0.04	0.92	0.04	0.71	0.03	0.75	0.03	0.81	0.02	
129	0.73	0.03	0.67	0.02	1.25	0.05	0.81	0.03	0.93	0.03	0.93	0.03	0.71	0.03	0.75	0.03	0.81	0.03	
130	0.73	0.03	0.67	0.03	1.25	0.04	0.81	0.04	0.94	0.04	0.94	0.04	0.72	0.03	0.75	0.03	0.82	0.04	
131	0.73	0.03	0.67	0.04	1.26	0.05	0.81	0.03	0.94	0.04	0.94	0.04	0.72	0.03	0.75	0.03	0.82	0.03	
132	0.74	0.02	0.67	0.03	1.27	0.05	0.81	0.04	0.94	0.03	0.94	0.03	0.72	0.03	0.75	0.04	0.82	0.03	
133	0.74	0.03	0.67	0.02	1.28	0.06	0.81	0.03	0.95	0.04	0.95	0.04	0.72	0.03	0.76	0.03	0.82	0.03	
134	0.74	0.03	0.68	0.03	1.29	0.03	0.81	0.04	0.95	0.03	0.95	0.03	0.73	0.03	0.76	0.03	0.82	0.03	
135	0.75	0.03	0.68	0.03	1.29	0.05	0.81	0.04	0.96	0.04	0.96	0.04	0.73	0.03	0.76	0.03	0.82	0.03	
136	0.75	0.03	0.68	0.03	1.31	0.07	0.81	0.03	0.96	0.04	0.96	0.04	0.73	0.03	0.76	0.03	0.82	0.03	
137	0.75	0.04	0.68	0.03	1.32	0.05	0.81	0.03	0.97	0.04	0.97	0.04	0.73	0.04	0.76	0.03	0.82	0.04	
138	0.76	0.03	0.68	0.03	1.32	0.07	0.82	0.03	0.98	0.04	0.98	0.04	0.73	0.03	0.77	0.03	0.83	0.03	
139	0.76	0.03	0.68	0.03	1.34	0.05	0.82	0.03	0.99	0.04	0.99	0.04	0.73	0.03	0.77	0.03	0.83	0.04	
140	0.76	0.04	0.69	0.03	1.36	0.06	0.82	0.04	1.00	0.04	1.00	0.04	0.73	0.03	0.77	0.03	0.83	0.03	
141	0.76	0.03	0.69	0.03	1.37	0.05	0.82	0.03	1.05	0.05	1.05	0.05	0.73	0.03	0.77	0.03	0.83	0.04	
142	0.76	0.03	0.69	0.03	1.37	0.07	0.82	0.03	1.08	0.04	1.08	0.04	0.73	0.03	0.77	0.03	0.83	0.04	
143	0.77	0.04	0.69	0.03	1.39	0.07	0.82	0.03	1.08	0.04	1.08	0.04	0.73	0.03	0.77	0.03	0.83	0.02	
144	0.77	0.03	0.69	0.03	1.40	0.03	0.82	0.04	1.09	0.05	1.09	0.05	0.73	0.02	0.78	0.03	0.83	0.03	
145	0.77	0.03	0.69	0.02	1.40	0.06	0.83	0.03	1.09	0.05	1.09	0.05	0.74	0.03	0.78	0.03	0.84	0.04	
146	0.77	0.03	0.69	0.03	1.41	0.08	0.83	0.04	1.10	0.04	1.10	0.04	0.74	0.03	0.78	0.03	0.84	0.04	
147	0.78	0.02	0.69	0.03	1.43	0.08	0.84	0.04	1.11	0.04	1.11	0.04	0.74	0.03	0.79	0.03	0.84	0.03	
148	0.78	0.03	0.70	0.03	1.46	0.05	0.84	0.04	1.12	0.06	1.12	0.06	0.74	0.03	0.79	0.03	0.84	0.03	
149	0.78	0.03	0.70	0.03	1.47	0.09	0.84	0.03	1.12	0.05	1.12	0.05	0.74	0.03	0.79	0.04	0.84	0.04	
150	0.78	0.03	0.70	0.03	1.47	0.08	0.84	0.03	1.13	0.05	1.13	0.05	0.74	0.03	0.79	0.03	0.84	0.03	
151	0.79	0.03	0.70	0.02	1.48	0.03	0.84	0.03	1.13	0.05	1.13	0.05	0.74	0.03	0.80	0.02	0.84	0.03	
152	0.79	0.03	0.70	0.03	1.48	0.09	0.84	0.04	1.14	0.04	1.14	0.04	0.74	0.03	0.80	0.03	0.85	0.03	
153	0.79	0.03	0.70	0.03	1.49	0.09	0.84	0.04	1.14	0.05	1.14	0.05	0.74	0.02	0.80	0.04	0.85	0.03	
154	0.79	0.03	0.70	0.03	1.49	0.08	0.84	0.04	1.14	0.04	1.14	0.04	0.74	0.03	0.80	0.04	0.85	0.03	
155	0.79	0.04	0.70	0.03	1.50	0.08	0.85	0.04	1.14	0.06	1.14	0.06	0.74	0.03	0.80	0.04	0.85	0.03	
156	0.80	0.04	0.71	0.03	1.50	0.07	0.85	0.03	1.15	0.05	1.15	0.05	0.75	0.03	0.81	0.04	0.85	0.03	
157	0.80	0.04	0.71	0.03	1.50	0.09	0.85	0.04	1.15	0.05	1.15	0.05	0.75	0.03	0.81	0.03	0.85	0.04	
158	0.80	0.03	0.71	0.04	1.50	0.09	0.85	0.04	1.16	0.05	1.16	0.05	0.75	0.04	0.81	0.03	0.86	0.03	
159	0.80	0.03	0.71	0.03	1.50	0.08	0.85	0.03	1.16	0.05	1.16	0.05	0.75	0.03	0.81	0.04	0.86	0.04	
160	0.80	0.03	0.71	0.03	1.51	0.09	0.85	0.03	1.16	0.04	1.16	0.04	0.75	0.02	0.81	0.03	0.86	0.03	
161	0.81	0.04	0.71	0.03	1.51	0.07	0.86	0.03	1.16	0.05	1.16	0.05	0.75	0.03	0.82	0.04	0.86	0.03	
162	0.81	0.04	0.71	0.03	1.51	0.07	0.86	0.04	1.17	0.04	1.17	0.04	0.75	0.03	0.82	0.03	0.86	0.03	
163	0.81	0.04	0.72	0.03	1.51	0.08	0.86	0.04	1.17	0.05	1.17	0.05	0.75	0.03	0.82	0.04	0.86	0.03	
164	0.81	0.03	0.72	0.03	1.52	0.07	0.86	0.04	1.17	0.05	1.17	0.05	0.76	0.03	0.82	0.04	0.86	0.03	
165	0.81	0.04	0.72	0.03	1.52	0.09	0.86	0.03	1.17	0.05	1.17	0.05	0.76	0.03	0.82	0.03	0.86	0.03	
166	0.81	0.03	0.72	0.02	1.52	0.08	0.86	0.04	1.17	0.05	1.17	0.05	0.76	0.03	0.82	0.04	0.86	0.03	
167	0.81	0.03	0.72	0.03	1.53	0.08	0.86	0.03	1.18	0.04	1.18	0.04	0.76	0.03	0.82	0.03	0.86	0.03	
168	0.81	0.03	0.72	0.03	1.54	0.08	0.86	0.04	1.18	0.04	1.18	0.04	0.76	0.03	0.82	0.03	0.87	0.03	
169	0.82	0.03	0.72	0.03	1.54	0.10	0.86	0.04	1.18	0.04	1.18	0.04	0.76	0.04	0.82	0.03	0.87	0.03	
170	0.82	0.04	0.72	0.03	1.54	0.09	0.87	0.03	1.18	0.05	1.18	0.05	0.76	0.03	0.83	0.04	0.87	0.03	
171	0.82	0.04	0.72	0.03	1.54	0.08	0.87	0.04	1.18	0.05	1.18	0.05	0.76	0.03	0.83	0.04	0.87	0.03	
172	0.82	0.04	0.73	0.03	1.54	0.10	0.87	0.04	1.18	0.05	1.18	0.05	0.77	0.03	0.83	0.04	0.87	0.03	
173	0.82	0.03	0.73	0.03	1.54	0.06	0.87	0.03	1.18	0.05	1.18	0.05	0.77	0.03	0.83	0.04	0.87	0.03	
174	0.82	0.03	0.73	0.03	1.54	0.09	0.87	0.04	1.19	0.06	1.19	0.06	0.77	0.03	0.83	0.04	0.87	0.03	
175	0.83	0.04	0.73	0.03	1.55	0.08	0.87	0.04	1.19	0.05	1.19	0.05	0.77	0.03	0.83	0.03	0.87	0.03	
176	0.83	0.03	0.73	0.03	1.55	0.08	0.88	0.03	1.19	0.05	1.19	0.05	0.77	0.03	0.83	0.04	0.87	0.04	
177	0.83	0.03	0.73	0.03	1.55	0.09	0.88	0.03	1.20	0.05	1.20	0.05	0.77	0.03	0.83	0.03	0.87	0.04	
178	0.83	0.03	0.73	0.03	1.55	0.08	0.88	0.04	1.20	0.05	1.20	0.05	0.78	0.03	0.84	0.03	0.88	0.03	
179	0.83	0.04	0.73	0.03	1.56	0.08	0.88	0.04	1.21	0.05	1.21	0.05	0.78	0.03	0.84	0.04	0.88	0.04	
180	0.83	0.04	0.74	0.03	1.56	0.06	0.88	0.04	1.22	0.05	1.22	0.05	0.78	0.02	0.84	0.04	0.88	0.03	
181	0.83	0.03	0.74	0.03	1.56	0.11	0.88	0.04	1.22	0.05	1.22	0.05	0.78	0.03	0.84	0.03	0.88	0.04	
182	0.84	0.03	0.74	0.03	1.56	0.10	0.88	0.04	1.22	0.05	1.22	0.05	0.78	0.03	0.84	0.03	0.88	0.03	
183	0.84	0.04	0.74	0.03	1.56	0.08	0.89	0.03	1.22	0.05	1.22	0.05	0.78	0.04	0.84	0.04	0.88	0.03	
184	0.84	0.04	0.74	0.03	1.57	0.08	0.89	0.04	1.23	0.05	1.23	0.05	0.78	0.04	0.84	0.04	0.88	0.04	
185	0.84	0.03	0.74	0.03	1.57	0.08	0.89	0.04	1.23	0.06	1.23	0.06	0.79	0.04	0.84	0.03	0.88	0.03	
186	0.84	0.03	0.74	0.03	1.57	0.08	0.89	0.04	1.24	0.05	1.24	0.05	0.79	0.03	0.84	0.03	0.88	0.04	
187	0.84	0.04	0.74	0.03	1.57	0.10	0.89	0.04	1.24	0.05	1.24	0.05	0.79	0.03	0.85	0.04	0.88	0.04	
188	0.84	0.03	0.74	0.03	1.57	0.09	0.89	0.04	1.26	0.05	1.26	0.05	0.79	0.03	0.85	0.03	0.88	0.03	
189	0.84	0.03	0.74	0.03	1.57	0.11	0.90	0.03	1.27	0.04	1.27	0.04	0.79	0.03	0.85	0.04	0.88	0.03	
190	0.84	0.04	0.74	0.03	1.57	0.08	0.90	0.04	1.29	0.05	1.29	0.05	0.79	0.03	0.85	0.03	0.88	0.03	
191	0.84	0.03	0.74	0.03	1.58	0.08	0.90	0.03	1.30	0.05	1.30	0.05	0.79	0.03	0.85	0.04	0.89	0.03	
192	0.84	0.04	0.74	0.03	1.58	0.09	0.90	0.04	1.32	0.05	1.32	0.05	0.80	0.03	0.85	0.04	0.89	0.04	
193	0.85	0.04	0.74	0.03	1.58	0.07	0.90	0.04	1.33	0.03	1.33	0.03	0.80	0.04	0.85	0.04	0.89	0.04	
194	0.85	0.03	0.75	0.03	1.58	0.08	0.90	0.04	1.34	0.03	1.34	0.03	0.80	0.03	0.85	0.04	0.89	0.04	
195	0.85	0.03	0.75	0.03	1.58	0.08	0.90	0.03	1.34	0.05	1.34	0.05	0.80	0.03	0.85	0.03	0.89	0.04	
196	0.85	0.03	0.75	0.03	1.58	0.09	0.90	0.04	1.34	0.05	1.34	0.05	0.80	0.03	0.86	0.04	0.89	0.04	
197	0.85	0.04	0.75	0.03	1.58	0.08	0.90	0.03	1.35	0.06	1.35	0.06	0.80	0.04	0.86	0.04	0.89	0.04	
198	0.85	0.03	0.75	0.03	1.58	0.08	0.90	0.04	1.38	0.07	1.38	0.07	0.80	0.03	0.86	0.04	0.89	0.03	
199	0.85	0.03	0.75	0.03	1.59	0.09	0.90	0.02	1.38	0.05	1.38	0.05	0.80	0.03	0.86	0.04	0.89	0.04	
200	0.85	0.03	0.76	0.03	1.59	0.06	0.90	0.04	1.38	0.07	1.38	0.07	0.80	0.03	0.86	0.04	0.89	0.03	

Size measurements nematodes Signy

1991	Apr 27		May 14		May 28		Jun 11		Jun 26		Jul 12		Jul 28		Aug 10		Aug 23		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
201	0.86	0.03	0.76	0.03	1.59	0.07	0.91	0.03	1.40	0.07	1.40	0.07	0.80	0.03	0.86	0.04	0.89	0.04	
202	0.86	0.03	0.76	0.03	1.59	0.07	0.91	0.03	1.40	0.05	1.40	0.05	0.80	0.03	0.86	0.04	0.90	0.03	
203	0.86	0.04	0.76	0.03	1.59	0.08	0.91	0.04	1.40	0.06	1.40	0.06	0.80	0.03	0.87	0.04	0.90	0.03	
204	0.86	0.04	0.76	0.03	1.59	0.08	0.91	0.04	1.41	0.07	1.41	0.07	0.80	0.04	0.87	0.04	0.90	0.04	
205	0.86	0.04	0.77	0.03	1.59	0.07	0.91	0.04	1.41	0.05	1.41	0.05	0.80	0.04	0.87	0.04	0.90	0.04	
206	0.86	0.04	0.77	0.03	1.60	0.09	0.91	0.04	1.42	0.08	1.42	0.08	0.81	0.03	0.87	0.04	0.90	0.03	
207	0.86	0.04	0.77	0.03	1.60	0.08	0.91	0.04	1.44	0.06	1.44	0.06	0.81	0.04	0.87	0.04	0.90	0.03	
208	0.87	0.03	0.77	0.03	1.60	0.08	0.91	0.04	1.44	0.05	1.44	0.05	0.81	0.03	0.87	0.04	0.91	0.03	
209	0.87	0.04	0.77	0.03	1.60	0.10	0.91	0.04	1.44	0.06	1.44	0.06	0.81	0.04	0.87	0.04	0.91	0.04	
210	0.87	0.03	0.77	0.03	1.61	0.09	0.91	0.03	1.46	0.05	1.46	0.05	0.82	0.03	0.87	0.03	0.91	0.03	
211	0.87	0.04	0.77	0.03	1.61	0.08	0.92	0.04	1.47	0.07	1.47	0.07	0.82	0.03	0.87	0.04	0.91	0.04	
212	0.88	0.03	0.78	0.03	1.61	0.09	0.92	0.04	1.48	0.07	1.48	0.07	0.82	0.04	0.88	0.04	0.91	0.03	
213	0.88	0.04	0.78	0.04	1.61	0.08	0.92	0.03	1.50	0.05	1.50	0.05	0.82	0.04	0.88	0.04	0.91	0.04	
214	0.88	0.04	0.79	0.03	1.61	0.10	0.92	0.04	1.50	0.06	1.50	0.06	0.82	0.04	0.88	0.04	0.91	0.03	
215	0.88	0.04	0.79	0.03	1.61	0.10	0.93	0.04	1.50	0.04	1.50	0.04	0.82	0.03	0.88	0.04	0.91	0.04	
216	0.88	0.04	0.79	0.03	1.62	0.08	0.93	0.04	1.51	0.07	1.51	0.07	0.82	0.03	0.88	0.04	0.92	0.04	
217	0.88	0.04	0.79	0.03	1.62	0.10	0.93	0.04	1.51	0.09	1.51	0.09	0.82	0.03	0.88	0.04	0.92	0.03	
218	0.88	0.04	0.79	0.03	1.62	0.08	0.93	0.04	1.52	0.07	1.52	0.07	0.82	0.03	0.88	0.04	0.92	0.03	
219	0.88	0.04	0.79	0.03	1.62	0.07	0.93	0.02	1.53	0.09	1.53	0.09	0.83	0.03	0.89	0.04	0.92	0.03	
220	0.88	0.03	0.79	0.03	1.62	0.10	0.93	0.03	1.53	0.07	1.53	0.07	0.83	0.04	0.89	0.04	0.92	0.03	
221	0.89	0.03	0.80	0.03	1.62	0.09	0.94	0.04	1.53	0.08	1.53	0.08	0.83	0.03	0.89	0.05	0.92	0.03	
222	0.89	0.04	0.80	0.03	1.62	0.07	0.94	0.04	1.53	0.08	1.53	0.08	0.83	0.03	0.89	0.04	0.93	0.03	
223	0.89	0.03	0.80	0.03	1.62	0.09	0.94	0.04	1.54	0.08	1.54	0.08	0.83	0.03	0.89	0.03	0.93	0.03	
224	0.89	0.04	0.80	0.03	1.62	0.11	0.94	0.04	1.54	0.06	1.54	0.06	0.83	0.04	0.89	0.04	0.93	0.03	
225	0.89	0.03	0.80	0.03	1.62	0.12	0.94	0.04	1.54	0.07	1.54	0.07	0.83	0.03	0.89	0.04	0.93	0.03	
226	0.89	0.04	0.80	0.03	1.62	0.08	0.95	0.02	1.54	0.08	1.54	0.08	0.83	0.03	0.89	0.04	0.93	0.04	
227	0.89	0.04	0.81	0.03	1.62	0.07	0.95	0.03	1.55	0.07	1.55	0.07	0.83	0.03	0.89	0.04	0.93	0.04	
228	0.89	0.04	0.81	0.03	1.63	0.09	0.95	0.04	1.55	0.06	1.55	0.06	0.83	0.03	0.90	0.04	0.93	0.04	
229	0.89	0.03	0.81	0.04	1.63	0.08	0.95	0.02	1.55	0.09	1.55	0.09	0.83	0.03	0.90	0.04	0.93	0.03	
230	0.89	0.05	0.81	0.04	1.63	0.09	0.95	0.04	1.56	0.07	1.56	0.07	0.83	0.03	0.90	0.04	0.93	0.03	
231	0.89	0.02	0.81	0.03	1.63	0.08	0.96	0.05	1.57	0.08	1.57	0.08	0.83	0.03	0.90	0.04	0.93	0.04	
232	0.89	0.04	0.82	0.03	1.63	0.07	0.97	0.04	1.57	0.08	1.57	0.08	0.84	0.03	0.90	0.04	0.93	0.02	
233	0.90	0.04	0.82	0.03	1.63	0.08	0.97	0.03	1.57	0.06	1.57	0.06	0.84	0.03	0.90	0.03	0.94	0.04	
234	0.90	0.04	0.82	0.03	1.64	0.10	0.97	0.04	1.57	0.08	1.57	0.08	0.84	0.04	0.90	0.04	0.94	0.03	
235	0.90	0.04	0.82	0.03	1.64	0.09	0.98	0.03	1.58	0.07	1.58	0.07	0.84	0.04	0.90	0.04	0.94	0.04	
236	0.90	0.01	0.82	0.04	1.64	0.08	0.98	0.02	1.58	0.07	1.58	0.07	0.84	0.03	0.90	0.04	0.94	0.03	
237	0.90	0.03	0.82	0.03	1.64	0.07	0.99	0.04	1.58	0.09	1.58	0.09	0.84	0.03	0.90	0.04	0.94	0.03	
238	0.90	0.03	0.82	0.03	1.64	0.09	0.99	0.04	1.58	0.07	1.58	0.07	0.84	0.03	0.90	0.04	0.94	0.03	
239	0.90	0.04	0.83	0.03	1.64	0.07	1.00	0.04	1.59	0.10	1.59	0.10	0.84	0.04	0.90	0.04	0.94	0.03	
240	0.91	0.04	0.83	0.03	1.64	0.09	1.00	0.04	1.59	0.06	1.59	0.06	0.84	0.03	0.90	0.04	0.94	0.04	
241	0.91	0.04	0.83	0.04	1.65	0.08	1.01	0.02	1.59	0.07	1.59	0.07	0.85	0.03	0.90	0.04	0.94	0.04	
242	0.92	0.03	0.84	0.03	1.65	0.09	1.04	0.04	1.59	0.07	1.59	0.07	0.85	0.04	0.91	0.03	0.95	0.03	
243	0.92	0.04	0.84	0.04	1.65	0.07	1.05	0.04	1.60	0.08	1.60	0.08	0.85	0.03	0.91	0.04	0.95	0.03	
244	0.92	0.04	0.84	0.04	1.65	0.10	1.05	0.04	1.60	0.08	1.60	0.08	0.85	0.03	0.91	0.03	0.96	0.04	
245	0.92	0.04	0.84	0.04	1.65	0.08	1.05	0.04	1.60	0.08	1.60	0.08	0.85	0.03	0.91	0.04	0.96	0.04	
246	0.92	0.04	0.84	0.04	1.65	0.08	1.06	0.04	1.60	0.08	1.60	0.08	0.85	0.03	0.91	0.04	0.96	0.03	
247	0.92	0.04	0.84	0.04	1.66	0.09	1.08	0.04	1.61	0.08	1.61	0.08	0.86	0.04	0.91	0.04	0.96	0.04	
248	0.92	0.04	0.84	0.04	1.66	0.10	1.09	0.05	1.61	0.07	1.61	0.07	0.86	0.03	0.91	0.04	0.96	0.03	
249	0.92	0.03	0.85	0.03	1.66	0.09	1.09	0.05	1.62	0.08	1.62	0.08	0.86	0.03	0.92	0.04	0.97	0.04	
250	0.92	0.04	0.85	0.03	1.66	0.09	1.10	0.03	1.62	0.09	1.62	0.09	0.86	0.03	0.92	0.03	0.98	0.03	
251	0.93	0.04	0.85	0.03	1.66	0.07	1.10	0.05	1.62	0.07	1.62	0.07	0.86	0.04	0.92	0.04	0.99	0.03	
252	0.93	0.04	0.85	0.04	1.66	0.08	1.10	0.03	1.62	0.09	1.62	0.09	0.86	0.03	0.92	0.04	0.99	0.04	
253	0.93	0.03	0.85	0.04	1.67	0.08	1.11	0.05	1.62	0.08	1.62	0.08	0.86	0.04	0.92	0.04	0.99	0.03	
254	0.94	0.04	0.85	0.04	1.67	0.10	1.11	0.05	1.62	0.08	1.62	0.08	0.87	0.03	0.92	0.04	0.99	0.03	
255	0.94	0.03	0.85	0.03	1.67	0.08	1.12	0.05	1.62	0.10	1.62	0.10	0.87	0.03	0.92	0.04	0.99	0.04	
256	0.94	0.03	0.85	0.04	1.67	0.09	1.12	0.06	1.63	0.09	1.63	0.09	0.87	0.03	0.92	0.04	1.00	0.03	
257	0.94	0.03	0.85	0.04	1.67	0.08	1.12	0.06	1.63	0.08	1.63	0.08	0.87	0.03	0.93	0.04	1.03	0.04	
258	0.94	0.04	0.85	0.03	1.67	0.08	1.12	0.05	1.63	0.09	1.63	0.09	0.87	0.04	0.93	0.04	1.03	0.04	
259	0.94	0.04	0.85	0.04	1.68	0.09	1.14	0.04	1.63	0.09	1.63	0.09	0.87	0.03	0.93	0.04	1.05	0.03	
260	0.95	0.04	0.86	0.04	1.68	0.10	1.14	0.05	1.63	0.08	1.63	0.08	0.87	0.03	0.93	0.04	1.06	0.04	
261	0.95	0.04	0.86	0.03	1.68	0.04	1.15	0.05	1.63	0.07	1.63	0.07	0.87	0.04	0.93	0.04	1.06	0.03	
262	0.95	0.04	0.86	0.03	1.68	0.09	1.15	0.04	1.63	0.07	1.63	0.07	0.87	0.03	0.93	0.04	1.06	0.03	
263	0.95	0.03	0.86	0.04	1.68	0.10	1.16	0.04	1.64	0.09	1.64	0.09	0.87	0.03	0.94	0.04	1.06	0.04	
264	0.95	0.04	0.86	0.03	1.68	0.08	1.16	0.04	1.64	0.07	1.64	0.07	0.87	0.03	0.94	0.04	1.07	0.03	
265	0.95	0.04	0.86	0.04	1.69	0.07	1.16	0.03	1.64	0.06	1.64	0.06	0.87	0.03	0.94	0.03	1.07	0.04	
266	0.96	0.04	0.86	0.03	1.69	0.11	1.16	0.05	1.64	0.08	1.64	0.08	0.87	0.03	0.94	0.04	1.08	0.04	
267	0.96	0.04	0.86	0.04	1.69	0.07	1.17	0.05	1.65	0.07	1.65	0.07	0.87	0.04	0.94	0.04	1.09	0.05	
268	0.96	0.04	0.86	0.03	1.69	0.08	1.17	0.04	1.65	0.09	1.65	0.09	0.88	0.03	0.95	0.05	1.10	0.04	
269	0.96	0.04	0.86	0.04	1.69	0.07	1.18	0.03	1.65	0.07	1.65	0.07	0.88	0.04	0.95	0.04	1.10	0.04	
270	0.96	0.04	0.86	0.03	1.69	0.09	1.18	0.06	1.65	0.10	1.65	0.10	0.88	0.03	0.95	0.04	1.10	0.04	
271	0.97	0.03	0.86	0.03	1.69	0.09	1.18	0.05	1.66	0.09	1.66	0.09	0.88	0.03	0.95	0.04	1.10	0.04	
272	0.97	0.04	0.86	0.03	1.70	0.08	1.19	0.05	1.66	0.08	1.66	0.08	0.88	0.03	0.96	0.04	1.10	0.04	
273	0.97	0.04	0.86	0.03	1.70	0.08	1.19	0.05	1.66	0.08	1.66	0.08	0.88	0.04	0.96	0.04	1.13	0.04	
274	0.98	0.04	0.87	0.04	1.70	0.08	1.20	0.05	1.66	0.08	1.66	0.08	0.89	0.04	0.96	0.04	1.13	0.03	
275	0.98	0.04	0.87	0.03	1.70	0.11	1.20	0.05	1.66	0.08	1.66	0.08	0.89	0.04	0.96	0.04	1.13	0.04	
276	0.99	0.05	0.87	0.03	1.70	0.09	1.21	0.05	1.66	0.09	1.66	0.09	0.90	0.03	0.97	0.04	1.14	0.08	
277	0.99	0.04	0.87	0.04	1.70	0.08	1.22	0.05	1.66	0.09	1.66	0.09	0.90	0.03	0.97	0.04	1.15	0.05	
278	0.99	0.04	0.87	0.04	1.70	0.08	1.22	0.04	1.67	0.08	1.67	0.08	0.90	0.03	0.97	0.04	1.15	0.03	
279	0.99	0.04	0.87	0.04	1.70	0.09	1.25	0.06	1.67	0.07	1.67	0.07	0.90	0.03	0.98	0.04	1.15	0.04	
280	0.99	0.04	0.87	0.04	1.70	0.11	1.28	0.05	1.67	0.07	1.67	0.07	0.91	0.03	0.98	0.04	1.16	0.04	
281	0.99	0.04	0.88	0.04	1.71	0.10	1.31	0.03	1.67	0.10	1.67	0.10	0.91	0.03	1.00	0.04	1.16	0.04	
282	1.00	0.04	0.88	0.04	1.71	0.08	1.34	0.03	1.67	0.08	1.67	0.08	0.91	0.04	1.00	0.04	1.17	0.04	
283	1.01	0.03	0.88	0.03	1.71	0.09	1.34	0.05	1.67	0.08	1.67	0.08	0.91	0.03	1.01	0.03	1.17	0.06	
284	1.01	0.04	0.88	0.03	1.71	0.07	1.35	0.05	1.68	0.10	1.68	0.10	0.91	0.03	1.01	0.04	1.18	0.04	
285	1.01	0.04	0.88	0.04	1.71	0.09	1.39	0.04	1.68	0.11	1.68	0.11	0.92	0.03	1.01	0.04	1.18	0.04	
286	1.02	0.04	0.88	0.05	1.71	0.09	1.41	0.03	1.68	0.09	1.68	0.09	0.92	0.03	1.02	0.05	1.19	0.05	
287	1.03	0.04	0.88	0.03	1.72	0.10	1.42	0.07	1.68	0.09	1.68	0.09	0.92	0.04	1.03	0.03	1.21	0.05	
288	1.04	0.04	0.88	0.04	1.72	0.09	1.42	0.05	1.68	0.09	1.68	0.09	0.92	0.04	1.03	0.04	1.21	0.05	
289	1.04	0.03	0.88	0.03	1.72	0.09	1.46	0.06	1.68	0.10	1.68	0.10	0.93	0.03	1.03	0.05	1.22	0.04	
290	1.04	0.04	0.88	0.03	1.72	0.10	1.47	0.07	1.68	0.09	1.68	0.09	0.93	0.03	1.03	0.05	1.22	0.04	
291	1.04	0.05	0.88	0.03	1.72	0.10	1.48	0.06	1.69	0.09	1.69	0.09	0.94	0.03	1.03	0.04	1.23	0.04	
292	1.05	0.05	0.89	0.04	1.72	0.10	1.52	0.06	1.69	0.09	1.69	0.09	0.94	0.04	1.05	0.05	1.24	0.04	
293	1.05	0.04	0.89	0.04	1.72	0.08	1.54	0.08	1.70	0.07	1.70	0.07	0.94	0.04	1.05	0.04	1.24	0.05	
294	1.06	0.03	0.89	0.03	1.72	0.09	1.55	0.06	1.70	0.09	1.70	0.09	0.94	0.04	1.07	0.05	1.24	0.04	
295	1.07	0.04	0.89	0.04	1.72	0.11	1.56	0.08	1.70	0.08	1.70	0.08	0.94	0.03	1.07	0.05	1.25	0.03	
296	1.09	0.04	0.89	0.05	1.72	0.10	1.57	0.08	1.70	0.10	1.70	0.10	0.95	0.04	1.07	0.04	1.25	0.04	
297	1.11	0.04	0.89	0.03	1.73	0.08	1.58	0.06	1.70	0.10	1.70	0.10	0.95	0.04	1.07	0.04	1.26	0.04	
298	1.11	0.04	0.89	0.05	1.73	0.10	1.60	0.10	1.70	0.07	1.70	0.07	0.95	0.03	1.08	0.04	1.27	0.04	
299	1.12	0.04	0.90	0.04	1.73	0.07	1.61	0.10	1.71	0.11	1.71	0.11	0.95	0.03	1.08	0.03	1.27	0.04	
300	1.13	0.04	0.90	0.04	1.73	0.09	1.61	0.10	1.71	0.09	1.71	0.09	0.96	0.04	1.08	0.05	1.28	0.05	

Size measurements nematodes Signy

1991	Apr 27		May 14		May 28		Jun 11		Jun 26		Jul 12		Jul 28		Aug 10		Aug 23		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
301	1.13	0.05	0.90	0.04	1.73	0.08	1.61	0.08	1.71	0.08	1.71	0.08	0.96	0.03	1.08	0.05	1.29	0.05	
302	1.14	0.05	0.90	0.04	1.73	0.11	1.61	0.10	1.72	0.09	1.72	0.09	0.97	0.04	1.09	0.04	1.30	0.03	
303	1.14	0.05	0.90	0.03	1.73	0.10	1.62	0.06	1.72	0.07	1.72	0.07	0.97	0.04	1.09	0.04	1.30	0.04	
304	1.15	0.05	0.90	0.04	1.73	0.08	1.62	0.11	1.72	0.09	1.72	0.09	0.98	0.03	1.09	0.05	1.31	0.05	
305	1.15	0.05	0.90	0.04	1.73	0.10	1.62	0.02	1.72	0.08	1.72	0.08	0.99	0.04	1.09	0.04	1.31	0.03	
306	1.15	0.04	0.90	0.03	1.73	0.09	1.63	0.08	1.72	0.09	1.72	0.09	0.99	0.04	1.11	0.04	1.31	0.03	
307	1.16	0.04	0.90	0.03	1.73	0.11	1.64	0.08	1.72	0.09	1.72	0.09	0.99	0.05	1.11	0.05	1.31	0.05	
308	1.16	0.05	0.90	0.04	1.74	0.07	1.66	0.06	1.72	0.09	1.72	0.09	1.00	0.03	1.13	0.05	1.31	0.04	
309	1.17	0.05	0.90	0.03	1.74	0.08	1.66	0.03	1.73	0.08	1.73	0.08	1.01	0.04	1.13	0.04	1.34	0.05	
310	1.17	0.04	0.90	0.03	1.74	0.09	1.67	0.08	1.73	0.06	1.73	0.06	1.01	0.04	1.14	0.04	1.34	0.06	
311	1.17	0.05	0.90	0.03	1.74	0.08	1.68	0.07	1.73	0.10	1.73	0.10	1.01	0.03	1.15	0.04	1.35	0.06	
312	1.17	0.06	0.90	0.03	1.74	0.08	1.68	0.07	1.73	0.10	1.73	0.10	1.04	0.04	1.15	0.06	1.35	0.06	
313	1.18	0.05	0.90	0.03	1.74	0.12	1.69	0.08	1.73	0.07	1.73	0.07	1.05	0.04	1.15	0.05	1.35	0.05	
314	1.19	0.04	0.90	0.03	1.75	0.08	1.69	0.09	1.73	0.08	1.73	0.08	1.06	0.04	1.16	0.04	1.36	0.06	
315	1.19	0.05	0.90	0.03	1.75	0.08	1.69	0.08	1.73	0.08	1.73	0.08	1.06	0.05	1.17	0.05	1.39	0.07	
316	1.20	0.06	0.90	0.03	1.75	0.10	1.70	0.10	1.73	0.04	1.73	0.04	1.10	0.04	1.18	0.05	1.41	0.06	
317	1.20	0.05	0.91	0.04	1.75	0.09	1.71	0.07	1.74	0.07	1.74	0.07	1.11	0.04	1.19	0.05	1.41	0.07	
318	1.21	0.05	0.91	0.03	1.75	0.08	1.71	0.09	1.74	0.08	1.74	0.08	1.11	0.05	1.19	0.05	1.42	0.06	
319	1.22	0.05	0.91	0.03	1.75	0.10	1.73	0.11	1.74	0.09	1.74	0.09	1.13	0.05	1.19	0.06	1.42	0.05	
320	1.22	0.05	0.91	0.04	1.75	0.09	1.73	0.09	1.74	0.08	1.74	0.08	1.13	0.04	1.19	0.07	1.44	0.05	
321	1.22	0.06	0.91	0.03	1.75	0.09	1.74	0.09	1.74	0.08	1.74	0.08	1.14	0.05	1.19	0.06	1.45	0.07	
322	1.23	0.05	0.91	0.04	1.76	0.10	1.74	0.08	1.74	0.07	1.74	0.07	1.14	0.03	1.20	0.05	1.46	0.05	
323	1.24	0.05	0.91	0.04	1.76	0.07	1.75	0.09	1.74	0.08	1.74	0.08	1.14	0.06	1.20	0.05	1.47	0.05	
324	1.24	0.05	0.91	0.04	1.76	0.08	1.75	0.09	1.74	0.07	1.74	0.07	1.15	0.03	1.21	0.04	1.47	0.06	
325	1.24	0.06	0.91	0.03	1.76	0.09	1.75	0.08	1.74	0.08	1.74	0.08	1.15	0.05	1.21	0.05	1.48	0.06	
326	1.25	0.04	0.91	0.03	1.77	0.10	1.75	0.04	1.74	0.08	1.74	0.08	1.15	0.06	1.21	0.05	1.50	0.06	
327	1.25	0.06	0.91	0.03	1.77	0.09	1.76	0.09	1.74	0.08	1.74	0.08	1.15	0.05	1.21	0.05	1.50	0.06	
328	1.25	0.03	0.92	0.03	1.77	0.08	1.76	0.09	1.75	0.10	1.75	0.10	1.15	0.04	1.22	0.06	1.50	0.07	
329	1.27	0.04	0.92	0.05	1.77	0.09	1.77	0.10	1.75	0.08	1.75	0.08	1.15	0.05	1.22	0.06	1.51	0.06	
330	1.28	0.05	0.92	0.04	1.77	0.07	1.77	0.10	1.75	0.07	1.75	0.07	1.15	0.07	1.22	0.05	1.51	0.06	
331	1.28	0.06	0.92	0.04	1.77	0.08	1.78	0.04	1.75	0.09	1.75	0.09	1.16	0.04	1.24	0.05	1.53	0.07	
332	1.29	0.06	0.92	0.03	1.77	0.09	1.78	0.11	1.76	0.06	1.76	0.06	1.16	0.04	1.24	0.04	1.53	0.04	
333	1.30	0.06	0.92	0.04	1.78	0.11	1.78	0.06	1.76	0.09	1.76	0.09	1.17	0.04	1.24	0.05	1.53	0.06	
334	1.30	0.07	0.92	0.03	1.78	0.10	1.78	0.09	1.76	0.08	1.76	0.08	1.17	0.05	1.24	0.06	1.54	0.07	
335	1.32	0.06	0.92	0.03	1.78	0.09	1.78	0.10	1.76	0.09	1.76	0.09	1.18	0.05	1.25	0.06	1.54	0.06	
336	1.32	0.06	0.92	0.04	1.78	0.09	1.79	0.13	1.77	0.09	1.77	0.09	1.19	0.04	1.26	0.04	1.56	0.06	
337	1.34	0.03	0.92	0.03	1.78	0.09	1.79	0.09	1.77	0.09	1.77	0.09	1.19	0.04	1.27	0.05	1.56	0.06	
338	1.35	0.07	0.92	0.03	1.78	0.12	1.79	0.03	1.77	0.08	1.77	0.08	1.22	0.04	1.28	0.06	1.57	0.07	
339	1.38	0.07	0.92	0.04	1.78	0.08	1.79	0.05	1.77	0.10	1.77	0.10	1.22	0.05	1.31	0.06	1.58	0.06	
340	1.39	0.07	0.93	0.03	1.79	0.10	1.80	0.09	1.77	0.10	1.77	0.10	1.24	0.05	1.34	0.06	1.59	0.05	
341	1.39	0.06	0.93	0.03	1.79	0.07	1.80	0.10	1.77	0.08	1.77	0.08	1.25	0.03	1.37	0.06	1.60	0.05	
342	1.42	0.06	0.93	0.04	1.79	0.10	1.80	0.09	1.77	0.08	1.77	0.08	1.29	0.04	1.38	0.07	1.61	0.08	
343	1.42	0.06	0.93	0.03	1.79	0.08	1.80	0.10	1.77	0.08	1.77	0.08	1.33	0.04	1.39	0.03	1.62	0.08	
344	1.45	0.07	0.93	0.04	1.79	0.10	1.80	0.10	1.77	0.12	1.77	0.12	1.38	0.06	1.39	0.06	1.63	0.05	
345	1.45	0.07	0.93	0.03	1.80	0.11	1.80	0.04	1.77	0.08	1.77	0.08	1.40	0.08	1.40	0.06	1.63	0.06	
346	1.50	0.07	0.93	0.03	1.80	0.08	1.80	0.08	1.78	0.08	1.78	0.08	1.41	0.05	1.40	0.06	1.63	0.06	
347	1.51	0.07	0.93	0.04	1.80	0.11	1.81	0.09	1.78	0.09	1.78	0.09	1.41	0.06	1.40	0.08	1.63	0.06	
348	1.52	0.06	0.93	0.04	1.80	0.08	1.81	0.09	1.78	0.08	1.78	0.08	1.42	0.07	1.42	0.07	1.63	0.08	
349	1.52	0.07	0.93	0.04	1.80	0.08	1.81	0.09	1.78	0.10	1.78	0.10	1.43	0.06	1.42	0.06	1.63	0.03	
350	1.52	0.07	0.93	0.04	1.80	0.08	1.81	0.09	1.78	0.08	1.78	0.08	1.44	0.04	1.44	0.06	1.64	0.07	
351	1.53	0.06	0.94	0.03	1.81	0.10	1.81	0.08	1.79	0.07	1.79	0.07	1.45	0.08	1.44	0.08	1.65	0.07	
352	1.54	0.08	0.94	0.04	1.81	0.07	1.82	0.09	1.79	0.07	1.79	0.07	1.46	0.07	1.44	0.06	1.65	0.04	
353	1.54	0.03	0.94	0.03	1.81	0.09	1.83	0.09	1.79	0.07	1.79	0.07	1.49	0.08	1.44	0.04	1.66	0.07	
354	1.54	0.07	0.94	0.03	1.81	0.07	1.83	0.08	1.79	0.08	1.79	0.08	1.49	0.03	1.45	0.07	1.67	0.07	
355	1.54	0.07	0.94	0.04	1.81	0.08	1.83	0.09	1.79	0.06	1.79	0.06	1.49	0.06	1.47	0.08	1.67	0.07	
356	1.55	0.07	0.95	0.03	1.81	0.07	1.83	0.10	1.80	0.08	1.80	0.08	1.53	0.04	1.48	0.08	1.68	0.07	
357	1.57	0.06	0.95	0.04	1.81	0.08	1.84	0.09	1.80	0.09	1.80	0.09	1.53	0.06	1.48	0.07	1.68	0.07	
358	1.58	0.06	0.96	0.04	1.81	0.08	1.84	0.07	1.80	0.09	1.80	0.09	1.54	0.05	1.48	0.07	1.69	0.06	
359	1.60	0.08	0.97	0.04	1.82	0.07	1.86	0.10	1.80	0.07	1.80	0.07	1.55	0.06	1.49	0.07	1.69	0.04	
360	1.60	0.07	0.97	0.04	1.82	0.12	1.87	0.09	1.80	0.09	1.80	0.09	1.55	0.07	1.51	0.08	1.69	0.07	
361	1.61	0.08	0.97	0.05	1.82	0.09	1.87	0.10	1.80	0.08	1.80	0.08	1.56	0.06	1.51	0.07	1.70	0.07	
362	1.61	0.08	0.97	0.04	1.82	0.08	1.87	0.04	1.80	0.09	1.80	0.09	1.58	0.04	1.52	0.10	1.71	0.06	
363	1.61	0.08	0.98	0.04	1.82	0.09	1.87	0.10	1.80	0.07	1.80	0.07	1.58	0.06	1.54	0.08	1.72	0.07	
364	1.62	0.07	0.98	0.04	1.82	0.08	1.87	0.06	1.81	0.09	1.81	0.09	1.59	0.09	1.54	0.08	1.72	0.10	
365	1.65	0.08	0.98	0.03	1.83	0.04	1.87	0.09	1.81	0.09	1.81	0.09	1.60	0.08	1.54	0.07	1.73	0.07	
366	1.66	0.08	1.00	0.04	1.83	0.08	1.87	0.11	1.81	0.08	1.81	0.08	1.60	0.07	1.55	0.09	1.76	0.09	
367	1.67	0.08	1.00	0.04	1.83	0.08	1.88	0.10	1.81	0.11	1.81	0.11	1.60	0.08	1.55	0.11	1.77	0.08	
368	1.67	0.08	1.00	0.03	1.83	0.10	1.88	0.09	1.81	0.09	1.81	0.09	1.61	0.11	1.55	0.06	1.77	0.03	
369	1.68	0.07	1.01	0.03	1.83	0.09	1.88	0.09	1.81	0.07	1.81	0.07	1.62	0.06	1.56	0.07	1.78	0.10	
370	1.69	0.08	1.01	0.03	1.84	0.09	1.89	0.09	1.81	0.08	1.81	0.08	1.62	0.09	1.57	0.08	1.78	0.06	
371	1.72	0.08	1.02	0.03	1.84	0.10	1.89	0.08	1.81	0.10	1.81	0.10	1.62	0.07	1.57	0.03	1.78	0.07	
372	1.72	0.09	1.02	0.03	1.84	0.08	1.89	0.08	1.82	0.08	1.82	0.08	1.62	0.04	1.58	0.06	1.79	0.09	
373	1.72	0.08	1.03	0.03	1.84	0.10	1.89	0.04	1.82	0.07	1.82	0.07	1.62	0.07	1.59	0.09	1.80	0.09	
374	1.72	0.09	1.03	0.04	1.85	0.09	1.89	0.10	1.82	0.09	1.82	0.09	1.63	0.09	1.59	0.06	1.80	0.08	
375	1.72	0.08	1.03	0.03	1.85	0.04	1.90	0.10	1.82	0.08	1.82	0.08	1.64	0.05	1.60	0.04	1.80	0.09	
376	1.72	0.08	1.03	0.03	1.85	0.08	1.90	0.08	1.82	0.08	1.82	0.08	1.65	0.06	1.62	0.08	1.80	0.07	
377	1.73	0.09	1.05	0.04	1.85	0.07	1.90	0.08	1.82	0.08	1.82	0.08	1.65	0.08	1.62	0.10	1.81	0.08	
378	1.73	0.08	1.06	0.04	1.85	0.08	1.90	0.10	1.82	0.09	1.82	0.09	1.65	0.04	1.63	0.09	1.81	0.01	
379	1.73	0.09	1.06	0.04	1.85	0.08	1.91	0.08	1.82	0.08	1.82	0.08	1.65	0.10	1.63	0.08	1.82	0.09	
380	1.74	0.09	1.07	0.03	1.85	0.08	1.91	0.09	1.82	0.07	1.82	0.07	1.66	0.08	1.65	0.07	1.83	0.08	
381	1.76	0.12	1.09	0.04	1.85	0.10	1.92	0.09	1.82	0.10	1.82	0.10	1.66	0.09	1.65	0.10	1.83	0.06	
382	1.76	0.09	1.09	0.04	1.85	0.07	1.93	0.10	1.82	0.09	1.82	0.09	1.69	0.07	1.66	0.08	1.83	0.08	
383	1.76	0.09	1.10	0.05	1.86	0.10	1.93	0.09	1.82	0.07	1.82	0.07	1.69	0.07	1.70	0.02	1.83	0.08	
384	1.76	0.09	1.10	0.05	1.86	0.09	1.95	0.10	1.82	0.10	1.82	0.10	1.70	0.07	1.70	0.05	1.84	0.08	
385	1.77	0.09	1.10	0.04	1.86	0.09	1.97	0.11	1.82	0.10	1.82	0.10	1.70	0.09	1.70	0.05	1.84	0.10	
386	1.77	0.10	1.11	0.05	1.86	0.08	1.97	0.10	1.83	0.09	1.83	0.09	1.70	0.08	1.70	0.12	1.84	0.05	
387	1.77	0.11	1.11	0.04	1.87	0.10	1.98	0.10	1.83	0.08	1.83	0.08	1.71	0.09	1.72	0.10	1.84	0.08	
388	1.78	0.08	1.11	0.04	1.87	0.10	1.99	0.05	1.83	0.06	1.83	0.06	1.71	0.08	1.75	0.09	1.84	0.08	
389	1.78	0.10	1.12	0.05	1.87	0.04	1.99	0.11	1.83	0.09	1.83	0.09	1.72	0.09	1.75	0.02	1.84	0.09	
390	1.78	0.10	1.12	0.04	1.87	0.08	1.99	0.10	1.84	0.08	1.84	0.08	1.72	0.09	1.75	0.05	1.84	0.07	
391	1.78	0.10	1.12	0.05	1.88	0.12	2.00	0.09	1.84	0.10	1.84	0.10	1.72	0.08	1.76	0.09	1.85	0.09	
392	1.78	0.08	1.13	0.04	1.88	0.09	2.05	0.10	1.84	0.09	1.84	0.09	1.72	0.09	1.77	0.05	1.86	0.08	
393	1.79	0.10	1.13	0.05	1.88	0.04	2.21	0.05	1.84	0.09	1.84	0.09	1.73	0.09	1.77	0.10	1.87	0.09	
394	1.79	0.08	1.14	0.04	1.88	0.08	2.21	0.04	1.84	0.07	1.84	0.07	1.73	0.07	1.77	0.08	1.87	0.09	
395	1.80	0.10	1.15	0.05	1.88	0.04	2.40	0.05	1.84	0.07	1.84	0.07	1.74	0.08	1.78	0.12	1.89	0.08	
396	1.81	0.10	1.16	0.05	1.89	0.10	2.42	0.12	1.84	0.07	1.84	0.07	1.74	0.07	1.81	0.05	1.90	0.07	
397	1.81	0.12	1.16	0.05	1.89	0.11	2.55	0.15	1.85	0.08	1.85	0.08	1.75	0.07	1.81	0.10	1.90	0.09	
398	1.82	0.10	1.16	0.05	1.89	0.09	2.62	0.05	1.85	0.09	1.85	0.09	1.75	0.04	1.83	0.10	1.90	0.07	
399	1.82	0.08	1.17	0.05	1.89	0.09	2.65	0.06	1.85	0.11	1.85	0.11	1.76	0.09	1.83	0.08	1.92	0.09	
400	1.82	0.09	1.17	0.05	1.89	0.08	2.71	0.05	1.86	0.07	1.86	0.07	1.77	0.09	1.83	0.04	1.92	0.09	

Size measurements nematodes Signy

1991	Apr 27		May 14		May 28		Jun 11		Jun 26		Jul 12		Jul 28		Aug 10		Aug 23		mm
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	
401	1.82	0.09	1.17	0.05	1.89	0.08	2.74	0.05	1.86	0.07	1.86	0.07	1.77	0.07	1.84	0.09	1.92	0.09	
402	1.84	0.09	1.17	0.06	1.89	0.07	2.75	0.05	1.87	0.10	1.87	0.10	1.77	0.07	1.85	0.12	1.92	0.11	
403	1.84	0.10	1.18	0.05	1.90	0.04	2.79	0.05	1.87	0.10	1.87	0.10	1.78	0.10	1.85	0.11	1.93	0.08	
404	1.84	0.08	1.18	0.05	1.90	0.10	2.92	0.05	1.87	0.08	1.87	0.08	1.78	0.09	1.89	0.10	1.93	0.09	
405	1.84	0.09	1.18	0.05	1.91	0.11	5.88	0.10	1.87	0.08	1.87	0.08	1.79	0.07	1.91	0.10	1.94	0.09	
406	1.85	0.10	1.18	0.06	1.91	0.08	5.88	0.10	1.87	0.10	1.87	0.10	1.79	0.11	1.91	0.10	1.94	0.10	
407	1.87	0.11	1.20	0.06	1.91	0.10	1.80	0.09	1.88	0.07	1.88	0.07	1.80	0.08	1.95	0.12	1.97	0.10	
408	1.87	0.08	1.21	0.05	1.92	0.10	2.42	0.12	1.88	0.07	1.88	0.07	1.81	0.09	1.99	0.10	1.97	0.10	
409	1.87	0.10	1.23	0.05	1.92	0.08	2.55	0.15	1.88	0.08	1.88	0.08	1.82	0.09	2.03	0.11	2.00	0.04	
410	1.87	0.10	1.23	0.06	1.93	0.11	1.93	0.10	1.88	0.07	1.88	0.07	1.84	0.10	2.04	0.05	2.02	0.09	
411	1.88	0.07	1.23	0.06	1.93	0.10			1.89	0.08	1.89	0.08	1.85	0.09	2.15	0.06	2.12	0.11	
412	1.89	0.04	1.24	0.06	1.93	0.08			1.89	0.08	1.89	0.08	1.85	0.09	2.16	0.04	2.16	0.04	
413	1.89	0.12	1.25	0.05	1.93	0.08			1.89	0.07	1.89	0.07	1.86	0.09	2.27	0.04	2.20	0.04	
414	1.90	0.12	1.25	0.05	1.94	0.09			1.89	0.09	1.89	0.09	1.86	0.08	2.28	0.05	2.21	0.02	
415	1.90	0.10	1.29	0.05	1.94	0.08			1.90	0.05	1.90	0.05	1.86	0.08	2.38	0.05	2.25	0.04	
416	1.90	0.09	1.29	0.06	1.94	0.08			1.90	0.08	1.90	0.08	1.87	0.09	2.63	0.06	2.29	0.04	
417	1.91	0.09	1.34	0.05	1.94	0.11			1.90	0.09	1.90	0.09	1.87	0.09	2.72	0.07	2.53	0.06	
418	1.91	0.09	1.38	0.05	1.95	0.10			1.91	0.07	1.91	0.07	1.89	0.09	2.78	0.09	2.60	0.05	
419	1.91	0.09	1.38	0.05	1.98	0.10			1.92	0.10	1.92	0.10	1.90	0.08			2.63	0.05	
420	1.92	0.10	1.38	0.06	2.00	0.05			1.92	0.07	1.92	0.07	1.91	0.10			2.66	0.05	
421	1.93	0.10	1.39	0.05	2.00	0.12			1.92	0.07	1.92	0.07	1.95	0.09			2.66	0.06	
422	1.93	0.11	1.40	0.05	2.02	0.05			1.92	0.08	1.92	0.08	1.96	0.04			2.72	0.05	
423	1.94	0.09	1.44	0.07	2.03	0.08			1.93	0.09	1.93	0.09	1.97	0.04			2.73	0.07	
424	1.95	0.10	1.45	0.05	2.22	0.04			1.98	0.07	1.98	0.07	2.41	0.05			2.81	0.05	
425	1.96	0.09	1.57	0.07	2.30	0.05			1.99	0.09	1.99	0.09	2.70	0.05			2.84	0.06	
426	1.97	0.13	1.60	0.08	2.37	0.06			2.00	0.10	2.00	0.10	2.70	0.06					
427	1.97	0.10	1.67	0.06	2.38	0.06			2.03	0.08	2.03	0.08	2.70	0.05					
428	1.97	0.10	1.67	0.08	2.50	0.05			2.03	0.04	2.03	0.04	3.13	0.06					
429	1.97	0.10	1.68	0.08	2.58	0.06			2.12	0.08	2.12	0.08	3.19	0.06					
430	1.98	0.09	1.70	0.08	2.58	0.05			2.40	0.06	2.40	0.06							
431	1.98	0.11	1.72	0.07	2.68	0.05			2.47	0.07	2.47	0.07							
432	2.00	0.10	1.73	0.07	2.68	0.05			2.47	0.12	2.47	0.12							
433	2.30	0.03	1.76	0.09	2.73	0.05			2.48	0.12	2.48	0.12							
434	2.40	0.06	1.76	0.09	2.78	0.05			2.60	0.05	2.60	0.05							
435	2.42	0.05	1.77	0.09	2.80	0.05			2.74	0.04	2.74	0.04							
436			1.77	0.08	2.81	0.05			2.75	0.05	2.75	0.05							
437			1.79	0.09	2.87	0.05			2.82	0.06	2.82	0.06							
438			1.83	0.09	2.92	0.06			2.82	0.06	2.82	0.06							
439			1.89	0.09					2.83	0.06	2.83	0.06							
440			1.90	0.09					2.86	0.05	2.86	0.05							
441			1.91	0.10					5.26	0.09	5.26	0.09							
442			1.92	0.09															
443			1.92	0.09															
444			1.94	0.09															
445			1.95	0.08															
446			1.96	0.08															
447			1.98	0.09															
448			1.99	0.09															
449			2.85	0.05															

Size measurements nematodes Signy

1991	Sep 5		Sep 20		Oct 4		Oct 17		Nov 1		Nov 14		Nov 28		Dec 13		Dec 27		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
1	0.36	0.02	0.29	0.02	0.27	0.02	0.29	0.01	0.29	0.02	0.25	0.01	0.32	0.02	0.29	0.01	0.25	0.01	
2	0.36	0.02	0.31	0.02	0.33	0.02	0.31	0.01	0.33	0.02	0.30	0.01	0.33	0.02	0.31	0.02	0.25	0.01	
3	0.37	0.02	0.32	0.02	0.34	0.02	0.34	0.02	0.35	0.02	0.32	0.01	0.33	0.02	0.33	0.02	0.26	0.01	
4	0.39	0.02	0.32	0.01	0.35	0.02	0.36	0.02	0.36	0.02	0.33	0.02	0.33	0.02	0.34	0.02	0.28	0.02	
5	0.41	0.02	0.33	0.02	0.35	0.02	0.37	0.02	0.37	0.02	0.35	0.01	0.35	0.02	0.36	0.01	0.28	0.02	
6	0.42	0.02	0.33	0.02	0.35	0.02	0.38	0.02	0.37	0.02	0.36	0.02	0.35	0.02	0.37	0.02	0.29	0.01	
7	0.43	0.02	0.33	0.02	0.36	0.02	0.38	0.02	0.37	0.02	0.37	0.02	0.35	0.02	0.38	0.02	0.30	0.02	
8	0.45	0.02	0.34	0.02	0.36	0.05	0.39	0.02	0.37	0.02	0.37	0.02	0.35	0.02	0.38	0.02	0.30	0.02	
9	0.45	0.02	0.34	0.02	0.37	0.02	0.39	0.02	0.38	0.02	0.38	0.02	0.36	0.02	0.39	0.02	0.31	0.02	
10	0.46	0.02	0.34	0.02	0.37	0.02	0.40	0.02	0.38	0.02	0.39	0.02	0.37	0.02	0.40	0.02	0.31	0.02	
11	0.46	0.02	0.35	0.02	0.37	0.02	0.42	0.02	0.42	0.02	0.40	0.02	0.38	0.02	0.40	0.02	0.32	0.02	
12	0.47	0.02	0.36	0.02	0.38	0.06	0.42	0.02	0.42	0.02	0.40	0.02	0.38	0.02	0.40	0.02	0.33	0.02	
13	0.47	0.02	0.37	0.02	0.38	0.02	0.42	0.02	0.43	0.02	0.41	0.02	0.38	0.02	0.40	0.02	0.33	0.02	
14	0.48	0.02	0.37	0.02	0.39	0.02	0.42	0.02	0.43	0.02	0.42	0.02	0.38	0.02	0.40	0.02	0.34	0.02	
15	0.48	0.02	0.38	0.02	0.39	0.02	0.43	0.02	0.44	0.02	0.44	0.02	0.38	0.05	0.40	0.02	0.34	0.02	
16	0.48	0.02	0.38	0.02	0.39	0.02	0.43	0.02	0.44	0.02	0.44	0.02	0.40	0.02	0.41	0.02	0.34	0.02	
17	0.48	0.02	0.39	0.02	0.39	0.02	0.44	0.02	0.46	0.02	0.46	0.02	0.40	0.02	0.42	0.02	0.35	0.01	
18	0.48	0.03	0.39	0.02	0.40	0.02	0.44	0.02	0.46	0.02	0.48	0.02	0.40	0.02	0.42	0.02	0.35	0.02	
19	0.48	0.02	0.39	0.02	0.41	0.02	0.44	0.02	0.46	0.02	0.48	0.02	0.40	0.02	0.42	0.02	0.36	0.02	
20	0.49	0.02	0.39	0.02	0.41	0.02	0.45	0.03	0.46	0.02	0.48	0.02	0.41	0.02	0.43	0.02	0.36	0.02	
21	0.49	0.02	0.40	0.02	0.41	0.02	0.45	0.02	0.46	0.02	0.48	0.02	0.41	0.02	0.43	0.02	0.36	0.02	
22	0.49	0.02	0.40	0.02	0.41	0.02	0.45	0.02	0.47	0.02	0.49	0.02	0.41	0.02	0.43	0.02	0.37	0.02	
23	0.49	0.02	0.41	0.02	0.42	0.02	0.45	0.02	0.48	0.02	0.49	0.02	0.42	0.02	0.44	0.03	0.37	0.02	
24	0.49	0.02	0.41	0.02	0.42	0.02	0.46	0.02	0.48	0.02	0.49	0.02	0.42	0.02	0.44	0.02	0.37	0.02	
25	0.49	0.02	0.41	0.02	0.43	0.02	0.47	0.02	0.48	0.02	0.50	0.02	0.42	0.02	0.44	0.02	0.38	0.01	
26	0.49	0.02	0.41	0.02	0.43	0.02	0.47	0.02	0.49	0.02	0.51	0.02	0.43	0.01	0.44	0.02	0.38	0.02	
27	0.49	0.02	0.42	0.02	0.43	0.02	0.49	0.02	0.49	0.03	0.51	0.02	0.43	0.02	0.45	0.02	0.38	0.02	
28	0.50	0.02	0.43	0.02	0.44	0.02	0.49	0.02	0.49	0.02	0.51	0.02	0.43	0.02	0.45	0.02	0.38	0.02	
29	0.50	0.02	0.43	0.02	0.44	0.02	0.50	0.02	0.52	0.02	0.51	0.02	0.44	0.02	0.45	0.02	0.39	0.02	
30	0.50	0.02	0.44	0.02	0.45	0.03	0.50	0.03	0.52	0.02	0.51	0.02	0.44	0.02	0.45	0.02	0.39	0.02	
31	0.50	0.02	0.44	0.02	0.45	0.02	0.51	0.02	0.54	0.02	0.51	0.02	0.44	0.02	0.45	0.02	0.39	0.02	
32	0.50	0.02	0.44	0.02	0.45	0.02	0.51	0.02	0.54	0.02	0.52	0.02	0.44	0.02	0.45	0.02	0.39	0.02	
33	0.50	0.02	0.45	0.02	0.45	0.02	0.53	0.02	0.54	0.02	0.52	0.02	0.44	0.02	0.46	0.02	0.39	0.02	
34	0.50	0.02	0.45	0.02	0.46	0.02	0.53	0.04	0.54	0.02	0.52	0.02	0.45	0.02	0.46	0.02	0.40	0.02	
35	0.50	0.08	0.45	0.02	0.46	0.02	0.53	0.02	0.54	0.02	0.52	0.02	0.45	0.02	0.47	0.02	0.41	0.02	
36	0.51	0.02	0.45	0.09	0.46	0.02	0.54	0.03	0.55	0.02	0.52	0.02	0.45	0.03	0.47	0.02	0.41	0.02	
37	0.51	0.02	0.45	0.02	0.46	0.02	0.54	0.03	0.56	0.02	0.53	0.02	0.45	0.02	0.47	0.03	0.42	0.02	
38	0.51	0.02	0.45	0.02	0.46	0.02	0.55	0.03	0.56	0.02	0.53	0.03	0.46	0.03	0.47	0.02	0.42	0.02	
39	0.52	0.02	0.46	0.02	0.47	0.02	0.56	0.02	0.56	0.02	0.53	0.02	0.46	0.02	0.47	0.03	0.43	0.02	
40	0.52	0.02	0.46	0.11	0.47	0.03	0.56	0.03	0.57	0.02	0.53	0.02	0.46	0.02	0.48	0.02	0.43	0.02	
41	0.52	0.02	0.46	0.02	0.47	0.02	0.56	0.02	0.57	0.02	0.54	0.02	0.46	0.02	0.48	0.02	0.43	0.02	
42	0.52	0.03	0.47	0.02	0.47	0.02	0.56	0.02	0.57	0.02	0.54	0.03	0.46	0.02	0.49	0.02	0.44	0.02	
43	0.53	0.02	0.48	0.02	0.48	0.02	0.56	0.02	0.57	0.02	0.54	0.02	0.46	0.02	0.49	0.02	0.44	0.02	
44	0.54	0.02	0.48	0.02	0.48	0.03	0.57	0.02	0.57	0.02	0.54	0.03	0.46	0.01	0.49	0.02	0.44	0.03	
45	0.54	0.02	0.48	0.02	0.49	0.03	0.57	0.02	0.58	0.02	0.54	0.02	0.46	0.02	0.49	0.02	0.44	0.02	
46	0.54	0.03	0.48	0.02	0.49	0.02	0.57	0.02	0.58	0.02	0.54	0.02	0.47	0.02	0.50	0.02	0.44	0.02	
47	0.55	0.03	0.48	0.02	0.50	0.02	0.58	0.02	0.58	0.03	0.54	0.02	0.47	0.02	0.51	0.02	0.45	0.02	
48	0.55	0.02	0.48	0.02	0.50	0.02	0.58	0.02	0.58	0.02	0.55	0.02	0.47	0.02	0.51	0.02	0.46	0.02	
49	0.55	0.02	0.49	0.02	0.51	0.02	0.58	0.02	0.59	0.02	0.55	0.02	0.47	0.02	0.51	0.02	0.46	0.02	
50	0.55	0.02	0.49	0.02	0.51	0.02	0.59	0.03	0.59	0.03	0.55	0.02	0.48	0.02	0.51	0.03	0.46	0.02	
51	0.55	0.02	0.49	0.02	0.52	0.02	0.59	0.02	0.60	0.03	0.55	0.02	0.49	0.02	0.51	0.02	0.46	0.02	
52	0.56	0.02	0.49	0.02	0.52	0.02	0.60	0.03	0.60	0.02	0.55	0.02	0.49	0.02	0.51	0.02	0.47	0.02	
53	0.56	0.02	0.50	0.02	0.53	0.02	0.60	0.02	0.60	0.03	0.55	0.02	0.49	0.03	0.52	0.02	0.48	0.02	
54	0.56	0.03	0.50	0.09	0.53	0.02	0.61	0.02	0.60	0.02	0.55	0.02	0.50	0.03	0.52	0.02	0.48	0.02	
55	0.56	0.03	0.50	0.03	0.54	0.02	0.61	0.02	0.60	0.02	0.55	0.02	0.50	0.03	0.52	0.02	0.48	0.02	
56	0.56	0.03	0.50	0.02	0.54	0.02	0.62	0.02	0.61	0.02	0.55	0.02	0.50	0.02	0.52	0.02	0.50	0.02	
57	0.56	0.03	0.51	0.02	0.54	0.03	0.62	0.02	0.61	0.02	0.56	0.02	0.50	0.02	0.52	0.02	0.50	0.02	
58	0.56	0.02	0.51	0.02	0.54	0.03	0.63	0.03	0.61	0.02	0.56	0.02	0.51	0.02	0.52	0.02	0.50	0.03	
59	0.57	0.02	0.51	0.02	0.54	0.02	0.63	0.03	0.61	0.03	0.56	0.03	0.52	0.02	0.52	0.02	0.50	0.02	
60	0.57	0.02	0.51	0.02	0.55	0.02	0.64	0.03	0.62	0.04	0.56	0.02	0.52	0.03	0.53	0.02	0.51	0.03	
61	0.57	0.02	0.51	0.02	0.56	0.03	0.64	0.03	0.62	0.02	0.56	0.02	0.52	0.03	0.53	0.02	0.51	0.02	
62	0.57	0.02	0.51	0.02	0.56	0.02	0.65	0.02	0.63	0.03	0.56	0.02	0.52	0.02	0.53	0.02	0.51	0.03	
63	0.57	0.02	0.51	0.04	0.56	0.02	0.66	0.04	0.63	0.02	0.56	0.02	0.53	0.03	0.53	0.02	0.52	0.03	
64	0.58	0.02	0.52	0.03	0.56	0.03	0.66	0.03	0.64	0.02	0.56	0.02	0.53	0.03	0.53	0.04	0.52	0.03	
65	0.58	0.02	0.52	0.02	0.57	0.02	0.66	0.02	0.64	0.02	0.56	0.02	0.53	0.03	0.53	0.02	0.52	0.03	
66	0.59	0.03	0.52	0.03	0.57	0.02	0.67	0.02	0.64	0.03	0.57	0.02	0.54	0.02	0.53	0.02	0.52	0.03	
67	0.59	0.02	0.52	0.02	0.57	0.02	0.67	0.02	0.65	0.02	0.57	0.02	0.54	0.02	0.53	0.02	0.53	0.02	
68	0.59	0.02	0.52	0.02	0.57	0.02	0.67	0.02	0.65	0.03	0.57	0.02	0.54	0.02	0.54	0.04	0.53	0.02	
69	0.59	0.03	0.53	0.02	0.57	0.02	0.67	0.03	0.65	0.05	0.57	0.02	0.54	0.02	0.54	0.02	0.54	0.02	
70	0.59	0.03	0.53	0.02	0.58	0.02	0.67	0.03	0.66	0.03	0.57	0.02	0.55	0.03	0.54	0.03	0.54	0.02	
71	0.59	0.03	0.53	0.02	0.58	0.02	0.67	0.03	0.66	0.02	0.57	0.02	0.55	0.02	0.54	0.02	0.54	0.02	
72	0.60	0.04	0.54	0.02	0.58	0.03	0.68	0.03	0.66	0.04	0.58	0.02	0.55	0.03	0.54	0.02	0.54	0.02	
73	0.60	0.03	0.54	0.02	0.59	0.02	0.68	0.03	0.66	0.03	0.58	0.02	0.56	0.03	0.54	0.02	0.56	0.02	
74	0.60	0.03	0.54	0.02	0.59	0.02	0.68	0.03	0.67	0.03	0.58	0.02	0.56	0.03	0.55	0.02	0.56	0.02	
75	0.60	0.03	0.54	0.02	0.59	0.03	0.68	0.02	0.67	0.03	0.58	0.03	0.57	0.02	0.55	0.02	0.57	0.02	
76	0.60	0.03	0.54	0.02	0.59	0.02	0.68	0.02	0.67	0.03	0.58	0.02	0.57	0.03	0.55	0.02	0.57	0.02	
77	0.60	0.03	0.55	0.02	0.59	0.02	0.69	0.03	0.67	0.04	0.58	0.02	0.57	0.02	0.55	0.02	0.58	0.02	
78	0.60	0.02	0.55	0.02	0.60	0.03	0.69	0.03	0.68	0.03	0.59	0.02	0.57	0.02	0.55	0.02	0.58	0.03	
79	0.60	0.03	0.55	0.02	0.60	0.02	0.69	0.03	0.68	0.03	0.59	0.02	0.57	0.02	0.55	0.02	0.59	0.02	
80	0.60	0.03	0.56	0.02	0.60	0.02	0.69	0.04	0.68	0.03	0.60	0.02	0.57	0.03	0.55	0.02	0.60	0.02	
81	0.60	0.03	0.56	0.02	0.60	0.02	0.69	0.03	0.69	0.02	0.60	0.02	0.57	0.03	0.55	0.02	0.60	0.03	
82	0.61	0.03	0.56	0.02	0.60	0.02	0.69	0.03	0.69	0.02	0.61	0.02	0.57	0.01	0.56	0.02	0.60	0.03	
83	0.61	0.02	0.57	0.03	0.62	0.02	0.70	0.03	0.70	0.03	0.61	0.02	0.57	0.02	0.56	0.02	0.61	0.03	
84	0.61	0.03	0.57	0.03	0.62	0.03	0.70	0.03	0.70	0.04	0.61	0.02	0.57	0.06	0.57	0.02	0.61	0.02	
85	0.61	0.02	0.57	0.03	0.62	0.02	0.70	0.03	0.70	0.02	0.61	0.03	0.57	0.02	0.58	0.02	0.61	0.03	
86	0.61	0.03	0.57	0.03	0.63	0.02	0.71	0.03	0.71	0.02	0.61	0.02	0.57	0.02	0.58	0.02	0.61	0.02	
87	0.61	0.02	0.57	0.02	0.64	0.03	0.72	0.03	0.71	0.03	0.62	0.03	0.58	0.02	0.58	0.02	0.61	0.03	
88	0.61	0.03	0.58	0.03	0.64	0.03	0.72	0.03	0.71	0.03	0.62	0.02	0.58	0.02	0.58	0.02	0.62	0.02	
89	0.61	0.02	0.58	0.03	0.64	0.02	0.72	0.03	0.71	0.03	0.62	0.02	0.59	0.03	0.58	0.02	0.62	0.03	
90	0.61	0.03	0.58	0.03	0.64	0.02	0.72	0.03	0.71	0.03	0.63	0.02	0.59	0.03	0.59	0.02	0.62	0.03	
91	0.61	0.03	0.58	0.02	0.65	0.02	0.73	0.02	0.72	0.02	0.63	0.02	0.59	0.03	0.59	0.02	0.62	0.03	
92	0.62	0.02	0.58	0.03	0.65	0.02	0.73	0.03	0.72	0.03	0.63	0.02	0.60	0.02	0.59	0.02	0.62	0.03	
93	0.62	0.02	0.59	0.03	0.65	0.03	0.73	0.03	0.72	0.03	0.63	0.02	0.60	0.02	0.60	0.02	0.62	0.03	
94	0.62	0.03	0.59	0.03	0.65	0.02	0.74	0.03	0.73	0.02	0.63	0.03	0.60	0.03	0.60	0.02	0.63	0.02	
95	0.62	0.02	0.59	0.02	0.66	0.03	0.74	0.03	0.73	0.03	0.64	0.03	0.60	0.02	0.60	0.03	0.63	0.03	
96	0.62	0.03	0.60	0.03	0.66	0.03	0.74	0.03	0.73	0.03	0.64	0.04	0.60	0.03	0.61	0.02	0.63	0.03	
97	0.62	0.02	0.60	0.03	0.66	0.03	0.74	0.04	0.74	0.03	0.65	0.02	0.61	0.03	0.61	0.02	0.64	0.02	
98	0.62	0.02	0.60	0.04	0.66	0.03	0.74	0.03	0.74	0.03	0.65	0.02	0.61	0.03	0.62	0.03	0.64	0.02	
99	0.63	0.03	0.61	0.02	0.67	0.03	0.75	0.03	0.74	0.03	0.66	0.03	0.62	0.03	0.62	0.02	0.64	0.02	
100	0.63	0.02	0.62	0.03	0.67	0.03	0.75	0.03	0.74	0.02	0.66	0.03	0.62	0.03	0.62	0.02	0.65	0.03	

Size measurements nematodes Signy

1991	Sep 5		Sep 20		Oct 4		Oct 17		Nov 1		Nov 14		Nov 28		Dec 13		Dec 27		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
101	0.63	0.03	0.62	0.03	0.67	0.03	0.75	0.03	0.74	0.03	0.66	0.02	0.62	0.03	0.62	0.03	0.65	0.03	
102	0.63	0.03	0.62	0.03	0.68	0.02	0.75	0.03	0.74	0.03	0.67	0.03	0.63	0.03	0.62	0.02	0.65	0.03	
103	0.65	0.03	0.62	0.02	0.68	0.03	0.75	0.03	0.74	0.02	0.67	0.03	0.63	0.03	0.63	0.02	0.65	0.03	
104	0.65	0.03	0.63	0.02	0.68	0.02	0.76	0.04	0.74	0.03	0.68	0.02	0.63	0.03	0.64	0.04	0.65	0.03	
105	0.65	0.03	0.63	0.03	0.68	0.03	0.76	0.03	0.75	0.03	0.68	0.02	0.63	0.03	0.64	0.02	0.65	0.02	
106	0.65	0.03	0.63	0.03	0.69	0.02	0.76	0.03	0.75	0.03	0.69	0.03	0.63	0.02	0.64	0.02	0.65	0.03	
107	0.65	0.03	0.63	0.03	0.70	0.02	0.76	0.03	0.75	0.03	0.69	0.03	0.64	0.03	0.64	0.02	0.66	0.03	
108	0.65	0.03	0.63	0.03	0.70	0.03	0.76	0.03	0.75	0.03	0.69	0.02	0.64	0.03	0.65	0.03	0.66	0.04	
109	0.66	0.03	0.64	0.03	0.70	0.03	0.77	0.02	0.75	0.03	0.69	0.03	0.64	0.03	0.65	0.02	0.67	0.03	
110	0.66	0.03	0.64	0.03	0.70	0.03	0.77	0.04	0.75	0.03	0.70	0.03	0.64	0.03	0.66	0.03	0.67	0.02	
111	0.66	0.03	0.64	0.03	0.70	0.03	0.78	0.03	0.75	0.03	0.70	0.02	0.65	0.03	0.67	0.02	0.67	0.03	
112	0.67	0.02	0.64	0.02	0.70	0.03	0.78	0.03	0.76	0.03	0.70	0.02	0.65	0.03	0.67	0.03	0.67	0.03	
113	0.67	0.03	0.64	0.03	0.71	0.03	0.78	0.03	0.76	0.03	0.70	0.02	0.65	0.04	0.67	0.03	0.67	0.03	
114	0.67	0.04	0.65	0.02	0.71	0.03	0.78	0.03	0.76	0.03	0.70	0.03	0.66	0.03	0.68	0.03	0.67	0.03	
115	0.67	0.03	0.65	0.03	0.71	0.03	0.79	0.03	0.77	0.02	0.71	0.03	0.66	0.03	0.68	0.03	0.68	0.03	
116	0.68	0.03	0.66	0.02	0.71	0.03	0.79	0.04	0.77	0.03	0.72	0.03	0.66	0.03	0.68	0.03	0.68	0.02	
117	0.68	0.02	0.66	0.03	0.72	0.03	0.79	0.03	0.77	0.03	0.72	0.02	0.66	0.03	0.68	0.02	0.68	0.03	
118	0.68	0.03	0.66	0.03	0.72	0.03	0.80	0.04	0.77	0.03	0.72	0.03	0.66	0.03	0.69	0.03	0.68	0.03	
119	0.68	0.03	0.67	0.05	0.72	0.02	0.80	0.03	0.77	0.02	0.72	0.03	0.67	0.03	0.69	0.03	0.69	0.03	
120	0.68	0.02	0.67	0.03	0.73	0.03	0.81	0.04	0.77	0.02	0.73	0.03	0.67	0.03	0.69	0.02	0.69	0.03	
121	0.68	0.03	0.68	0.03	0.73	0.03	0.81	0.03	0.77	0.04	0.73	0.02	0.68	0.03	0.69	0.03	0.69	0.03	
122	0.68	0.02	0.68	0.02	0.74	0.03	0.81	0.03	0.77	0.03	0.73	0.02	0.68	0.03	0.69	0.02	0.69	0.03	
123	0.68	0.03	0.68	0.03	0.75	0.04	0.81	0.03	0.78	0.03	0.73	0.03	0.68	0.03	0.70	0.03	0.69	0.04	
124	0.68	0.03	0.68	0.02	0.75	0.03	0.81	0.03	0.78	0.04	0.74	0.03	0.68	0.03	0.70	0.02	0.69	0.03	
125	0.68	0.02	0.68	0.03	0.75	0.03	0.82	0.04	0.78	0.03	0.74	0.02	0.69	0.03	0.70	0.03	0.69	0.04	
126	0.68	0.02	0.69	0.03	0.75	0.03	0.82	0.04	0.78	0.03	0.74	0.03	0.70	0.03	0.70	0.03	0.70	0.02	
127	0.68	0.03	0.69	0.03	0.76	0.03	0.82	0.03	0.79	0.03	0.74	0.03	0.70	0.03	0.70	0.03	0.70	0.03	
128	0.69	0.02	0.69	0.03	0.76	0.03	0.82	0.04	0.79	0.03	0.74	0.03	0.70	0.02	0.71	0.03	0.70	0.03	
129	0.69	0.03	0.69	0.03	0.76	0.02	0.82	0.04	0.79	0.03	0.75	0.03	0.70	0.03	0.71	0.02	0.70	0.03	
130	0.69	0.03	0.69	0.03	0.77	0.03	0.82	0.04	0.79	0.03	0.75	0.02	0.70	0.03	0.71	0.02	0.70	0.03	
131	0.69	0.02	0.70	0.03	0.77	0.03	0.83	0.04	0.80	0.03	0.75	0.03	0.71	0.03	0.71	0.02	0.70	0.03	
132	0.69	0.03	0.70	0.03	0.77	0.03	0.83	0.04	0.80	0.04	0.75	0.04	0.71	0.03	0.71	0.03	0.72	0.03	
133	0.69	0.03	0.70	0.03	0.77	0.03	0.83	0.04	0.80	0.03	0.75	0.03	0.71	0.03	0.72	0.03	0.72	0.03	
134	0.69	0.03	0.71	0.03	0.77	0.03	0.83	0.03	0.81	0.03	0.75	0.04	0.71	0.03	0.72	0.03	0.72	0.03	
135	0.69	0.03	0.71	0.03	0.77	0.03	0.83	0.03	0.81	0.04	0.75	0.03	0.71	0.03	0.72	0.02	0.73	0.03	
136	0.70	0.05	0.71	0.03	0.77	0.03	0.83	0.04	0.81	0.03	0.75	0.03	0.71	0.03	0.73	0.03	0.73	0.03	
137	0.70	0.03	0.71	0.03	0.77	0.03	0.84	0.04	0.81	0.03	0.76	0.02	0.72	0.03	0.73	0.03	0.73	0.03	
138	0.70	0.03	0.71	0.03	0.78	0.03	0.84	0.03	0.81	0.04	0.76	0.03	0.73	0.03	0.73	0.03	0.73	0.03	
139	0.70	0.03	0.71	0.03	0.78	0.03	0.84	0.04	0.81	0.03	0.76	0.03	0.73	0.03	0.74	0.02	0.73	0.03	
140	0.71	0.03	0.71	0.03	0.78	0.03	0.84	0.04	0.82	0.03	0.76	0.03	0.73	0.03	0.74	0.03	0.73	0.03	
141	0.71	0.03	0.72	0.03	0.79	0.03	0.84	0.03	0.82	0.03	0.76	0.03	0.73	0.03	0.74	0.03	0.74	0.03	
142	0.72	0.03	0.72	0.03	0.79	0.04	0.84	0.04	0.83	0.04	0.76	0.03	0.73	0.03	0.75	0.03	0.74	0.04	
143	0.72	0.03	0.72	0.03	0.79	0.03	0.85	0.04	0.83	0.03	0.76	0.03	0.73	0.03	0.75	0.03	0.74	0.03	
144	0.72	0.03	0.72	0.03	0.80	0.03	0.85	0.04	0.83	0.04	0.76	0.03	0.74	0.03	0.75	0.03	0.75	0.03	
145	0.72	0.03	0.72	0.03	0.80	0.03	0.85	0.04	0.83	0.03	0.76	0.02	0.75	0.03	0.75	0.03	0.75	0.03	
146	0.72	0.03	0.73	0.03	0.80	0.02	0.85	0.03	0.83	0.03	0.77	0.03	0.75	0.03	0.76	0.03	0.75	0.03	
147	0.72	0.03	0.73	0.03	0.80	0.03	0.85	0.04	0.83	0.04	0.77	0.03	0.75	0.04	0.76	0.03	0.75	0.03	
148	0.73	0.03	0.73	0.03	0.81	0.03	0.85	0.03	0.83	0.03	0.77	0.04	0.76	0.03	0.76	0.02	0.76	0.03	
149	0.73	0.03	0.73	0.03	0.81	0.03	0.86	0.03	0.84	0.04	0.77	0.04	0.76	0.03	0.76	0.03	0.76	0.03	
150	0.73	0.03	0.73	0.04	0.81	0.03	0.86	0.03	0.84	0.03	0.77	0.03	0.76	0.03	0.76	0.02	0.76	0.03	
151	0.74	0.03	0.73	0.03	0.81	0.03	0.86	0.04	0.84	0.03	0.77	0.03	0.76	0.03	0.76	0.03	0.76	0.04	
152	0.74	0.03	0.74	0.03	0.81	0.03	0.86	0.04	0.84	0.04	0.78	0.03	0.77	0.03	0.77	0.03	0.77	0.03	
153	0.74	0.03	0.74	0.03	0.81	0.03	0.86	0.04	0.84	0.02	0.78	0.03	0.77	0.03	0.77	0.03	0.77	0.03	
154	0.74	0.02	0.74	0.03	0.82	0.03	0.87	0.03	0.84	0.04	0.78	0.03	0.77	0.04	0.77	0.04	0.77	0.03	
155	0.74	0.03	0.74	0.03	0.82	0.03	0.87	0.04	0.84	0.04	0.78	0.03	0.77	0.04	0.78	0.03	0.77	0.03	
156	0.74	0.03	0.74	0.03	0.82	0.03	0.87	0.04	0.84	0.04	0.78	0.03	0.78	0.03	0.78	0.03	0.77	0.03	
157	0.75	0.03	0.74	0.03	0.82	0.03	0.87	0.03	0.85	0.04	0.78	0.03	0.78	0.03	0.78	0.04	0.78	0.03	
158	0.75	0.03	0.74	0.03	0.82	0.03	0.87	0.03	0.85	0.04	0.78	0.03	0.78	0.03	0.78	0.03	0.79	0.03	
159	0.75	0.03	0.75	0.03	0.83	0.04	0.87	0.04	0.85	0.03	0.78	0.03	0.78	0.03	0.79	0.03	0.80	0.03	
160	0.75	0.03	0.75	0.03	0.83	0.02	0.87	0.03	0.85	0.03	0.79	0.03	0.78	0.03	0.79	0.03	0.80	0.03	
161	0.75	0.03	0.75	0.03	0.84	0.03	0.87	0.04	0.85	0.04	0.79	0.03	0.79	0.03	0.79	0.02	0.80	0.03	
162	0.76	0.04	0.75	0.03	0.84	0.03	0.87	0.03	0.85	0.04	0.79	0.02	0.79	0.03	0.79	0.03	0.80	0.04	
163	0.76	0.03	0.76	0.03	0.84	0.03	0.87	0.03	0.85	0.04	0.79	0.03	0.80	0.03	0.79	0.03	0.81	0.03	
164	0.76	0.03	0.76	0.03	0.84	0.03	0.88	0.04	0.85	0.03	0.79	0.03	0.80	0.03	0.79	0.02	0.82	0.03	
165	0.77	0.03	0.76	0.03	0.84	0.03	0.88	0.04	0.85	0.03	0.79	0.03	0.80	0.03	0.79	0.03	0.82	0.04	
166	0.77	0.03	0.76	0.03	0.84	0.04	0.88	0.04	0.85	0.03	0.79	0.04	0.81	0.03	0.79	0.03	0.82	0.03	
167	0.77	0.03	0.76	0.03	0.85	0.03	0.88	0.04	0.85	0.03	0.79	0.03	0.81	0.04	0.79	0.03	0.82	0.03	
168	0.77	0.03	0.76	0.02	0.85	0.03	0.88	0.04	0.86	0.04	0.79	0.03	0.81	0.04	0.79	0.03	0.82	0.04	
169	0.77	0.03	0.76	0.03	0.85	0.03	0.88	0.04	0.86	0.03	0.79	0.03	0.81	0.03	0.79	0.03	0.82	0.03	
170	0.77	0.03	0.76	0.02	0.85	0.04	0.88	0.03	0.87	0.04	0.80	0.03	0.81	0.03	0.79	0.03	0.82	0.03	
171	0.78	0.03	0.77	0.04	0.85	0.03	0.89	0.03	0.87	0.03	0.80	0.02	0.82	0.03	0.79	0.03	0.83	0.04	
172	0.78	0.02	0.77	0.03	0.85	0.03	0.89	0.03	0.87	0.04	0.80	0.03	0.82	0.04	0.80	0.03	0.83	0.04	
173	0.78	0.03	0.77	0.03	0.85	0.04	0.89	0.04	0.87	0.04	0.80	0.03	0.83	0.04	0.80	0.03	0.83	0.04	
174	0.79	0.03	0.77	0.03	0.85	0.03	0.89	0.03	0.88	0.04	0.80	0.03	0.83	0.04	0.80	0.03	0.83	0.04	
175	0.79	0.03	0.77	0.03	0.85	0.03	0.89	0.04	0.88	0.03	0.80	0.03	0.83	0.04	0.80	0.03	0.84	0.03	
176	0.79	0.03	0.77	0.03	0.85	0.03	0.90	0.04	0.88	0.04	0.80	0.03	0.83	0.03	0.80	0.03	0.84	0.04	
177	0.80	0.03	0.78	0.03	0.86	0.03	0.90	0.04	0.88	0.03	0.80	0.03	0.84	0.03	0.81	0.03	0.84	0.04	
178	0.80	0.04	0.78	0.03	0.86	0.03	0.90	0.03	0.88	0.04	0.80	0.04	0.84	0.04	0.81	0.03	0.84	0.03	
179	0.80	0.03	0.78	0.04	0.86	0.03	0.90	0.04	0.88	0.04	0.80	0.04	0.84	0.02	0.81	0.03	0.84	0.03	
180	0.80	0.03	0.78	0.04	0.86	0.04	0.91	0.04	0.88	0.04	0.80	0.03	0.84	0.04	0.81	0.03	0.85	0.03	
181	0.80	0.03	0.78	0.03	0.86	0.03	0.91	0.04	0.89	0.03	0.80	0.03	0.84	0.03	0.81	0.03	0.85	0.03	
182	0.80	0.04	0.79	0.03	0.86	0.03	0.91	0.03	0.89	0.03	0.80	0.03	0.84	0.04	0.81	0.03	0.85	0.04	
183	0.81	0.03	0.79	0.04	0.86	0.03	0.91	0.04	0.89	0.03	0.80	0.03	0.85	0.03	0.82	0.03	0.85	0.03	
184	0.81	0.02	0.79	0.04	0.87	0.03	0.91	0.04	0.89	0.04	0.81	0.03	0.85	0.03	0.82	0.03	0.85	0.04	
185	0.81	0.04	0.79	0.03	0.87	0.04	0.91	0.04	0.89	0.03	0.81	0.03	0.85	0.03	0.82	0.03	0.85	0.03	
186	0.81	0.02	0.79	0.03	0.87	0.04	0.91	0.04	0.89	0.04	0.81	0.03	0.85	0.04	0.82	0.03	0.85	0.03	
187	0.82	0.03	0.79	0.03	0.88	0.03	0.91	0.04	0.89	0.04	0.81	0.03	0.85	0.04	0.82	0.03	0.85	0.03	
188	0.82	0.03	0.79	0.03	0.88	0.04	0.91	0.03	0.89	0.03	0.81	0.03	0.85	0.03	0.82	0.04	0.85	0.03	
189	0.82	0.03	0.80	0.04	0.88	0.03	0.92	0.04	0.89	0.03	0.81	0.03	0.85	0.03	0.82	0.03	0.85	0.04	
190	0.82	0.02	0.80	0.03	0.88	0.03	0.92	0.03	0.89	0.03	0.81	0.03	0.86	0.03	0.82	0.03	0.85	0.03	
191	0.83	0.03	0.80	0.03	0.88	0.03	0.92	0.04	0.90	0.04	0.81	0.03	0.86	0.04	0.82	0.03	0.85	0.04	
192	0.83	0.03	0.80	0.03	0.88	0.03	0.92	0.03	0.90	0.02	0.81	0.03	0.86	0.04	0.82	0.03	0.86	0.03	
193	0.84	0.04	0.80	0.02	0.89	0.03	0.92	0.03	0.90	0.03	0.81	0.03	0.87	0.04	0.82	0.03	0.86	0.04	
194	0.84	0.03	0.80	0.04	0.89	0.03	0.92	0.04	0.90	0.04	0.81	0.02	0.87	0.04	0.82	0.03	0.86	0.04	
195	0.84	0.03	0.80	0.03	0.89	0.03	0.92	0.04	0.90	0.04	0.82	0.03	0.87	0.04	0.83	0.03	0.87	0.04	
196	0.84	0.04	0.80	0.03	0.89	0.04	0.93	0.03	0.90	0.04	0.82	0.03	0.87	0.03	0.83	0.03	0.87	0.04	
197	0.85	0.04	0.81	0.03	0.89	0.03	0.93	0.04	0.90	0.04	0.82	0.03	0.87	0.04	0.83	0.03	0.87	0.03	
198	0.85	0.03	0.81	0.03	0.90	0.03	0.93	0.04	0.90	0.04	0.82	0.04	0.88	0.04	0.83	0.03	0.88	0.04	
199	0.85	0.03	0.81	0.03	0.90	0.03	0.93	0.04	0.90	0.04	0.82	0.03	0.88	0.03	0.83	0.03	0.88	0.03	
200	0.85	0.03	0.81	0.03	0.90	0.03	0.93	0.04	0.90	0.04	0.82	0.03	0.88	0.04	0.83	0.03	0.88	0.04	

Size measurements nematodes Signy

1991	Sep 5		Sep 20		Oct 4		Oct 17		Nov 1		Nov 14		Nov 28		Dec 13		Dec 27		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
201	0.86	0.04	0.81	0.03	0.90	0.04	0.93	0.04	0.91	0.03	0.83	0.03	0.88	0.05	0.83	0.05	0.88	0.04	
202	0.86	0.03	0.81	0.04	0.90	0.03	0.93	0.04	0.91	0.03	0.83	0.03	0.88	0.04	0.84	0.04	0.88	0.04	
203	0.86	0.03	0.81	0.03	0.90	0.03	0.93	0.03	0.91	0.04	0.83	0.04	0.88	0.04	0.84	0.04	0.89	0.04	
204	0.86	0.03	0.81	0.03	0.90	0.03	0.94	0.04	0.91	0.04	0.83	0.03	0.88	0.03	0.84	0.03	0.89	0.05	
205	0.86	0.04	0.81	0.03	0.91	0.04	0.94	0.04	0.91	0.03	0.83	0.03	0.88	0.04	0.84	0.03	0.89	0.04	
206	0.86	0.04	0.81	0.03	0.91	0.03	0.94	0.04	0.91	0.04	0.83	0.03	0.89	0.04	0.84	0.03	0.89	0.03	
207	0.86	0.03	0.81	0.04	0.92	0.03	0.95	0.04	0.91	0.04	0.83	0.03	0.89	0.04	0.84	0.03	0.89	0.02	
208	0.86	0.03	0.81	0.04	0.92	0.03	0.95	0.03	0.92	0.03	0.83	0.03	0.89	0.04	0.84	0.03	0.89	0.04	
209	0.86	0.04	0.81	0.04	0.92	0.04	0.95	0.04	0.92	0.04	0.83	0.03	0.89	0.03	0.84	0.03	0.89	0.03	
210	0.86	0.03	0.82	0.03	0.93	0.04	0.96	0.03	0.92	0.03	0.83	0.03	0.89	0.04	0.84	0.03	0.89	0.04	
211	0.86	0.04	0.82	0.04	0.94	0.04	0.97	0.04	0.92	0.03	0.83	0.03	0.89	0.04	0.84	0.04	0.89	0.04	
212	0.86	0.04	0.82	0.03	0.94	0.03	0.97	0.03	0.92	0.04	0.83	0.03	0.89	0.04	0.84	0.03	0.89	0.04	
213	0.86	0.04	0.82	0.03	0.94	0.03	0.97	0.04	0.92	0.04	0.83	0.04	0.89	0.03	0.84	0.03	0.90	0.04	
214	0.86	0.04	0.82	0.03	0.95	0.04	0.97	0.04	0.92	0.04	0.83	0.03	0.90	0.04	0.84	0.03	0.90	0.04	
215	0.87	0.04	0.82	0.03	0.96	0.04	0.97	0.03	0.92	0.03	0.84	0.03	0.90	0.04	0.84	0.03	0.90	0.04	
216	0.87	0.03	0.82	0.03	0.96	0.03	0.98	0.04	0.92	0.04	0.84	0.03	0.90	0.04	0.84	0.03	0.91	0.04	
217	0.87	0.03	0.83	0.03	0.96	0.03	0.98	0.04	0.93	0.04	0.84	0.03	0.90	0.04	0.84	0.04	0.91	0.04	
218	0.87	0.03	0.83	0.03	0.96	0.03	0.98	0.04	0.93	0.04	0.84	0.03	0.90	0.04	0.84	0.03	0.91	0.04	
219	0.87	0.04	0.83	0.04	0.97	0.04	0.99	0.05	0.93	0.04	0.84	0.03	0.90	0.03	0.84	0.03	0.91	0.05	
220	0.87	0.04	0.83	0.03	0.97	0.03	0.99	0.05	0.93	0.04	0.84	0.03	0.90	0.03	0.84	0.03	0.91	0.04	
221	0.87	0.04	0.83	0.03	0.97	0.04	1.00	0.04	0.93	0.04	0.84	0.03	0.90	0.04	0.85	0.03	0.91	0.04	
222	0.87	0.03	0.83	0.03	0.98	0.03	1.01	0.04	0.93	0.04	0.84	0.03	0.90	0.04	0.85	0.03	0.91	0.04	
223	0.87	0.04	0.83	0.03	0.98	0.04	1.01	0.04	0.94	0.04	0.84	0.03	0.90	0.03	0.85	0.03	0.92	0.04	
224	0.88	0.03	0.83	0.03	0.98	0.04	1.02	0.05	0.94	0.04	0.85	0.03	0.91	0.03	0.85	0.03	0.92	0.03	
225	0.88	0.04	0.83	0.03	0.99	0.05	1.02	0.04	0.94	0.03	0.85	0.03	0.91	0.04	0.85	0.04	0.92	0.02	
226	0.88	0.03	0.83	0.04	0.99	0.03	1.02	0.04	0.94	0.04	0.85	0.03	0.91	0.03	0.85	0.03	0.92	0.04	
227	0.88	0.04	0.83	0.04	0.99	0.04	1.02	0.03	0.94	0.04	0.85	0.03	0.91	0.03	0.85	0.03	0.92	0.04	
228	0.88	0.04	0.84	0.04	1.00	0.05	1.03	0.05	0.94	0.04	0.85	0.03	0.91	0.04	0.85	0.04	0.92	0.04	
229	0.89	0.04	0.84	0.03	1.01	0.04	1.03	0.03	0.94	0.04	0.85	0.03	0.92	0.03	0.86	0.03	0.92	0.04	
230	0.89	0.04	0.84	0.03	1.01	0.04	1.03	0.05	0.94	0.03	0.85	0.04	0.92	0.04	0.86	0.03	0.92	0.04	
231	0.89	0.04	0.84	0.03	1.01	0.04	1.04	0.05	0.94	0.04	0.85	0.04	0.92	0.04	0.86	0.03	0.93	0.03	
232	0.89	0.04	0.84	0.04	1.02	0.04	1.04	0.04	0.94	0.03	0.85	0.03	0.92	0.04	0.86	0.03	0.93	0.04	
233	0.89	0.04	0.84	0.03	1.02	0.03	1.04	0.05	0.95	0.04	0.85	0.03	0.92	0.04	0.86	0.03	0.93	0.04	
234	0.90	0.05	0.84	0.04	1.02	0.03	1.04	0.04	0.96	0.04	0.85	0.03	0.92	0.04	0.86	0.03	0.93	0.04	
235	0.90	0.04	0.85	0.03	1.03	0.05	1.05	0.03	0.96	0.03	0.85	0.03	0.93	0.04	0.86	0.03	0.93	0.04	
236	0.90	0.04	0.85	0.03	1.03	0.05	1.06	0.06	0.96	0.03	0.85	0.03	0.93	0.03	0.86	0.03	0.93	0.04	
237	0.90	0.04	0.85	0.03	1.03	0.05	1.06	0.04	0.97	0.03	0.85	0.03	0.93	0.04	0.86	0.04	0.94	0.04	
238	0.90	0.04	0.85	0.04	1.03	0.03	1.06	0.05	0.97	0.04	0.85	0.03	0.93	0.03	0.86	0.03	0.94	0.04	
239	0.90	0.04	0.85	0.04	1.04	0.04	1.06	0.05	0.97	0.04	0.86	0.03	0.93	0.03	0.86	0.03	0.94	0.04	
240	0.91	0.04	0.85	0.04	1.04	0.05	1.07	0.04	0.98	0.04	0.86	0.03	0.93	0.04	0.86	0.03	0.95	0.03	
241	0.91	0.04	0.85	0.03	1.04	0.03	1.07	0.05	0.99	0.04	0.86	0.04	0.93	0.04	0.86	0.03	0.95	0.05	
242	0.91	0.04	0.85	0.03	1.04	0.05	1.07	0.05	0.99	0.04	0.86	0.03	0.93	0.04	0.86	0.03	0.96	0.04	
243	0.91	0.04	0.86	0.02	1.04	0.03	1.08	0.04	1.00	0.04	0.86	0.04	0.93	0.04	0.87	0.03	0.96	0.04	
244	0.91	0.04	0.86	0.03	1.04	0.06	1.08	0.05	1.00	0.04	0.86	0.03	0.94	0.04	0.87	0.03	0.96	0.04	
245	0.91	0.03	0.86	0.04	1.05	0.06	1.08	0.04	1.00	0.04	0.86	0.04	0.94	0.04	0.87	0.03	0.96	0.05	
246	0.91	0.04	0.86	0.04	1.06	0.05	1.08	0.04	1.01	0.03	0.86	0.03	0.94	0.03	0.87	0.03	0.97	0.03	
247	0.91	0.04	0.86	0.03	1.06	0.06	1.09	0.04	1.01	0.05	0.87	0.03	0.94	0.04	0.87	0.03	0.97	0.05	
248	0.91	0.04	0.86	0.04	1.06	0.04	1.09	0.05	1.01	0.04	0.87	0.03	0.95	0.04	0.87	0.03	0.97	0.04	
249	0.91	0.04	0.86	0.03	1.07	0.04	1.09	0.05	1.01	0.04	0.87	0.03	0.95	0.04	0.87	0.03	0.97	0.03	
250	0.91	0.04	0.87	0.03	1.08	0.05	1.10	0.04	1.01	0.03	0.87	0.03	0.95	0.04	0.87	0.03	0.97	0.04	
251	0.92	0.04	0.87	0.03	1.09	0.03	1.10	0.04	1.02	0.04	0.87	0.03	0.95	0.04	0.87	0.03	0.97	0.04	
252	0.92	0.04	0.87	0.03	1.09	0.04	1.10	0.05	1.05	0.03	0.87	0.04	0.96	0.04	0.87	0.03	0.97	0.04	
253	0.92	0.04	0.87	0.03	1.09	0.04	1.10	0.04	1.05	0.04	0.87	0.03	0.96	0.04	0.87	0.04	0.97	0.04	
254	0.92	0.04	0.87	0.04	1.09	0.05	1.10	0.02	1.05	0.04	0.88	0.03	0.96	0.05	0.87	0.03	0.98	0.04	
255	0.92	0.03	0.87	0.03	1.09	0.04	1.10	0.04	1.05	0.02	0.88	0.03	0.97	0.04	0.87	0.03	0.98	0.04	
256	0.92	0.04	0.88	0.03	1.10	0.04	1.11	0.05	1.05	0.04	0.88	0.03	0.97	0.04	0.87	0.03	0.99	0.04	
257	0.92	0.04	0.88	0.03	1.10	0.05	1.11	0.04	1.06	0.04	0.88	0.03	0.97	0.04	0.88	0.04	1.01	0.04	
258	0.92	0.03	0.88	0.04	1.10	0.05	1.11	0.05	1.06	0.04	0.88	0.03	0.97	0.04	0.88	0.04	1.02	0.03	
259	0.92	0.04	0.88	0.03	1.11	0.04	1.11	0.04	1.07	0.04	0.88	0.03	0.98	0.04	0.88	0.03	1.02	0.04	
260	0.92	0.04	0.88	0.03	1.11	0.04	1.11	0.05	1.07	0.04	0.88	0.02	0.99	0.03	0.89	0.03	1.03	0.04	
261	0.93	0.04	0.88	0.04	1.11	0.04	1.11	0.05	1.08	0.04	0.88	0.03	1.01	0.04	0.89	0.03	1.03	0.04	
262	0.93	0.04	0.88	0.03	1.12	0.06	1.11	0.04	1.08	0.04	0.89	0.03	1.01	0.04	0.89	0.03	1.03	0.04	
263	0.93	0.04	0.88	0.04	1.12	0.04	1.12	0.04	1.10	0.04	0.89	0.03	1.01	0.04	0.89	0.03	1.04	0.04	
264	0.93	0.04	0.88	0.03	1.12	0.04	1.12	0.05	1.10	0.04	0.89	0.04	1.01	0.03	0.89	0.03	1.04	0.04	
265	0.93	0.04	0.89	0.04	1.13	0.04	1.13	0.04	1.12	0.04	0.89	0.03	1.02	0.04	0.89	0.03	1.04	0.03	
266	0.93	0.04	0.89	0.03	1.14	0.06	1.13	0.04	1.12	0.04	0.89	0.03	1.02	0.04	0.89	0.03	1.04	0.05	
267	0.93	0.04	0.89	0.04	1.14	0.05	1.14	0.05	1.13	0.05	0.89	0.03	1.04	0.04	0.89	0.03	1.05	0.04	
268	0.93	0.04	0.89	0.03	1.15	0.05	1.14	0.06	1.15	0.04	0.89	0.03	1.04	0.04	0.89	0.03	1.05	0.04	
269	0.93	0.04	0.89	0.03	1.15	0.05	1.14	0.05	1.15	0.05	0.89	0.03	1.04	0.05	0.90	0.03	1.05	0.03	
270	0.93	0.04	0.89	0.03	1.15	0.04	1.14	0.06	1.18	0.05	0.89	0.03	1.05	0.05	0.90	0.03	1.05	0.04	
271	0.94	0.04	0.90	0.03	1.15	0.05	1.14	0.04	1.18	0.05	0.89	0.04	1.06	0.04	0.90	0.03	1.06	0.05	
272	0.94	0.04	0.90	0.04	1.16	0.05	1.14	0.04	1.18	0.05	0.90	0.04	1.06	0.03	0.90	0.03	1.07	0.05	
273	0.94	0.04	0.92	0.03	1.16	0.04	1.14	0.05	1.18	0.04	0.90	0.03	1.06	0.04	0.90	0.03	1.07	0.04	
274	0.94	0.03	0.92	0.03	1.16	0.05	1.14	0.04	1.19	0.04	0.90	0.04	1.08	0.04	0.91	0.03	1.07	0.05	
275	0.94	0.04	0.92	0.04	1.18	0.05	1.15	0.04	1.19	0.05	0.90	0.03	1.08	0.04	0.91	0.03	1.07	0.04	
276	0.94	0.04	0.93	0.03	1.20	0.06	1.15	0.05	1.20	0.04	0.90	0.03	1.08	0.03	0.91	0.04	1.07	0.04	
277	0.94	0.04	0.93	0.03	1.20	0.06	1.15	0.05	1.20	0.04	0.90	0.03	1.09	0.04	0.91	0.04	1.08	0.04	
278	0.94	0.04	0.94	0.04	1.20	0.05	1.15	0.05	1.20	0.05	0.91	0.04	1.09	0.04	0.91	0.04	1.08	0.04	
279	0.95	0.04	0.95	0.03	1.20	0.05	1.16	0.06	1.21	0.04	0.91	0.04	1.09	0.05	0.91	0.04	1.08	0.05	
280	0.95	0.04	0.96	0.04	1.21	0.04	1.16	0.05	1.22	0.06	0.92	0.03	1.09	0.05	0.92	0.03	1.09	0.06	
281	0.95	0.04	0.96	0.03	1.21	0.04	1.17	0.06	1.23	0.05	0.92	0.04	1.10	0.05	0.93	0.04	1.09	0.06	
282	0.95	0.04	0.97	0.04	1.22	0.06	1.17	0.06	1.23	0.05	0.92	0.03	1.10	0.04	0.93	0.04	1.09	0.04	
283	0.95	0.04	0.97	0.04	1.22	0.06	1.17	0.04	1.24	0.05	0.92	0.03	1.10	0.04	0.93	0.03	1.09	0.04	
284	0.95	0.04	0.98	0.03	1.22	0.05	1.17	0.04	1.25	0.05	0.92	0.04	1.11	0.04	0.93	0.03	1.10	0.04	
285	0.95	0.03	0.99	0.04	1.23	0.05	1.18	0.04	1.25	0.03	0.93	0.03	1.11	0.04	0.93	0.04	1.10	0.04	
286	0.95	0.03	0.99	0.04	1.23	0.06	1.18	0.04	1.25	0.05	0.93	0.04	1.12	0.05	0.93	0.03	1.10	0.05	
287	0.95	0.03	0.99	0.04	1.23	0.06	1.19	0.04	1.26	0.03	0.93	0.03	1.12	0.04	0.93	0.03	1.10	0.05	
288	0.96	0.04	1.01	0.04	1.24	0.05	1.19	0.04	1.26	0.04	0.93	0.03	1.14	0.05	0.94	0.03	1.11	0.04	
289	0.96	0.04	1.01	0.04	1.25	0.05	1.19	0.05	1.26	0.05	0.93	0.04	1.14	0.04	0.94	0.03	1.11	0.04	
290	0.97	0.04	1.02	0.05	1.26	0.05	1.19	0.05	1.27	0.05	0.94	0.04	1.14	0.04	0.94	0.03	1.11	0.05	
291	0.97	0.04	1.02	0.05	1.27	0.06	1.19	0.05	1.28	0.05	0.94	0.03	1.14	0.04	0.94	0.03	1.11	0.05	
292	0.97	0.04	1.02	0.04	1.27	0.07	1.20	0.04	1.30	0.06	0.95	0.03	1.14	0.04	0.95	0.03	1.12	0.04	
293	0.97	0.04	1.03	0.04	1.28	0.06	1.20	0.05	1.31	0.06	0.96	0.03	1.15	0.03	0.95	0.03	1.12	0.04	
294	0.98	0.04	1.03	0.04	1.28	0.07	1.20	0.05	1.31	0.05	0.96	0.03	1.15	0.05	0.95	0.04	1.12	0.05	
295	0.98	0.04	1.03	0.04	1.28	0.05	1.21	0.05	1.31	0.05	0.97	0.04	1.16	0.04	0.95	0.04	1.13	0.04	
296	0.98	0.04	1.03	0.04	1.28	0.06	1.21	0.05	1.33	0.05	0.97	0.04	1.16	0.05	0.96	0.02	1.13	0.04	
297	0.98	0.04	1.03	0.05	1.29	0.07	1.21	0.05	1.33	0.05	0.97	0.05	1.16	0.04	0.96	0.03	1.13	0.05	
298	0.99	0.05	1.04	0.04	1.30	0.05	1.21	0.05	1.33	0.06	0.98	0.03	1.16	0.05	0.96	0.04	1.13	0.04	
299	0.99	0.04	1.04	0.04	1.31	0.07	1.22	0.05	1.35	0.03	0.99	0.04	1.17	0.05	0.96	0.02	1.13	0.05	
300	0.99	0.05	1.05	0.05	1.31	0.06	1.22	0.05	1.35	0.05	0.99	0.03	1.18	0.05	0.98	0.04	1.14	0.04	

Size measurements nematodes Signy

1991	Sep 5		Sep 20		Oct 4		Oct 17		Nov 1		Nov 14		Nov 28		Dec 13		Dec 27		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
301	1.00	0.04	1.05	0.04	1.31	0.07	1.22	0.04	1.35	0.03	1.00	0.03	1.18	0.04	0.98	0.05	1.14	0.04	
302	1.00	0.04	1.05	0.05	1.33	0.05	1.22	0.05	1.36	0.05	1.02	0.04	1.19	0.05	1.00	0.04	1.14	0.05	
303	1.00	0.04	1.05	0.06	1.34	0.05	1.22	0.06	1.38	0.06	1.03	0.04	1.20	0.05	1.00	0.06	1.16	0.07	
304	1.01	0.04	1.07	0.06	1.35	0.03	1.23	0.04	1.40	0.03	1.03	0.04	1.20	0.06	1.01	0.03	1.16	0.04	
305	1.02	0.04	1.07	0.05	1.36	0.08	1.23	0.06	1.40	0.05	1.04	0.04	1.22	0.05	1.01	0.05	1.16	0.05	
306	1.02	0.04	1.07	0.05	1.37	0.03	1.23	0.05	1.42	0.05	1.04	0.04	1.23	0.05	1.01	0.04	1.18	0.05	
307	1.03	0.04	1.08	0.05	1.38	0.04	1.24	0.04	1.46	0.05	1.05	0.04	1.24	0.05	1.02	0.03	1.18	0.05	
308	1.03	0.04	1.08	0.03	1.39	0.07	1.24	0.05	1.51	0.04	1.06	0.04	1.25	0.06	1.02	0.04	1.18	0.05	
309	1.04	0.04	1.08	0.04	1.40	0.10	1.24	0.05	1.53	0.02	1.07	0.03	1.26	0.05	1.02	0.04	1.18	0.06	
310	1.05	0.04	1.08	0.02	1.41	0.08	1.24	0.05	1.53	0.02	1.07	0.04	1.26	0.05	1.02	0.03	1.19	0.05	
311	1.05	0.04	1.09	0.04	1.42	0.07	1.25	0.05	1.54	0.06	1.07	0.04	1.27	0.05	1.04	0.04	1.19	0.06	
312	1.05	0.04	1.09	0.05	1.46	0.06	1.26	0.05	1.54	0.05	1.09	0.05	1.27	0.05	1.05	0.03	1.20	0.05	
313	1.06	0.05	1.10	0.05	1.47	0.04	1.27	0.05	1.54	0.01	1.09	0.05	1.28	0.05	1.05	0.04	1.20	0.05	
314	1.06	0.05	1.11	0.01	1.48	0.09	1.29	0.06	1.55	0.01	1.09	0.04	1.28	0.04	1.06	0.04	1.20	0.03	
315	1.09	0.04	1.12	0.05	1.50	0.07	1.29	0.05	1.56	0.05	1.10	0.04	1.28	0.05	1.06	0.05	1.20	0.04	
316	1.09	0.05	1.12	0.04	1.51	0.08	1.30	0.07	1.56	0.04	1.10	0.05	1.29	0.05	1.06	0.04	1.20	0.04	
317	1.11	0.05	1.12	0.04	1.51	0.08	1.32	0.06	1.57	0.01	1.11	0.04	1.30	0.05	1.07	0.04	1.22	0.05	
318	1.12	0.04	1.12	0.05	1.51	0.09	1.33	0.06	1.59	0.03	1.11	0.05	1.30	0.05	1.07	0.04	1.22	0.05	
319	1.13	0.04	1.13	0.06	1.53	0.08	1.34	0.06	1.59	0.06	1.12	0.04	1.30	0.03	1.07	0.04	1.23	0.04	
320	1.15	0.03	1.13	0.05	1.53	0.07	1.34	0.06	1.59	0.03	1.12	0.04	1.31	0.05	1.08	0.04	1.23	0.05	
321	1.15	0.04	1.14	0.06	1.58	0.07	1.37	0.03	1.59	0.07	1.13	0.04	1.32	0.05	1.08	0.04	1.24	0.05	
322	1.15	0.03	1.14	0.06	1.58	0.09	1.37	0.05	1.61	0.07	1.13	0.05	1.33	0.06	1.08	0.05	1.25	0.05	
323	1.16	0.05	1.15	0.06	1.59	0.01	1.39	0.05	1.64	0.06	1.13	0.05	1.33	0.06	1.09	0.05	1.27	0.05	
324	1.16	0.05	1.15	0.04	1.60	0.09	1.40	0.07	1.64	0.07	1.14	0.04	1.34	0.05	1.10	0.05	1.27	0.03	
325	1.17	0.06	1.15	0.06	1.60	0.01	1.40	0.07	1.65	0.07	1.14	0.06	1.35	0.05	1.10	0.04	1.27	0.05	
326	1.18	0.04	1.17	0.05	1.60	0.08	1.40	0.08	1.65	0.04	1.14	0.05	1.35	0.05	1.11	0.04	1.28	0.05	
327	1.18	0.05	1.17	0.06	1.61	0.01	1.40	0.05	1.66	0.06	1.14	0.06	1.35	0.05	1.12	0.04	1.30	0.05	
328	1.18	0.04	1.17	0.05	1.61	0.09	1.41	0.09	1.66	0.09	1.14	0.03	1.38	0.06	1.12	0.05	1.30	0.05	
329	1.18	0.05	1.18	0.05	1.63	0.07	1.45	0.05	1.69	0.03	1.15	0.04	1.38	0.03	1.13	0.05	1.30	0.06	
330	1.19	0.05	1.18	0.06	1.63	0.07	1.45	0.07	1.69	0.07	1.17	0.04	1.38	0.06	1.14	0.04	1.31	0.05	
331	1.19	0.04	1.19	0.05	1.63	0.11	1.45	0.05	1.70	0.09	1.17	0.05	1.38	0.05	1.16	0.04	1.32	0.06	
332	1.19	0.05	1.19	0.05	1.63	0.11	1.45	0.03	1.70	0.07	1.18	0.05	1.41	0.05	1.17	0.04	1.34	0.01	
333	1.20	0.05	1.19	0.06	1.64	0.09	1.46	0.05	1.70	0.08	1.19	0.05	1.42	0.06	1.19	0.05	1.35	0.05	
334	1.20	0.05	1.19	0.06	1.64	0.05	1.46	0.05	1.71	0.08	1.19	0.05	1.44	0.06	1.20	0.04	1.35	0.07	
335	1.21	0.05	1.19	0.05	1.64	0.12	1.47	0.05	1.71	0.08	1.20	0.06	1.45	0.03	1.20	0.04	1.35	0.06	
336	1.22	0.05	1.19	0.06	1.65	0.08	1.47	0.06	1.71	0.08	1.21	0.07	1.51	0.07	1.20	0.05	1.36	0.06	
337	1.23	0.07	1.20	0.06	1.65	0.10	1.49	0.10	1.72	0.08	1.21	0.04	1.51	0.06	1.20	0.04	1.36	0.05	
338	1.25	0.04	1.20	0.06	1.65	0.10	1.49	0.09	1.73	0.07	1.22	0.03	1.52	0.03	1.22	0.04	1.36	0.07	
339	1.26	0.03	1.22	0.07	1.66	0.12	1.50	0.10	1.74	0.06	1.22	0.06	1.52	0.06	1.24	0.05	1.37	0.06	
340	1.27	0.03	1.23	0.06	1.68	0.03	1.50	0.08	1.75	0.07	1.23	0.06	1.55	0.06	1.24	0.04	1.37	0.05	
341	1.33	0.06	1.24	0.06	1.68	0.06	1.50	0.05	1.75	0.04	1.23	0.04	1.56	0.06	1.24	0.05	1.39	0.05	
342	1.33	0.06	1.25	0.05	1.69	0.12	1.50	0.08	1.75	0.09	1.23	0.05	1.56	0.07	1.25	0.05	1.39	0.06	
343	1.35	0.06	1.34	0.05	1.70	0.06	1.51	0.06	1.75	0.02	1.24	0.03	1.57	0.09	1.26	0.03	1.42	0.05	
344	1.36	0.03	1.35	0.05	1.71	0.08	1.53	0.06	1.76	0.08	1.24	0.06	1.57	0.07	1.27	0.05	1.42	0.07	
345	1.37	0.06	1.37	0.02	1.71	0.04	1.53	0.08	1.78	0.07	1.26	0.07	1.58	0.07	1.27	0.05	1.42	0.05	
346	1.39	0.06	1.38	0.08	1.72	0.07	1.54	0.02	1.78	0.08	1.26	0.06	1.59	0.07	1.28	0.04	1.42	0.07	
347	1.40	0.07	1.38	0.09	1.72	0.08	1.54	0.09	1.79	0.06	1.27	0.07	1.60	0.06	1.28	0.05	1.42	0.06	
348	1.41	0.07	1.38	0.09	1.72	0.07	1.55	0.06	1.79	0.07	1.28	0.05	1.61	0.07	1.28	0.06	1.43	0.05	
349	1.43	0.06	1.40	0.06	1.73	0.07	1.56	0.07	1.79	0.09	1.28	0.05	1.61	0.07	1.29	0.05	1.44	0.05	
350	1.44	0.03	1.42	0.09	1.74	0.03	1.56	0.08	1.80	0.08	1.30	0.05	1.62	0.06	1.29	0.05	1.45	0.02	
351	1.47	0.07	1.42	0.01	1.74	0.09	1.56	0.06	1.80	0.08	1.30	0.06	1.63	0.07	1.30	0.05	1.46	0.06	
352	1.48	0.06	1.42	0.07	1.74	0.09	1.57	0.06	1.81	0.07	1.30	0.05	1.65	0.07	1.30	0.06	1.46	0.07	
353	1.49	0.07	1.44	0.05	1.74	0.08	1.57	0.11	1.81	0.06	1.31	0.05	1.65	0.07	1.30	0.05	1.47	0.07	
354	1.50	0.10	1.45	0.03	1.75	0.09	1.58	0.06	1.81	0.08	1.32	0.05	1.65	0.06	1.30	0.05	1.47	0.06	
355	1.52	0.07	1.46	0.06	1.76	0.11	1.58	0.08	1.82	0.09	1.33	0.07	1.66	0.09	1.31	0.06	1.48	0.08	
356	1.54	0.06	1.47	0.09	1.77	0.08	1.58	0.08	1.82	0.08	1.36	0.06	1.66	0.05	1.31	0.06	1.48	0.06	
357	1.58	0.07	1.47	0.06	1.78	0.12	1.58	0.06	1.82	0.09	1.37	0.05	1.67	0.09	1.32	0.05	1.50	0.06	
358	1.59	0.04	1.47	0.07	1.79	0.12	1.58	0.10	1.83	0.08	1.43	0.05	1.67	0.08	1.33	0.05	1.50	0.07	
359	1.60	0.04	1.47	0.09	1.81	0.08	1.59	0.02	1.83	0.08	1.44	0.06	1.68	0.04	1.37	0.05	1.52	0.06	
360	1.60	0.06	1.48	0.08	1.83	0.10	1.60	0.06	1.83	0.08	1.46	0.01	1.68	0.04	1.38	0.04	1.53	0.06	
361	1.62	0.09	1.49	0.04	1.85	0.09	1.61	0.10	1.84	0.04	1.51	0.06	1.68	0.07	1.40	0.05	1.53	0.07	
362	1.64	0.10	1.50	0.08	1.88	0.04	1.62	0.08	1.86	0.09	1.51	0.06	1.70	0.03	1.45	0.06	1.53	0.03	
363	1.64	0.03	1.50	0.03	1.88	0.10	1.62	0.07	1.87	0.09	1.54	0.04	1.70	0.10	1.46	0.07	1.54	0.07	
364	1.66	0.07	1.53	0.09	1.89	0.13	1.63	0.07	1.87	0.04	1.55	0.04	1.72	0.07	1.47	0.07	1.57	0.01	
365	1.66	0.08	1.53	0.08	1.89	0.08	1.63	0.07	1.87	0.09	1.57	0.07	1.72	0.09	1.48	0.06	1.61	0.06	
366	1.66	0.08	1.53	0.03	1.89	0.12	1.64	0.06	1.87	0.10	1.60	0.07	1.73	0.08	1.49	0.03	1.61	0.07	
367	1.68	0.10	1.54	0.06	1.89	0.11	1.64	0.06	1.87	0.09	1.61	0.06	1.73	0.06	1.53	0.01	1.65	0.06	
368	1.70	0.07	1.54	0.06	1.91	0.04	1.64	0.06	1.88	0.10	1.61	0.08	1.74	0.08	1.53	0.07	1.69	0.02	
369	1.72	0.09	1.54	0.04	1.91	0.08	1.64	0.10	1.88	0.04	1.63	0.08	1.76	0.09	1.59	0.06	1.69	0.07	
370	1.72	0.09	1.55	0.09	1.92	0.10	1.65	0.08	1.88	0.09	1.63	0.01	1.76	0.12	1.60	0.06	1.71	0.08	
371	1.74	0.10	1.55	0.10	1.96	0.11	1.65	0.10	1.90	0.04	1.64	0.07	1.77	0.09	1.61	0.07	1.74	0.09	
372	1.75	0.08	1.55	0.09	1.97	0.10	1.66	0.06	1.90	0.09	1.64	0.07	1.80	0.09	1.62	0.07	1.74	0.10	
373	1.75	0.11	1.57	0.09	1.98	0.09	1.67	0.11	1.91	0.04	1.66	0.06	1.80	0.03	1.62	0.08	1.76	0.02	
374	1.75	0.10	1.59	0.06	1.99	0.09	1.68	0.07	1.91	0.09	1.66	0.06	1.81	0.03	1.62	0.07	1.76	0.10	
375	1.75	0.04	1.59	0.12	2.01	0.08	1.68	0.07	1.91	0.08	1.66	0.07	1.82	0.04	1.63	0.08	1.76	0.08	
376	1.76	0.11	1.60	0.10	2.05	0.04	1.68	0.03	1.91	0.04	1.67	0.10	1.82	0.09	1.63	0.07	1.76	0.04	
377	1.76	0.04	1.60	0.07	2.16	0.05	1.69	0.07	1.91	0.04	1.68	0.07	1.83	0.08	1.65	0.07	1.77	0.10	
378	1.76	0.10	1.60	0.10	2.17	0.05	1.69	0.10	1.91	0.08	1.71	0.08	1.83	0.09	1.66	0.07	1.77	0.07	
379	1.77	0.11	1.61	0.07	2.36	0.05	1.71	0.11	1.92	0.09	1.72	0.08	1.85	0.09	1.67	0.06	1.81	0.10	
380	1.77	0.08	1.61	0.07	2.40	0.13	1.71	0.08	1.93	0.09	1.73	0.07	1.85	0.04	1.67	0.09	1.82	0.07	
381	1.78	0.04	1.61	0.08	2.50	0.04	1.72	0.06	1.94	0.08	1.73	0.09	1.85	0.04	1.69	0.07	1.82	0.10	
382	1.79	0.10	1.62	0.09	2.51	0.05	1.72	0.09	1.94	0.04	1.73	0.08	1.85	0.08	1.70	0.07	1.82	0.07	
383	1.79	0.10	1.62	0.09	2.56	0.05	1.72	0.10	1.94	0.10	1.73	0.09	1.86	0.10	1.70	0.07	1.83	0.08	
384	1.80	0.09	1.63	0.09	2.59	0.05	1.73	0.08	1.95	0.09	1.76	0.07	1.86	0.08	1.72	0.07	1.84	0.09	
385	1.80	0.09	1.64	0.07	2.67	0.06	1.73	0.07	2.08	0.04	1.76	0.09	1.86	0.09	1.72	0.11	1.84	0.07	
386	1.81	0.09	1.65	0.08	2.87	0.05	1.74	0.07	2.09	0.05	1.77	0.10	1.87	0.11	1.73	0.08	1.84	0.08	
387	1.81	0.09	1.65	0.08	2.89	0.06	1.74	0.08	2.23	0.05	1.78	0.09	1.87	0.09	1.73	0.07	1.85	0.08	
388	1.81	0.09	1.65	0.10			1.75	0.09	2.25	0.04	1.78	0.09	1.87	0.08	1.74	0.09	1.85	0.10	
389	1.81	0.09	1.66	0.08			1.75	0.07	2.36	0.06	1.78	0.10	1.88	0.11	1.74	0.09	1.86	0.09	
390	1.81	0.09	1.66	0.09			1.76	0.07	2.36	0.05	1.79	0.09	1.89	0.09	1.74	0.09	1.88	0.09	
391	1.81	0.09	1.66	0.08			1.77	0.07	2.41	0.05	1.79	0.11	1.90	0.11	1.74	0.04	1.88	0.10	
392	1.82	0.10	1.66	0.09			1.77	0.05	2.46	0.05	1.80	0.10	1.90	0.04	1.76	0.05	1.90	0.09	
393	1.82	0.10	1.66	0.10			1.77	0.06	2.47	0.05	1.80	0.12	1.90	0.10	1.78	0.09	1.90	0.08	
394	1.82	0.10	1.67	0.07			1.77	0.09	2.47	0.04	1.81	0.08	1.90	0.11	1.78	0.08	1.90	0.09	
395	1.82	0.10	1.67	0.08			1.78	0.08	2.48	0.05	1.81	0.09	1.91	0.08	1.78	0.08	1.90	0.11	
396	1.83	0.11	1.68	0.11			1.78	0.12	2.50	0.05	1.82	0.10	1.93	0.09	1.78	0.10	1.92	0.09	
397	1.83	0.09	1.68	0.07			1.78	0.08	2.50	0.04	1.82	0.08	1.94	0.09	1.80	0.06	1.92	0.04	
398	1.84	0.10	1.69	0.09			1.79	0.08	2.55	0.06	1.82	0.10	1.94	0.10	1.80	0.11	1.94	0.10	
399	1.85	0.10	1.69	0.10			1.79	0.06	2.66	0.05	1.82	0.09	1.94	0.11	1.82	0.09	1.95	0.11	
400	1.86	0.10	1.69	0.08			1.79	0.08	2.66	0.05	1.82	0.08	1.95	0.05	1.82	0.08	1.95	0.09	

Size measurements nematodes Signy

1991	Sep 5		Sep 20		Oct 4		Oct 17		Nov 1		Nov 14		Nov 28		Dec 13		Dec 27		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
401	1.87	0.10	1.70	0.11			1.79	0.07	2.69	0.05	1.82	0.10	1.95	0.09	1.83	0.08	1.96	0.10	
402	1.87	0.10	1.70	0.08			1.81	0.08	2.71	0.05	1.82	0.09	1.96	0.08	1.83	0.10	1.97	0.10	
403	1.88	0.09	1.70	0.11			1.81	0.08	2.71	0.06	1.82	0.10	1.96	0.09	1.83	0.09	1.98	0.10	
404	1.88	0.10	1.70	0.14			1.81	0.07	2.74	0.07	1.83	0.10	1.96	0.09	1.83	0.08	1.99	0.10	
405	1.88	0.08	1.70	0.09			1.81	0.01	2.80	0.06	1.83	0.10	1.98	0.08	1.84	0.08	2.02	0.09	
406	1.88	0.09	1.71	0.08			1.84	0.07	2.81	0.14	1.83	0.09	1.98	0.08	1.85	0.10	2.06	0.06	
407	1.89	0.10	1.72	0.08			1.84	0.08	2.85	0.06	1.83	0.11	1.99	0.08	1.85	0.09	2.07	0.10	
408	1.90	0.10	1.72	0.10			1.84	0.07	2.89	0.05	1.83	0.11	2.00	0.09	1.85	0.10	2.14	0.05	
409	1.90	0.10	1.73	0.08			1.85	0.02	2.99	0.06	1.84	0.09	2.00	0.09	1.86	0.08	2.16	0.05	
410	1.91	0.11	1.73	0.10			1.85	0.09	3.01	0.05	1.84	0.08	2.01	0.10	1.87	0.09	2.23	0.05	
411	1.91	0.09	1.74	0.10			1.91	0.08	3.13	0.06	1.85	0.10	2.01	0.08	1.87	0.08	2.29	0.05	
412	1.91	0.09	1.75	0.09			1.91	0.08	3.14	0.06	1.85	0.09	2.03	0.10	1.88	0.10	2.30	0.05	
413	1.91	0.09	1.75	0.09			1.91	0.08	3.21	0.06	1.85	0.09	2.03	0.05	1.88	0.10	2.33	0.05	
414	1.92	0.09	1.75	0.11			1.91	0.08	6.48	0.04	1.87	0.10	2.05	0.04	1.90	0.09	2.35	0.07	
415	1.92	0.10	1.76	0.10			1.91	0.09			1.87	0.10	2.06	0.10	1.90	0.10	2.36	0.05	
416	1.94	0.11	1.76	0.08			1.92	0.08			1.88	0.09	2.07	0.05	1.92	0.10	2.40	0.06	
417	1.97	0.06	1.77	0.10			1.92	0.09			1.88	0.09	2.11	0.09	1.92	0.08	2.48	0.07	
418	1.97	0.11	1.78	0.10			1.92	0.08			1.89	0.11	2.14	0.06	1.93	0.09	2.61	0.07	
419	1.98	0.09	1.79	0.10			1.93	0.09			1.89	0.11	2.15	0.05	1.96	0.07	2.64	0.07	
420	1.98	0.09	1.79	0.08			1.93	0.09			1.89	0.10	2.15	0.05	2.00	0.04	2.66	0.06	
421	1.99	0.05	1.80	0.13			1.93	0.08			1.90	0.08	2.16	0.04	2.17	0.05	2.68	0.13	
422	2.00	0.10	1.80	0.09			1.95	0.09			1.91	0.10	2.33	0.05	2.21	0.05	2.75	0.08	
423	2.00	0.12	1.82	0.05			1.99	0.09			1.93	0.08	2.34	0.05	2.51	0.05	4.03	0.05	
424	2.00	0.04	1.85	0.10			2.02	0.10			1.94	0.10	2.36	0.04	2.64	0.05			
425	2.01	0.10	1.87	0.09			2.04	0.09			1.95	0.10	2.46	0.04	2.84	0.06			
426	2.02	0.06	1.88	0.09			2.04	0.04			1.97	0.10	2.56	0.05	2.95	0.06			
427	2.03	0.09	1.90	0.09			2.42	0.06			2.01	0.05	2.57	0.06					
428	2.04	0.11	1.91	0.10			2.46	0.05			2.18	0.10	2.60	0.05					
429	2.07	0.06	1.92	0.10			2.57	0.04			2.49	0.04	2.89	0.05					
430	2.19	0.05	1.93	0.04			2.66	0.05			2.63	0.12	3.07	0.06					
431	2.21	0.04	1.94	0.10			2.68	0.05			2.77	0.05							
432	2.22	0.06	1.94	0.11			2.88	0.06											
433	2.30	0.05	1.95	0.10			2.92	0.05											
434	2.32	0.06	1.97	0.09			3.15	0.06											
435	2.45	0.05	1.98	0.12															
436	2.60	0.05	2.01	0.04															
437	2.60	0.05	2.03	0.04															
438	2.65	0.02	2.03	0.05															
439	2.65	0.06	2.27	0.05															
440	2.67	0.08	2.73	0.08															
441	2.71	0.06	2.87	0.06															
442	2.77	0.06																	
443	2.86	0.06																	
444	2.95	0.08																	

Size measurements nematodes Signy

1992	Jan 10		Jan 22		Feb 9		Feb 26		Apr 16		May 4		May 15		May 29		Jun 13		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
1	0.36	0.02	0.32	0.02	0.30	0.02	0.31	0.02	0.26	0.02	0.11	0.05	0.29	0.02	0.49	0.02	0.30	0.01	
2	0.43	0.02	0.32	0.02	0.33	0.02	0.31	0.02	0.34	0.01	0.17	0.01	0.30	0.01	0.54	0.02	0.31	0.01	
3	0.45	0.07	0.33	0.02	0.33	0.02	0.31	0.02	0.36	0.02	0.27	0.01	0.31	0.01	0.59	0.02	0.31	0.01	
4	0.46	0.02	0.34	0.02	0.35	0.02	0.31	0.02	0.40	0.01	0.27	0.01	0.32	0.02	0.60	0.02	0.31	0.01	
5	0.46	0.02	0.34	0.02	0.36	0.02	0.31	0.02	0.40	0.01	0.29	0.01	0.34	0.02	0.61	0.02	0.34	0.02	
6	0.46	0.02	0.35	0.02	0.37	0.02	0.31	0.02	0.41	0.02	0.31	0.01	0.34	0.02	0.64	0.02	0.35	0.01	
7	0.48	0.02	0.35	0.02	0.38	0.02	0.31	0.02	0.42	0.02	0.33	0.01	0.35	0.01	0.66	0.03	0.35	0.02	
8	0.48	0.03	0.35	0.02	0.38	0.02	0.31	0.02	0.42	0.02	0.34	0.01	0.35	0.02	0.66	0.02	0.35	0.01	
9	0.48	0.02	0.35	0.02	0.39	0.02	0.35	0.02	0.43	0.02	0.35	0.01	0.35	0.01	0.66	0.04	0.36	0.01	
10	0.50	0.02	0.35	0.02	0.39	0.02	0.35	0.02	0.43	0.01	0.35	0.01	0.36	0.02	0.68	0.05	0.37	0.02	
11	0.50	0.02	0.35	0.02	0.39	0.02	0.35	0.02	0.44	0.02	0.36	0.02	0.37	0.02	0.70	0.03	0.37	0.01	
12	0.51	0.02	0.35	0.02	0.40	0.02	0.36	0.02	0.44	0.01	0.36	0.01	0.38	0.01	0.71	0.03	0.37	0.01	
13	0.52	0.02	0.36	0.02	0.40	0.02	0.36	0.02	0.44	0.02	0.37	0.02	0.38	0.02	0.71	0.02	0.38	0.01	
14	0.52	0.03	0.36	0.02	0.40	0.02	0.36	0.02	0.44	0.02	0.37	0.02	0.38	0.01	0.73	0.03	0.39	0.02	
15	0.52	0.02	0.36	0.02	0.40	0.02	0.36	0.02	0.45	0.02	0.37	0.02	0.39	0.02	0.73	0.02	0.39	0.02	
16	0.54	0.03	0.36	0.02	0.40	0.02	0.36	0.02	0.45	0.02	0.38	0.02	0.41	0.02	0.74	0.02	0.39	0.02	
17	0.54	0.02	0.36	0.02	0.40	0.02	0.36	0.02	0.45	0.02	0.40	0.01	0.41	0.02	0.79	0.03	0.40	0.02	
18	0.54	0.03	0.38	0.02	0.41	0.02	0.36	0.02	0.45	0.02	0.40	0.01	0.42	0.02	0.79	0.03	0.40	0.02	
19	0.54	0.02	0.38	0.02	0.41	0.02	0.36	0.02	0.46	0.01	0.40	0.01	0.42	0.02	0.80	0.02	0.40	0.02	
20	0.56	0.02	0.38	0.02	0.41	0.02	0.36	0.02	0.46	0.02	0.41	0.02	0.42	0.02	0.80	0.03	0.41	0.02	
21	0.57	0.02	0.39	0.02	0.42	0.03	0.37	0.02	0.46	0.02	0.41	0.02	0.42	0.02	0.80	0.02	0.42	0.02	
22	0.57	0.02	0.39	0.02	0.43	0.02	0.37	0.02	0.47	0.02	0.41	0.02	0.42	0.01	0.80	0.03	0.42	0.02	
23	0.57	0.03	0.39	0.02	0.44	0.02	0.37	0.02	0.47	0.02	0.42	0.02	0.42	0.02	0.82	0.04	0.42	0.02	
24	0.58	0.02	0.39	0.02	0.45	0.02	0.37	0.02	0.47	0.01	0.42	0.01	0.42	0.01	0.82	0.03	0.42	0.02	
25	0.58	0.02	0.40	0.02	0.45	0.02	0.37	0.02	0.47	0.02	0.42	0.02	0.44	0.02	0.82	0.02	0.43	0.02	
26	0.60	0.03	0.40	0.02	0.45	0.02	0.38	0.02	0.48	0.02	0.43	0.02	0.44	0.02	0.83	0.03	0.43	0.02	
27	0.60	0.03	0.40	0.02	0.45	0.02	0.38	0.02	0.48	0.01	0.43	0.02	0.44	0.03	0.84	0.04	0.44	0.02	
28	0.60	0.02	0.40	0.02	0.45	0.02	0.39	0.02	0.48	0.02	0.43	0.02	0.45	0.02	0.85	0.02	0.44	0.02	
29	0.60	0.02	0.41	0.02	0.46	0.02	0.39	0.02	0.49	0.02	0.44	0.02	0.45	0.02	0.87	0.02	0.44	0.02	
30	0.60	0.03	0.41	0.02	0.46	0.02	0.40	0.02	0.49	0.01	0.44	0.02	0.45	0.02	0.87	0.03	0.44	0.02	
31	0.61	0.02	0.41	0.02	0.46	0.03	0.40	0.02	0.49	0.01	0.44	0.02	0.45	0.02	0.87	0.03	0.45	0.02	
32	0.62	0.03	0.41	0.02	0.47	0.02	0.40	0.02	0.50	0.01	0.45	0.01	0.45	0.02	0.88	0.03	0.45	0.02	
33	0.62	0.03	0.41	0.02	0.47	0.02	0.40	0.02	0.51	0.02	0.45	0.02	0.45	0.02	0.89	0.03	0.45	0.02	
34	0.64	0.03	0.42	0.02	0.47	0.02	0.41	0.02	0.52	0.02	0.45	0.02	0.46	0.02	0.89	0.03	0.46	0.02	
35	0.64	0.03	0.42	0.02	0.47	0.03	0.41	0.02	0.52	0.01	0.46	0.02	0.46	0.02	0.89	0.03	0.46	0.02	
36	0.64	0.03	0.42	0.02	0.48	0.02	0.41	0.02	0.52	0.02	0.46	0.03	0.46	0.02	0.89	0.03	0.46	0.02	
37	0.64	0.03	0.42	0.02	0.48	0.02	0.41	0.02	0.52	0.02	0.46	0.02	0.46	0.02	0.89	0.02	0.46	0.02	
38	0.65	0.04	0.43	0.02	0.48	0.02	0.41	0.02	0.52	0.02	0.47	0.02	0.48	0.03	0.91	0.03	0.46	0.02	
39	0.65	0.03	0.43	0.02	0.48	0.02	0.42	0.02	0.53	0.01	0.47	0.02	0.48	0.02	0.91	0.02	0.47	0.02	
40	0.65	0.03	0.43	0.02	0.48	0.02	0.42	0.02	0.53	0.02	0.48	0.02	0.48	0.02	0.92	0.03	0.47	0.02	
41	0.65	0.03	0.43	0.02	0.48	0.02	0.42	0.02	0.54	0.02	0.48	0.02	0.48	0.02	0.92	0.03	0.47	0.02	
42	0.66	0.04	0.45	0.02	0.48	0.02	0.42	0.02	0.55	0.01	0.48	0.02	0.49	0.02	0.92	0.03	0.48	0.02	
43	0.66	0.03	0.46	0.02	0.49	0.02	0.43	0.02	0.55	0.02	0.49	0.03	0.49	0.02	0.93	0.04	0.48	0.02	
44	0.66	0.03	0.46	0.02	0.49	0.02	0.43	0.02	0.57	0.02	0.49	0.02	0.49	0.02	0.93	0.03	0.49	0.02	
45	0.67	0.03	0.46	0.02	0.49	0.02	0.43	0.02	0.57	0.03	0.49	0.02	0.49	0.02	0.93	0.04	0.50	0.02	
46	0.67	0.03	0.46	0.02	0.49	0.02	0.43	0.02	0.57	0.03	0.49	0.02	0.49	0.02	0.94	0.03	0.50	0.03	
47	0.68	0.03	0.46	0.02	0.50	0.02	0.43	0.02	0.58	0.02	0.50	0.02	0.50	0.02	0.95	0.04	0.50	0.02	
48	0.68	0.03	0.46	0.02	0.50	0.02	0.44	0.02	0.58	0.02	0.50	0.02	0.50	0.02	0.96	0.04	0.50	0.02	
49	0.68	0.03	0.46	0.02	0.50	0.02	0.45	0.02	0.58	0.02	0.51	0.03	0.50	0.02	0.96	0.03	0.51	0.02	
50	0.69	0.03	0.47	0.02	0.50	0.02	0.46	0.02	0.59	0.03	0.51	0.02	0.51	0.02	0.97	0.03	0.51	0.03	
51	0.69	0.03	0.47	0.02	0.51	0.02	0.46	0.02	0.59	0.02	0.52	0.02	0.51	0.02	0.97	0.03	0.51	0.02	
52	0.69	0.03	0.47	0.02	0.51	0.02	0.46	0.03	0.61	0.02	0.52	0.02	0.52	0.02	0.98	0.02	0.52	0.02	
53	0.69	0.03	0.47	0.02	0.51	0.03	0.46	0.02	0.61	0.02	0.52	0.02	0.52	0.02	0.98	0.03	0.52	0.02	
54	0.70	0.03	0.48	0.03	0.51	0.02	0.46	0.02	0.61	0.02	0.52	0.02	0.53	0.02	0.98	0.04	0.52	0.02	
55	0.70	0.03	0.48	0.02	0.52	0.02	0.47	0.02	0.61	0.02	0.53	0.02	0.53	0.02	0.99	0.03	0.52	0.02	
56	0.70	0.03	0.48	0.02	0.52	0.02	0.47	0.02	0.62	0.02	0.53	0.02	0.53	0.02	0.99	0.04	0.53	0.02	
57	0.70	0.03	0.49	0.02	0.52	0.02	0.47	0.02	0.63	0.02	0.53	0.02	0.55	0.02	0.99	0.03	0.53	0.02	
58	0.70	0.03	0.49	0.03	0.52	0.02	0.47	0.02	0.63	0.02	0.54	0.02	0.55	0.03	0.99	0.03	0.53	0.02	
59	0.70	0.03	0.50	0.02	0.52	0.02	0.48	0.02	0.63	0.02	0.54	0.02	0.55	0.02	1.00	0.03	0.54	0.02	
60	0.71	0.03	0.50	0.02	0.53	0.02	0.48	0.03	0.64	0.03	0.54	0.02	0.55	0.05	1.00	0.03	0.54	0.02	
61	0.72	0.03	0.50	0.02	0.53	0.03	0.49	0.02	0.64	0.02	0.55	0.02	0.55	0.03	1.00	0.05	0.54	0.02	
62	0.73	0.03	0.50	0.02	0.54	0.03	0.49	0.02	0.64	0.02	0.55	0.02	0.56	0.02	1.01	0.04	0.54	0.02	
63	0.73	0.04	0.51	0.02	0.54	0.02	0.49	0.02	0.64	0.02	0.55	0.02	0.56	0.02	1.01	0.05	0.55	0.03	
64	0.73	0.03	0.51	0.02	0.54	0.02	0.50	0.02	0.64	0.02	0.55	0.02	0.56	0.02	1.02	0.03	0.55	0.02	
65	0.74	0.03	0.51	0.02	0.54	0.02	0.50	0.02	0.64	0.03	0.56	0.02	0.56	0.02	1.03	0.03	0.55	0.02	
66	0.74	0.04	0.52	0.03	0.55	0.03	0.50	0.02	0.64	0.02	0.56	0.02	0.56	0.02	1.03	0.02	0.55	0.02	
67	0.74	0.04	0.52	0.02	0.55	0.03	0.51	0.02	0.65	0.02	0.56	0.02	0.56	0.03	1.05	0.03	0.56	0.02	
68	0.75	0.03	0.52	0.02	0.55	0.03	0.51	0.03	0.65	0.02	0.57	0.02	0.57	0.02	1.05	0.03	0.56	0.03	
69	0.75	0.04	0.52	0.02	0.55	0.03	0.51	0.02	0.65	0.02	0.57	0.02	0.57	0.02	1.05	0.03	0.56	0.02	
70	0.75	0.03	0.53	0.02	0.55	0.03	0.51	0.03	0.65	0.02	0.57	0.02	0.57	0.01	1.06	0.04	0.56	0.02	
71	0.75	0.03	0.53	0.03	0.56	0.02	0.52	0.02	0.65	0.02	0.57	0.03	0.58	0.02	1.07	0.04	0.58	0.02	
72	0.75	0.03	0.54	0.03	0.56	0.02	0.52	0.02	0.66	0.02	0.57	0.02	0.58	0.02	1.07	0.05	0.59	0.02	
73	0.76	0.03	0.55	0.02	0.56	0.03	0.52	0.02	0.66	0.03	0.58	0.02	0.58	0.02	1.07	0.03	0.61	0.03	
74	0.77	0.03	0.55	0.03	0.56	0.02	0.54	0.02	0.67	0.02	0.59	0.02	0.58	0.03	1.08	0.04	0.62	0.02	
75	0.78	0.03	0.55	0.02	0.56	0.03	0.54	0.02	0.67	0.03	0.59	0.02	0.59	0.01	1.08	0.06	0.62	0.02	
76	0.79	0.04	0.55	0.02	0.56	0.03	0.54	0.03	0.67	0.02	0.59	0.02	0.59	0.02	1.09	0.03	0.63	0.03	
77	0.80	0.03	0.56	0.02	0.57	0.03	0.54	0.03	0.67	0.02	0.59	0.02	0.59	0.02	1.10	0.03	0.63	0.02	
78	0.80	0.04	0.56	0.02	0.57	0.03	0.55	0.02	0.67	0.02	0.59	0.02	0.59	0.02	1.10	0.04	0.63	0.02	
79	0.80	0.03	0.56	0.02	0.58	0.03	0.55	0.03	0.68	0.02	0.59	0.02	0.59	0.02	1.11	0.02	0.63	0.02	
80	0.80	0.04	0.56	0.02	0.58	0.03	0.56	0.03	0.68	0.02	0.59	0.02	0.59	0.02	1.11	0.04	0.63	0.02	
81	0.80	0.03	0.56	0.03	0.58	0.03	0.56	0.02	0.68	0.02	0.59	0.02	0.59	0.02	1.11	0.04	0.63	0.02	
82	0.80	0.03	0.57	0.02	0.58	0.03	0.56	0.03	0.68	0.02	0.59	0.02	0.60	0.02	1.11	0.04	0.64	0.02	
83	0.81	0.04	0.57	0.03	0.58	0.03	0.57	0.02	0.68	0.03	0.59	0.02	0.60	0.02	1.11	0.03	0.64	0.02	
84	0.81	0.03	0.58	0.03	0.58	0.04	0.58	0.03	0.68	0.03	0.60	0.02	0.60	0.02	1.12	0.03	0.65	0.02	
85	0.81	0.04	0.58	0.04	0.59	0.03	0.58	0.02	0.68	0.02	0.60	0.02	0.60	0.02	1.12	0.03	0.66	0.03	
86	0.81	0.03	0.58	0.03	0.59	0.02	0.58	0.02	0.68	0.03	0.60	0.02	0.60	0.02	1.13	0.03	0.66	0.05	
87	0.82	0.03	0.58	0.02	0.59	0.03	0.58	0.02	0.69	0.02	0.60	0.02	0.60	0.02	1.14	0.04	0.66	0.02	
88	0.82	0.03	0.59	0.03	0.59	0.02	0.58	0.03	0.69	0.03	0.60	0.02	0.60	0.02	1.15	0.03	0.66	0.02	
89	0.82	0.04	0.59	0.03	0.60	0.03	0.58	0.03	0.69	0.02	0.60	0.02	0.61	0.02	1.16	0.04	0.67	0.03	
90	0.82	0.04	0.59	0.02	0.60	0.02	0.58	0.03	0.69	0.04	0.61	0.02	0.61	0.02	1.16	0.03	0.67	0.02	
91	0.82	0.04	0.59	0.03	0.60	0.04	0.58	0.03	0.69	0.02	0.61	0.03	0.61	0.02	1.16	0.04	0.67	0.03	
92	0.82	0.03	0.59	0.03	0.60	0.02	0.58	0.03	0.70	0.02	0.61	0.02	0.61	0.02	1.17	0.05	0.68	0.03	
93	0.83	0.03	0.59	0.02	0.60	0.02	0.58	0.03	0.70	0.03	0.61	0.02	0.62	0.02	1.17	0.05	0.68	0.02	
94	0.83	0.03	0.59	0.04	0.60	0.03	0.59	0.02	0.70	0.02	0.62	0.02	0.62	0.02	1.17	0.04	0.68	0.02	
95	0.83	0.04	0.60	0.02	0.60	0.03	0.59	0.03	0.71	0.03	0.62	0.02	0.62	0.02	1.17	0.04	0.68	0.05	
96	0.83	0.03	0.61	0.03	0.60	0.02	0.59	0.03	0.71	0.02	0.62	0.02	0.63	0.02	1.17	0.03	0.68	0.04	
97	0.83	0.04	0.61	0.03	0.60	0.04	0.59	0.04	0.72	0.02	0.63	0.02	0.63	0.02	1.18	0.04	0.69	0.06	
98	0.83	0.03	0.61	0.03	0.61	0.02	0.59	0.02	0.72	0.02	0.63	0.02	0.63	0.02	1.18	0.04	0.70	0.03	
99	0.84	0.04	0.61	0.03	0.61	0.03	0.59	0.03	0.73	0.02	0.63	0.02	0.64	0.02	1.18	0.04	0.70	0.03	
100	0.84	0.04	0.61	0.03	0.61	0.02	0.59	0.03	0.74	0.03	0.64	0.02	0.64	0.02	1.18	0.04	0.70	0.03	

Size measurements nematodes Signy

1992	Jan 10		Jan 22		Feb 9		Feb 26		Apr 16		May 4		May 15		May 29		Jun 13		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
101	0.84	0.04	0.62	0.04	0.61	0.02	0.59	0.03	0.74	0.02	0.64	0.03	0.64	0.02	1.19	0.04	0.70	0.02	
102	0.84	0.04	0.62	0.03	0.61	0.03	0.59	0.03	0.74	0.02	0.64	0.02	0.64	0.03	1.21	0.05	0.70	0.03	
103	0.84	0.03	0.63	0.03	0.61	0.03	0.60	0.03	0.75	0.03	0.64	0.02	0.65	0.02	1.21	0.04	0.70	0.03	
104	0.84	0.04	0.63	0.03	0.61	0.03	0.60	0.03	0.75	0.03	0.64	0.02	0.65	0.03	1.21	0.04	0.71	0.03	
105	0.84	0.04	0.63	0.05	0.61	0.03	0.60	0.04	0.75	0.03	0.65	0.02	0.66	0.02	1.21	0.05	0.72	0.02	
106	0.85	0.04	0.63	0.02	0.61	0.04	0.60	0.03	0.75	0.02	0.65	0.03	0.66	0.02	1.21	0.04	0.72	0.02	
107	0.85	0.03	0.63	0.03	0.62	0.03	0.61	0.03	0.76	0.03	0.66	0.02	0.66	0.02	1.22	0.06	0.72	0.02	
108	0.85	0.03	0.63	0.02	0.62	0.03	0.61	0.02	0.77	0.03	0.66	0.02	0.66	0.03	1.22	0.04	0.72	0.05	
109	0.85	0.04	0.64	0.03	0.62	0.03	0.61	0.03	0.77	0.02	0.66	0.02	0.67	0.02	1.22	0.05	0.73	0.03	
110	0.85	0.03	0.64	0.03	0.62	0.03	0.62	0.02	0.78	0.02	0.66	0.03	0.67	0.02	1.22	0.04	0.74	0.03	
111	0.86	0.03	0.64	0.03	0.62	0.03	0.63	0.03	0.78	0.02	0.66	0.02	0.67	0.02	1.22	0.05	0.74	0.02	
112	0.86	0.04	0.64	0.03	0.63	0.03	0.63	0.02	0.78	0.02	0.66	0.02	0.67	0.03	1.22	0.04	0.75	0.04	
113	0.86	0.04	0.64	0.03	0.63	0.02	0.63	0.04	0.78	0.03	0.66	0.02	0.68	0.02	1.22	0.05	0.76	0.02	
114	0.86	0.02	0.64	0.03	0.64	0.03	0.63	0.04	0.78	0.03	0.66	0.02	0.68	0.02	1.23	0.04	0.76	0.04	
115	0.86	0.03	0.66	0.03	0.64	0.02	0.63	0.03	0.78	0.03	0.67	0.02	0.68	0.03	1.23	0.04	0.76	0.02	
116	0.86	0.04	0.66	0.03	0.64	0.03	0.63	0.03	0.78	0.02	0.67	0.02	0.68	0.02	1.23	0.02	0.76	0.02	
117	0.87	0.04	0.67	0.03	0.64	0.03	0.63	0.03	0.79	0.03	0.67	0.02	0.68	0.03	1.23	0.04	0.76	0.02	
118	0.87	0.04	0.67	0.03	0.64	0.03	0.64	0.03	0.79	0.03	0.67	0.02	0.68	0.03	1.24	0.04	0.77	0.03	
119	0.87	0.04	0.67	0.04	0.64	0.03	0.64	0.04	0.80	0.03	0.67	0.03	0.68	0.02	1.24	0.04	0.77	0.03	
120	0.87	0.04	0.68	0.03	0.64	0.02	0.64	0.03	0.80	0.03	0.67	0.02	0.69	0.03	1.25	0.04	0.77	0.03	
121	0.87	0.04	0.68	0.02	0.64	0.03	0.64	0.03	0.80	0.03	0.68	0.02	0.69	0.03	1.25	0.04	0.77	0.03	
122	0.87	0.04	0.68	0.03	0.64	0.03	0.64	0.03	0.81	0.03	0.68	0.03	0.69	0.03	1.25	0.02	0.78	0.02	
123	0.87	0.04	0.68	0.03	0.65	0.03	0.64	0.03	0.81	0.03	0.69	0.03	0.69	0.03	1.25	0.04	0.78	0.03	
124	0.87	0.04	0.68	0.04	0.65	0.03	0.64	0.03	0.81	0.02	0.69	0.02	0.70	0.03	1.26	0.06	0.79	0.03	
125	0.88	0.03	0.68	0.03	0.65	0.04	0.65	0.03	0.81	0.02	0.69	0.02	0.70	0.03	1.26	0.04	0.79	0.03	
126	0.88	0.04	0.68	0.03	0.65	0.03	0.65	0.03	0.82	0.03	0.69	0.03	0.70	0.03	1.26	0.04	0.79	0.02	
127	0.88	0.02	0.68	0.03	0.65	0.03	0.65	0.03	0.82	0.03	0.69	0.02	0.70	0.03	1.26	0.05	0.79	0.02	
128	0.88	0.04	0.68	0.03	0.66	0.03	0.65	0.02	0.82	0.03	0.69	0.03	0.70	0.02	1.26	0.05	0.79	0.03	
129	0.88	0.04	0.68	0.03	0.66	0.03	0.65	0.03	0.82	0.03	0.69	0.03	0.70	0.03	1.26	0.05	0.80	0.03	
130	0.88	0.04	0.68	0.03	0.66	0.03	0.65	0.03	0.83	0.03	0.70	0.02	0.70	0.03	1.27	0.04	0.80	0.03	
131	0.89	0.04	0.68	0.03	0.66	0.03	0.66	0.02	0.83	0.03	0.70	0.02	0.71	0.03	1.28	0.04	0.80	0.03	
132	0.89	0.03	0.68	0.03	0.66	0.03	0.66	0.03	0.83	0.00	0.70	0.02	0.71	0.02	1.28	0.04	0.80	0.03	
133	0.89	0.04	0.68	0.03	0.66	0.04	0.66	0.05	0.83	0.03	0.71	0.02	0.71	0.03	1.28	0.04	0.80	0.03	
134	0.89	0.04	0.69	0.03	0.66	0.03	0.66	0.03	0.84	0.04	0.71	0.02	0.72	0.04	1.29	0.05	0.80	0.03	
135	0.89	0.04	0.69	0.03	0.66	0.03	0.66	0.03	0.84	0.02	0.71	0.03	0.72	0.02	1.29	0.04	0.80	0.03	
136	0.89	0.03	0.69	0.03	0.66	0.03	0.66	0.03	0.84	0.02	0.71	0.02	0.72	0.02	1.29	0.04	0.81	0.03	
137	0.89	0.04	0.69	0.03	0.66	0.03	0.66	0.02	0.85	0.03	0.71	0.02	0.72	0.03	1.29	0.04	0.81	0.03	
138	0.90	0.04	0.69	0.03	0.66	0.02	0.67	0.03	0.85	0.03	0.72	0.03	0.72	0.02	1.29	0.04	0.81	0.03	
139	0.90	0.04	0.70	0.03	0.66	0.02	0.67	0.03	0.85	0.04	0.72	0.03	0.72	0.02	1.29	0.05	0.81	0.02	
140	0.90	0.03	0.70	0.03	0.66	0.03	0.67	0.03	0.86	0.03	0.72	0.02	0.72	0.03	1.29	0.04	0.82	0.03	
141	0.90	0.04	0.70	0.03	0.67	0.03	0.67	0.03	0.86	0.03	0.72	0.03	0.72	0.08	1.30	0.04	0.82	0.03	
142	0.90	0.04	0.70	0.03	0.67	0.03	0.67	0.03	0.86	0.03	0.72	0.03	0.73	0.02	1.30	0.04	0.82	0.03	
143	0.90	0.03	0.70	0.03	0.67	0.03	0.68	0.03	0.86	0.03	0.72	0.04	0.73	0.03	1.30	0.04	0.82	0.03	
144	0.90	0.04	0.70	0.03	0.67	0.03	0.68	0.03	0.86	0.03	0.72	0.03	0.73	0.02	1.31	0.03	0.82	0.03	
145	0.91	0.03	0.70	0.03	0.67	0.03	0.68	0.03	0.86	0.03	0.72	0.03	0.74	0.03	1.31	0.04	0.82	0.03	
146	0.91	0.04	0.70	0.03	0.68	0.03	0.68	0.03	0.86	0.03	0.73	0.03	0.74	0.03	1.31	0.05	0.83	0.03	
147	0.91	0.03	0.70	0.04	0.68	0.02	0.69	0.03	0.86	0.03	0.73	0.03	0.74	0.03	1.32	0.04	0.83	0.03	
148	0.91	0.04	0.70	0.03	0.68	0.03	0.69	0.03	0.86	0.03	0.73	0.03	0.74	0.02	1.32	0.05	0.83	0.03	
149	0.92	0.04	0.70	0.03	0.68	0.03	0.69	0.02	0.86	0.03	0.73	0.03	0.75	0.03	1.33	0.04	0.83	0.04	
150	0.92	0.03	0.71	0.03	0.69	0.03	0.69	0.03	0.87	0.03	0.73	0.02	0.75	0.03	1.34	0.03	0.83	0.04	
151	0.92	0.04	0.71	0.03	0.69	0.02	0.69	0.03	0.87	0.04	0.74	0.03	0.75	0.02	1.34	0.05	0.83	0.04	
152	0.92	0.05	0.71	0.03	0.69	0.02	0.69	0.03	0.87	0.04	0.74	0.02	0.76	0.03	1.34	0.04	0.83	0.03	
153	0.92	0.03	0.71	0.03	0.69	0.03	0.70	0.03	0.87	0.04	0.74	0.03	0.76	0.03	1.34	0.04	0.83	0.03	
154	0.93	0.04	0.71	0.03	0.70	0.04	0.70	0.03	0.87	0.04	0.74	0.02	0.76	0.03	1.36	0.03	0.84	0.03	
155	0.93	0.04	0.71	0.03	0.70	0.03	0.70	0.03	0.88	0.03	0.74	0.03	0.76	0.03	1.36	0.05	0.84	0.03	
156	0.94	0.03	0.71	0.03	0.70	0.03	0.70	0.03	0.89	0.03	0.75	0.03	0.76	0.03	1.37	0.04	0.84	0.03	
157	0.94	0.04	0.71	0.03	0.70	0.03	0.70	0.02	0.89	0.04	0.75	0.03	0.77	0.02	1.39	0.07	0.85	0.03	
158	0.94	0.04	0.72	0.03	0.70	0.02	0.70	0.03	0.89	0.03	0.75	0.03	0.77	0.03	1.39	0.04	0.85	0.04	
159	0.95	0.04	0.72	0.03	0.71	0.03	0.71	0.03	0.89	0.03	0.75	0.02	0.77	0.03	1.40	0.03	0.85	0.03	
160	0.95	0.04	0.72	0.03	0.71	0.01	0.71	0.03	0.89	0.03	0.75	0.02	0.78	0.03	1.40	0.05	0.86	0.03	
161	0.96	0.03	0.72	0.03	0.71	0.03	0.71	0.03	0.89	0.03	0.75	0.03	0.78	0.03	1.40	0.05	0.86	0.03	
162	0.96	0.04	0.72	0.03	0.71	0.03	0.71	0.03	0.90	0.02	0.76	0.02	0.78	0.02	1.40	0.05	0.86	0.04	
163	0.97	0.04	0.72	0.03	0.71	0.02	0.72	0.03	0.90	0.05	0.76	0.02	0.79	0.03	1.41	0.05	0.86	0.04	
164	0.97	0.04	0.72	0.03	0.71	0.03	0.73	0.03	0.90	0.04	0.76	0.02	0.80	0.03	1.41	0.04	0.86	0.03	
165	0.97	0.04	0.72	0.03	0.71	0.03	0.73	0.03	0.90	0.04	0.76	0.02	0.80	0.03	1.41	0.05	0.86	0.03	
166	0.98	0.04	0.73	0.03	0.71	0.03	0.73	0.03	0.90	0.04	0.76	0.03	0.80	0.03	1.42	0.05	0.87	0.04	
167	0.98	0.04	0.73	0.03	0.72	0.02	0.73	0.03	0.91	0.03	0.76	0.03	0.81	0.03	1.42	0.05	0.87	0.03	
168	0.99	0.04	0.73	0.03	0.72	0.02	0.73	0.03	0.91	0.04	0.77	0.03	0.81	0.03	1.42	0.04	0.87	0.03	
169	0.99	0.05	0.73	0.03	0.72	0.03	0.73	0.03	0.91	0.03	0.77	0.02	0.81	0.03	1.43	0.04	0.87	0.03	
170	1.00	0.04	0.73	0.03	0.72	0.02	0.73	0.03	0.92	0.03	0.77	0.03	0.82	0.03	1.43	0.06	0.89	0.04	
171	1.00	0.05	0.73	0.03	0.72	0.02	0.74	0.03	0.92	0.03	0.77	0.02	0.83	0.03	1.43	0.04	0.89	0.04	
172	1.01	0.04	0.74	0.03	0.72	0.03	0.74	0.03	0.92	0.03	0.77	0.03	0.83	0.03	1.43	0.05	0.89	0.04	
173	1.02	0.04	0.74	0.03	0.72	0.03	0.74	0.03	0.93	0.03	0.77	0.03	0.83	0.03	1.44	0.03	0.89	0.04	
174	1.02	0.04	0.74	0.03	0.72	0.04	0.74	0.03	0.94	0.03	0.78	0.03	0.83	0.03	1.44	0.05	0.89	0.03	
175	1.03	0.04	0.74	0.03	0.72	0.03	0.74	0.03	0.94	0.03	0.78	0.02	0.83	0.03	1.44	0.04	0.89	0.03	
176	1.03	0.09	0.74	0.02	0.73	0.03	0.75	0.03	0.94	0.04	0.79	0.03	0.84	0.03	1.44	0.05	0.91	0.03	
177	1.04	0.05	0.75	0.03	0.73	0.03	0.75	0.03	0.94	0.04	0.79	0.03	0.84	0.03	1.44	0.03	0.91	0.03	
178	1.04	0.04	0.75	0.03	0.73	0.03	0.75	0.03	0.94	0.04	0.79	0.03	0.84	0.02	1.45	0.04	0.91	0.04	
179	1.04	0.04	0.75	0.03	0.73	0.03	0.75	0.03	0.94	0.04	0.79	0.03	0.84	0.03	1.45	0.05	0.92	0.03	
180	1.05	0.03	0.76	0.03	0.73	0.04	0.75	0.03	0.95	0.03	0.80	0.03	0.84	0.03	1.45	0.07	0.92	0.03	
181	1.05	0.04	0.76	0.03	0.73	0.03	0.75	0.03	0.95	0.03	0.80	0.02	0.84	0.03	1.46	0.07	0.92	0.03	
182	1.05	0.05	0.76	0.03	0.73	0.02	0.76	0.03	0.95	0.04	0.80	0.03	0.84	0.03	1.46	0.05	0.92	0.03	
183	1.06	0.04	0.76	0.03	0.73	0.03	0.76	0.03	0.95	0.04	0.80	0.03	0.84	0.02	1.46	0.06	0.93	0.04	
184	1.06	0.04	0.76	0.03	0.73	0.04	0.76	0.03	0.95	0.02	0.80	0.03	0.84	0.03	1.47	0.05	0.93	0.03	
185	1.06	0.05	0.76	0.03	0.74	0.02	0.77	0.03	0.95	0.04	0.80	0.03	0.84	0.03	1.47	0.05	0.93	0.03	
186	1.06	0.05	0.76	0.03	0.74	0.03	0.77	0.03	0.96	0.03	0.80	0.03	0.84	0.03	1.47	0.04	0.94	0.03	
187	1.08	0.05	0.76	0.03	0.74	0.03	0.77	0.03	0.96	0.03	0.81	0.03	0.85	0.03	1.48	0.05	0.94	0.02	
188	1.08	0.04	0.76	0.03	0.74	0.03	0.77	0.03	0.96	0.04	0.81	0.02	0.85	0.04	1.49	0.06	0.94	0.03	
189	1.08	0.04	0.76	0.03	0.74	0.03	0.77	0.03	0.96	0.03	0.81	0.03	0.85	0.03	1.49	0.04	0.95	0.03	
190	1.08	0.05	0.77	0.04	0.75	0.03	0.77	0.03	0.96	0.03	0.81	0.02	0.85	0.04	1.50	0.06	0.97	0.03	
191	1.08	0.04	0.77	0.03	0.75	0.03	0.77	0.03	0.96	0.03	0.81	0.03	0.85	0.03	1.50	0.05	0.97	0.03	
192	1.08	0.05	0.77	0.03	0.75	0.03	0.77	0.03	0.97	0.03	0.81	0.03	0.85	0.03	1.51	0.06	0.98	0.04	
193	1.09	0.04	0.78	0.03	0.75	0.03	0.78	0.03	0.97	0.04	0.82	0.03	0.85	0.03	1.51	0.05	0.98	0.03	
194	1.09	0.04	0.78	0.03	0.75	0.04	0.78	0.03	0.97	0.04	0.83	0.03	0.85	0.03	1.51	0.04	0.98	0.04	
195	1.09	0.04	0.78	0.03	0.75	0.03	0.78	0.03	0.97	0.03	0.83	0.03	0.85	0.03	1.52	0.05	0.99	0.03	
196	1.09	0.04	0.78	0.04	0.76	0.04	0.78	0.03	0.97	0.03	0.83	0.02	0.86	0.03	1.53	0.05	0.99	0.04	
197	1.09	0.05	0.78	0.03	0.76	0.04	0.78	0.03	0.97	0.03	0.84	0.03	0.86	0.03	1.53	0.05	0.99	0.03	
198	1.09	0.05	0.78	0.04	0.76	0.03	0.79	0.03	0.97	0.04	0.84	0.03	0.86	0.03	1.54	0.06	1.00	0.04	
199	1.09	0.04	0.78	0.03	0.76	0.03	0.79	0.03	0.98	0.03	0.84	0.02	0.86	0.03	1.55	0.05	1.00	0.04	
200	1.09	0.05	0.78	0.03	0.76	0.03	0.79	0.04	0.98	0.03	0.84	0.03	0.87	0.04	1.55	0.05	1.00	0.03	

Size measurements nematodes Signy

1992	Jan 10		Jan 22		Feb 9		Feb 26		Apr 16		May 4		May 15		May 29		Jun 13		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
201	1.10	0.04	0.78	0.03	0.77	0.03	0.79	0.04	0.99	0.03	0.85	0.04	0.87	0.02	1.55	0.05	1.00	0.04	
202	1.10	0.04	0.79	0.04	0.77	0.03	0.80	0.04	0.99	0.03	0.85	0.03	0.87	0.04	1.56	0.05	1.01	0.03	
203	1.10	0.05	0.79	0.03	0.77	0.03	0.80	0.04	1.00	0.04	0.85	0.03	0.87	0.03	1.56	0.06	1.01	0.04	
204	1.10	0.05	0.79	0.02	0.77	0.03	0.80	0.03	1.00	0.03	0.86	0.03	0.87	0.03	1.57	0.05	1.02	0.03	
205	1.10	0.04	0.79	0.03	0.77	0.04	0.80	0.03	1.01	0.03	0.86	0.03	0.87	0.03	1.57	0.06	1.02	0.03	
206	1.10	0.04	0.79	0.03	0.78	0.03	0.80	0.03	1.01	0.03	0.86	0.03	0.88	0.03	1.59	0.06	1.02	0.04	
207	1.10	0.05	0.79	0.03	0.78	0.03	0.80	0.04	1.01	0.02	0.86	0.03	0.88	0.04	1.60	0.05	1.02	0.04	
208	1.11	0.05	0.80	0.04	0.78	0.04	0.80	0.03	1.02	0.03	0.86	0.03	0.88	0.03	1.60	0.08	1.03	0.05	
209	1.11	0.04	0.80	0.03	0.78	0.04	0.80	0.04	1.02	0.04	0.86	0.03	0.88	0.03	1.60	0.07	1.04	0.04	
210	1.11	0.04	0.80	0.04	0.79	0.03	0.80	0.04	1.02	0.03	0.86	0.03	0.88	0.04	1.61	0.03	1.04	0.04	
211	1.12	0.05	0.80	0.04	0.79	0.03	0.81	0.04	1.02	0.04	0.87	0.03	0.88	0.03	1.61	0.05	1.04	0.03	
212	1.12	0.04	0.81	0.03	0.79	0.03	0.81	0.04	1.02	0.04	0.87	0.03	0.89	0.03	1.62	0.05	1.04	0.03	
213	1.12	0.05	0.81	0.03	0.79	0.03	0.81	0.03	1.03	0.03	0.87	0.03	0.89	0.02	1.62	0.05	1.04	0.04	
214	1.12	0.05	0.81	0.02	0.79	0.04	0.81	0.03	1.03	0.04	0.87	0.03	0.89	0.03	1.63	0.04	1.04	0.04	
215	1.12	0.05	0.81	0.03	0.80	0.03	0.81	0.04	1.04	0.03	0.87	0.04	0.90	0.03	1.64	0.05	1.05	0.04	
216	1.12	0.05	0.82	0.03	0.80	0.03	0.81	0.03	1.04	0.04	0.87	0.03	0.90	0.03	1.65	0.05	1.06	0.03	
217	1.13	0.04	0.82	0.04	0.81	0.04	0.81	0.03	1.04	0.04	0.88	0.03	0.91	0.04	1.65	0.05	1.06	0.03	
218	1.13	0.04	0.82	0.03	0.81	0.03	0.81	0.03	1.05	0.02	0.88	0.03	0.91	0.03	1.65	0.04	1.06	0.03	
219	1.13	0.04	0.83	0.04	0.82	0.04	0.82	0.04	1.05	0.04	0.88	0.03	0.92	0.03	1.66	0.05	1.06	0.04	
220	1.13	0.05	0.83	0.04	0.82	0.03	0.82	0.04	1.06	0.04	0.89	0.03	0.92	0.04	1.66	0.08	1.06	0.04	
221	1.14	0.05	0.83	0.04	0.82	0.04	0.82	0.03	1.07	0.03	0.89	0.04	0.93	0.03	1.66	0.06	1.06	0.03	
222	1.14	0.04	0.83	0.04	0.82	0.03	0.82	0.04	1.07	0.04	0.89	0.03	0.94	0.03	1.66	0.03	1.07	0.04	
223	1.14	0.04	0.84	0.04	0.83	0.03	0.82	0.04	1.07	0.04	0.89	0.03	0.94	0.04	1.67	0.05	1.07	0.03	
224	1.14	0.05	0.84	0.04	0.84	0.04	0.82	0.04	1.08	0.03	0.89	0.03	0.94	0.03	1.68	0.03	1.07	0.04	
225	1.15	0.05	0.84	0.03	0.84	0.03	0.82	0.04	1.08	0.04	0.89	0.04	0.95	0.04	1.71	0.07	1.08	0.03	
226	1.15	0.05	0.84	0.03	0.84	0.04	0.83	0.04	1.08	0.02	0.90	0.04	0.95	0.05	1.71	0.04	1.08	0.04	
227	1.15	0.05	0.84	0.04	0.85	0.04	0.83	0.04	1.09	0.05	0.90	0.04	0.95	0.03	1.71	0.06	1.09	0.04	
228	1.16	0.04	0.84	0.03	0.85	0.04	0.83	0.03	1.09	0.04	0.90	0.03	0.95	0.03	1.73	0.06	1.09	0.04	
229	1.17	0.04	0.84	0.04	0.86	0.04	0.83	0.04	1.10	0.03	0.91	0.03	0.95	0.04	1.75	0.06	1.10	0.04	
230	1.17	0.05	0.85	0.04	0.86	0.04	0.83	0.04	1.10	0.04	0.91	0.03	0.96	0.03	1.75	0.05	1.10	0.04	
231	1.17	0.04	0.85	0.03	0.86	0.03	0.83	0.04	1.10	0.03	0.92	0.04	0.96	0.04	1.75	0.07	1.10	0.04	
232	1.18	0.06	0.85	0.04	0.86	0.04	0.83	0.04	1.10	0.03	0.92	0.03	0.97	0.03	1.75	0.07	1.10	0.03	
233	1.18	0.04	0.85	0.04	0.87	0.04	0.83	0.03	1.10	0.03	0.92	0.03	0.97	0.04	1.75	0.04	1.10	0.04	
234	1.18	0.06	0.85	0.03	0.87	0.04	0.84	0.03	1.10	0.04	0.92	0.03	0.97	0.04	1.75	0.05	1.11	0.04	
235	1.18	0.05	0.86	0.03	0.87	0.03	0.84	0.03	1.10	0.04	0.93	0.04	0.98	0.03	1.76	0.07	1.11	0.04	
236	1.19	0.04	0.86	0.04	0.88	0.03	0.84	0.04	1.10	0.04	0.93	0.03	0.98	0.03	1.77	0.06	1.12	0.05	
237	1.19	0.05	0.86	0.03	0.88	0.04	0.84	0.03	1.11	0.04	0.93	0.03	0.98	0.03	1.77	0.05	1.12	0.04	
238	1.20	0.04	0.87	0.04	0.89	0.03	0.84	0.04	1.11	0.04	0.94	0.03	0.99	0.05	1.78	0.07	1.13	0.04	
239	1.20	0.05	0.87	0.04	0.89	0.04	0.84	0.04	1.12	0.04	0.95	0.03	0.99	0.04	1.79	0.07	1.13	0.05	
240	1.20	0.05	0.87	0.03	0.89	0.03	0.85	0.03	1.12	0.04	0.96	0.03	1.00	0.03	1.79	0.03	1.14	0.04	
241	1.21	0.05	0.87	0.04	0.90	0.03	0.85	0.04	1.12	0.04	0.96	0.03	1.00	0.03	1.80	0.06	1.14	0.04	
242	1.21	0.05	0.88	0.04	0.90	0.04	0.85	0.05	1.13	0.04	0.97	0.03	1.00	0.04	1.81	0.06	1.14	0.04	
243	1.22	0.05	0.88	0.04	0.90	0.04	0.85	0.02	1.13	0.04	0.98	0.03	1.01	0.03	1.81	0.07	1.15	0.04	
244	1.22	0.04	0.88	0.04	0.90	0.05	0.86	0.03	1.13	0.04	0.98	0.02	1.01	0.03	1.82	0.06	1.15	0.02	
245	1.23	0.05	0.88	0.04	0.91	0.03	0.86	0.03	1.14	0.05	0.99	0.03	1.02	0.04	1.82	0.06	1.15	0.04	
246	1.25	0.05	0.89	0.03	0.91	0.05	0.86	0.04	1.14	0.06	0.99	0.03	1.02	0.03	1.82	0.07	1.15	0.04	
247	1.26	0.05	0.89	0.04	0.91	0.04	0.86	0.04	1.14	0.05	1.00	0.03	1.02	0.05	1.82	0.07	1.15	0.05	
248	1.26	0.05	0.89	0.04	0.92	0.03	0.86	0.04	1.14	0.05	1.00	0.04	1.03	0.04	1.84	0.07	1.15	0.04	
249	1.27	0.04	0.89	0.03	0.92	0.04	0.86	0.04	1.14	0.04	1.01	0.04	1.03	0.04	1.84	0.06	1.16	0.04	
250	1.29	0.05	0.89	0.04	0.93	0.04	0.86	0.04	1.14	0.04	1.01	0.03	1.03	0.03	1.85	0.03	1.17	0.04	
251	1.29	0.05	0.89	0.04	0.94	0.04	0.86	0.04	1.15	0.02	1.01	0.04	1.05	0.04	1.85	0.06	1.18	0.04	
252	1.30	0.05	0.90	0.04	0.94	0.03	0.86	0.03	1.16	0.06	1.02	0.03	1.05	0.05	1.85	0.08	1.18	0.04	
253	1.30	0.06	0.90	0.04	0.94	0.03	0.86	0.04	1.16	0.05	1.02	0.03	1.05	0.03	1.86	0.07	1.18	0.03	
254	1.32	0.05	0.90	0.04	0.95	0.04	0.86	0.03	1.17	0.04	1.04	0.03	1.06	0.04	1.87	0.03	1.18	0.03	
255	1.34	0.06	0.90	0.04	0.95	0.04	0.87	0.03	1.17	0.04	1.04	0.03	1.06	0.04	1.87	0.08	1.18	0.04	
256	1.34	0.06	0.91	0.03	0.95	0.03	0.87	0.04	1.17	0.05	1.05	0.03	1.06	0.04	1.87	0.06	1.19	0.04	
257	1.35	0.06	0.91	0.05	0.96	0.03	0.87	0.04	1.17	0.05	1.06	0.03	1.07	0.03	1.87	0.05	1.20	0.03	
258	1.36	0.06	0.92	0.04	0.96	0.03	0.87	0.04	1.17	0.05	1.08	0.05	1.08	0.04	1.87	0.06	1.20	0.04	
259	1.37	0.06	0.93	0.04	0.96	0.04	0.87	0.04	1.18	0.06	1.08	0.03	1.08	0.03	1.88	0.07	1.20	0.04	
260	1.37	0.06	0.93	0.04	0.96	0.03	0.88	0.04	1.18	0.03	1.09	0.03	1.10	0.03	1.89	0.07	1.20	0.04	
261	1.37	0.06	0.94	0.03	0.96	0.04	0.88	0.04	1.18	0.04	1.09	0.04	1.11	0.03	1.90	0.07	1.21	0.04	
262	1.38	0.07	0.94	0.04	0.96	0.04	0.88	0.03	1.18	0.04	1.11	0.04	1.12	0.04	1.90	0.07	1.21	0.04	
263	1.38	0.06	0.94	0.03	0.97	0.04	0.88	0.04	1.19	0.03	1.12	0.04	1.12	0.04	1.90	0.07	1.21	0.04	
264	1.39	0.05	0.94	0.04	0.97	0.04	0.88	0.04	1.20	0.04	1.12	0.04	1.12	0.03	1.90	0.07	1.22	0.04	
265	1.39	0.06	0.94	0.04	0.97	0.04	0.88	0.04	1.21	0.05	1.13	0.04	1.15	0.04	1.90	0.07	1.24	0.04	
266	1.39	0.06	0.94	0.04	0.97	0.04	0.88	0.04	1.21	0.03	1.14	0.03	1.15	0.04	1.91	0.06	1.24	0.04	
267	1.40	0.06	0.94	0.04	0.97	0.05	0.89	0.05	1.22	0.05	1.15	0.04	1.17	0.05	1.91	0.07	1.24	0.04	
268	1.40	0.05	0.94	0.04	0.98	0.04	0.89	0.04	1.22	0.04	1.16	0.03	1.17	0.04	1.92	0.07	1.25	0.05	
269	1.41	0.07	0.94	0.03	0.98	0.04	0.89	0.03	1.22	0.05	1.16	0.04	1.18	0.04	1.92	0.08	1.26	0.04	
270	1.42	0.07	0.95	0.03	0.99	0.04	0.89	0.03	1.27	0.05	1.17	0.04	1.20	0.04	1.93	0.07	1.26	0.04	
271	1.42	0.07	0.95	0.03	0.99	0.04	0.89	0.04	1.28	0.05	1.17	0.05	1.20	0.04	1.93	0.04	1.26	0.05	
272	1.42	0.06	0.96	0.04	0.99	0.03	0.89	0.04	1.29	0.05	1.18	0.04	1.20	0.04	1.95	0.04	1.26	0.05	
273	1.43	0.06	0.96	0.04	1.00	0.03	0.89	0.04	1.29	0.05	1.18	0.05	1.24	0.04	1.96	0.03	1.28	0.05	
274	1.43	0.06	0.96	0.04	1.00	0.04	0.90	0.04	1.30	0.05	1.18	0.05	1.24	0.05	1.96	0.07	1.28	0.04	
275	1.43	0.06	0.99	0.03	1.00	0.04	0.90	0.03	1.32	0.04	1.19	0.05	1.24	0.04	1.97	0.04	1.28	0.05	
276	1.44	0.07	1.00	0.03	1.01	0.04	0.90	0.04	1.32	0.05	1.20	0.04	1.25	0.04	1.98	0.07	1.29	0.04	
277	1.44	0.07	1.01	0.04	1.01	0.03	0.90	0.04	1.33	0.03	1.21	0.05	1.26	0.05	1.98	0.08	1.29	0.04	
278	1.44	0.07	1.02	0.03	1.02	0.04	0.91	0.04	1.34	0.03	1.21	0.04	1.26	0.04	1.99	0.05	1.30	0.04	
279	1.44	0.06	1.04	0.04	1.02	0.04	0.91	0.04	1.36	0.05	1.21	0.04	1.27	0.05	1.99	0.08	1.30	0.05	
280	1.44	0.06	1.06	0.04	1.04	0.04	0.91	0.04	1.37	0.05	1.22	0.04	1.27	0.04	2.01	0.03	1.31	0.04	
281	1.45	0.07	1.06	0.05	1.04	0.06	0.91	0.04	1.37	0.05	1.22	0.05	1.27	0.04	2.01	0.04	1.32	0.05	
282	1.45	0.07	1.06	0.04	1.05	0.04	0.91	0.04	1.38	0.03	1.22	0.04	1.29	0.03	2.01	0.08	1.32	0.04	
283	1.46	0.04	1.07	0.04	1.07	0.05	0.92	0.04	1.38	0.05	1.22	0.04	1.31	0.05	2.01	0.07	1.35	0.04	
284	1.48	0.06	1.07	0.04	1.08	0.03	0.92	0.04	1.39	0.05	1.23	0.05	1.36	0.04	2.03	0.07	1.36	0.05	
285	1.49	0.07	1.08	0.05	1.09	0.07	0.92	0.04	1.42	0.06	1.23	0.05	1.39	0.07	2.04	0.07	1.37	0.08	
286	1.50	0.07	1.09	0.04	1.09	0.05	0.92	0.04	1.43	0.03	1.24	0.05	1.39	0.05	2.04	0.07	1.39	0.06	
287	1.50	0.07	1.09	0.05	1.09	0.05	0.92	0.04	1.45	0.04	1.26	0.05	1.40	0.03	2.05	0.08	1.39	0.06	
288	1.51	0.08	1.10	0.06	1.09	0.05	0.92	0.04	1.47	0.06	1.27	0.04	1.41	0.05	2.05	0.07	1.39	0.07	
289	1.51	0.06	1.10	0.05	1.11	0.04	0.92	0.04	1.49	0.05	1.27	0.05	1.42	0.05	2.05	0.06	1.39	0.04	
290	1.51	0.07	1.10	0.05	1.11	0.04	0.93	0.04	1.52	0.01	1.28	0.04	1.42	0.05	2.05	0.04	1.41	0.05	
291	1.52	0.07	1.10	0.05	1.11	0.05	0.93	0.04	1.52	0.05	1.29	0.03	1.47	0.03	2.06	0.06	1.41	0.07	
292	1.52	0.07	1.11	0.05	1.11	0.05	0.94	0.04	1.55	0.06	1.30	0.05	1.48	0.06	2.06	0.03	1.45	0.04	
293	1.52	0.06	1.12	0.04	1.12	0.05	0.94	0.04	1.56	0.06	1.33	0.05	1.49	0.07	2.07	0.08	1.46	0.05	
294	1.52	0.07	1.12	0.05	1.12	0.05	0.95	0.04	1.57	0.03	1.34	0.04	1.50	0.03	2.07	0.05	1.49	0.05	
295	1.54	0.07	1.12	0.06	1.12	0.06	0.95	0.05	1.59	0.06	1.35	0.04	1.52	0.06	2.09	0.04	1.50	0.05	
296	1.54	0.06	1.13	0.05	1.13	0.05	0.96	0.04	1.60	0.04	1.36	0.05	1.53	0.05	2.11	0.04	1.52	0.06	
297	1.55	0.06	1.13	0.05	1.13	0.03	0.96	0.05	1.64	0.05	1.36	0.04	1.55	0.06	2.11	0.03	1.53	0.05	
298	1.56	0.07	1.14	0.04	1.14	0.05	0.96	0.04	1.64	0.05	1.36	0.04	1.56	0.05	2.13	0.04	1.53	0.05	
299	1.57	0.07	1.14	0.06	1.15	0.04	0.97	0.04	1.68	0.06	1.39	0.05	1.57	0.06	2.13	0.04	1.56	0.05	
300	1.57	0.07	1.14	0.05	1.16	0.04	0.97	0.04	1.69	0.06	1.47	0.05	1.59	0.10	2.13	0.08	1.56	0.05	

Size measurements nematodes Signy

1992	Jan 10		Jan 22		Feb 9		Feb 26		Apr 16		May 4		May 15		May 29		Jun 13		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
301	1.57	0.06	1.14	0.05	1.16	0.06	0.97	0.04	1.71	0.04	1.50	0.06	1.60	0.06	2.14	0.04	1.60	0.05	
302	1.58	0.07	1.14	0.05	1.16	0.06	0.97	0.04	1.71	0.06	1.52	0.05	1.60	0.05	2.16	0.04	1.60	0.08	
303	1.59	0.07	1.14	0.04	1.16	0.05	0.98	0.04	1.72	0.04	1.52	0.05	1.61	0.05	2.20	0.04	1.60	0.05	
304	1.59	0.06	1.14	0.06	1.17	0.06	0.98	0.04	1.72	0.06	1.53	0.05	1.61	0.06	2.22	0.05	1.61	0.05	
305	1.60	0.08	1.15	0.07	1.18	0.05	0.99	0.04	1.73	0.06	1.55	0.04	1.61	0.07	2.25	0.04	1.66	0.06	
306	1.60	0.08	1.15	0.05	1.18	0.05	0.99	0.04	1.73	0.06	1.56	0.07	1.63	0.05	2.32	0.05	1.67	0.09	
307	1.61	0.08	1.15	0.05	1.18	0.05	1.00	0.04	1.74	0.07	1.58	0.05	1.63	0.03	2.34	0.08	1.67	0.06	
308	1.61	0.06	1.15	0.05	1.19	0.05	1.00	0.04	1.75	0.07	1.60	0.06	1.65	0.06	2.35	0.05	1.69	0.06	
309	1.62	0.07	1.15	0.05	1.20	0.06	1.00	0.04	1.76	0.06	1.62	0.06	1.67	0.06	2.36	0.03	1.69	0.09	
310	1.62	0.07	1.16	0.05	1.21	0.06	1.00	0.04	1.76	0.06	1.63	0.05	1.67	0.06	2.36	0.04	1.70	0.06	
311	1.62	0.08	1.16	0.05	1.21	0.06	1.01	0.04	1.77	0.05	1.70	0.07	1.69	0.06	2.38	0.05	1.71	0.09	
312	1.67	0.07	1.16	0.05	1.22	0.03	1.01	0.04	1.78	0.06	1.71	0.05	1.70	0.05	2.41	0.04	1.72	0.09	
313	1.71	0.09	1.16	0.06	1.22	0.06	1.01	0.05	1.78	0.07	1.74	0.06	1.71	0.03	2.42	0.04	1.73	0.06	
314	1.71	0.08	1.16	0.05	1.23	0.06	1.01	0.05	1.80	0.04	1.75	0.06	1.73	0.07	2.43	0.04	1.73	0.06	
315	1.73	0.04	1.16	0.05	1.23	0.05	1.03	0.04	1.81	0.07	1.75	0.08	1.73	0.07	2.44	0.04	1.75	0.07	
316	1.73	0.08	1.17	0.06	1.24	0.06	1.04	0.04	1.82	0.05	1.77	0.03	1.73	0.07	2.44	0.04	1.78	0.08	
317	1.74	0.08	1.17	0.06	1.25	0.05	1.09	0.05	1.83	0.07	1.83	0.07	1.75	0.03	2.44	0.04	1.78	0.07	
318	1.74	0.09	1.17	0.05	1.27	0.05	1.09	0.05	1.83	0.07	1.86	0.08	1.75	0.06	2.46	0.04	1.78	0.03	
319	1.74	0.09	1.17	0.04	1.28	0.06	1.09	0.04	1.85	0.09	1.89	0.08	1.76	0.08	2.48	0.04	1.81	0.08	
320	1.74	0.08	1.18	0.05	1.28	0.04	1.09	0.06	1.85	0.07	1.90	0.07	1.77	0.07	2.53	0.04	1.82	0.08	
321	1.75	0.08	1.18	0.06	1.28	0.06	1.09	0.04	1.85	0.06	2.01	0.08	1.79	0.07	2.55	0.04	1.82	0.07	
322	1.75	0.10	1.18	0.05	1.28	0.07	1.10	0.06	1.87	0.06	2.02	0.04	1.80	0.06	2.57	0.05	1.83	0.08	
323	1.75	0.09	1.18	0.05	1.30	0.04	1.11	0.05	1.88	0.08	2.02	0.08	1.80	0.07	2.59	0.05	1.83	0.08	
324	1.75	0.09	1.18	0.05	1.31	0.04	1.11	0.05	1.89	0.07	2.03	0.08	1.80	0.07	2.59	0.04	1.84	0.07	
325	1.76	0.09	1.19	0.05	1.32	0.06	1.11	0.05	1.93	0.07	2.06	0.09	1.81	0.07	2.62	0.05	1.84	0.07	
326	1.76	0.09	1.19	0.06	1.34	0.06	1.12	0.05	1.93	0.07	2.73	0.05	1.82	0.06	2.62	0.05	1.84	0.06	
327	1.77	0.10	1.19	0.06	1.35	0.04	1.13	0.06	1.93	0.07	2.86	0.05	1.82	0.07	2.65	0.05	1.85	0.07	
328	1.77	0.04	1.20	0.05	1.36	0.03	1.13	0.05	1.93	0.08			1.84	0.07	2.66	0.04	1.85	0.07	
329	1.78	0.12	1.20	0.05	1.37	0.06	1.13	0.06	1.95	0.09			1.86	0.07	2.66	0.11	1.85	0.08	
330	1.78	0.07	1.21	0.05	1.37	0.04	1.13	0.04	1.95	0.07			1.89	0.03	2.68	0.05	1.86	0.07	
331	1.78	0.08	1.21	0.06	1.38	0.04	1.14	0.06	1.96	0.05			1.90	0.07	2.68	0.04	1.87	0.07	
332	1.79	0.09	1.24	0.05	1.39	0.04	1.14	0.06	1.98	0.08			1.92	0.07	2.69	0.05	1.87	0.07	
333	1.79	0.10	1.24	0.06	1.42	0.04	1.14	0.04	1.99	0.04			1.93	0.08	2.70	0.04	1.87	0.08	
334	1.79	0.10	1.27	0.05	1.43	0.04	1.15	0.05	2.01	0.04			1.96	0.08	2.73	0.05	1.87	0.09	
335	1.79	0.09	1.28	0.06	1.46	0.09	1.15	0.05	2.05	0.10			1.99	0.07	2.74	0.04	1.90	0.07	
336	1.80	0.05	1.29	0.05	1.50	0.05	1.16	0.05	2.21	0.04			2.20	0.04	2.75	0.04	1.90	0.08	
337	1.80	0.09	1.32	0.03	1.54	0.03	1.18	0.06	2.22	0.06			2.25	0.04	2.75	0.04	1.90	0.08	
338	1.80	0.09	1.34	0.06	1.55	0.08	1.18	0.06	2.25	0.05			2.51	0.05	2.78	0.05	1.90	0.06	
339	1.80	0.09	1.35	0.06	1.60	0.06	1.18	0.04	2.26	0.04			2.60	0.04	2.80	0.06	1.91	0.04	
340	1.80	0.09	1.37	0.06	1.64	0.08	1.21	0.06	2.28	0.04			2.63	0.05	2.83	0.05	1.92	0.04	
341	1.80	0.10	1.37	0.06	1.64	0.08	1.21	0.06	2.32	0.04			2.71	0.05	2.85	0.05	1.92	0.08	
342	1.80	0.09	1.39	0.04	1.64	0.09	1.22	0.05	2.32	0.05			2.91	0.05	2.87	0.04	1.93	0.03	
343	1.80	0.09	1.39	0.01	1.66	0.07	1.22	0.05	2.40	0.05			3.05	0.05	2.89	0.04	1.94	0.08	
344	1.81	0.11	1.40	0.07	1.67	0.08	1.22	0.05	2.60	0.06					2.90	0.05	1.95	0.07	
345	1.81	0.09	1.41	0.06	1.68	0.04	1.22	0.05	2.65	0.05					2.90	0.04	1.95	0.07	
346	1.81	0.09	1.41	0.07	1.70	0.07	1.24	0.05	2.66	0.06					2.91	0.06	1.96	0.08	
347	1.82	0.10	1.42	0.07	1.73	0.08	1.24	0.05	2.79	0.05					2.97	0.05	1.96	0.08	
348	1.82	0.09	1.46	0.07	1.73	0.04	1.24	0.05	2.92	0.04					2.99	0.05	1.96	0.07	
349	1.83	0.08	1.48	0.07	1.74	0.10	1.25	0.06	2.94	0.06					3.01	0.05	1.99	0.03	
350	1.83	0.09	1.48	0.07	1.74	0.09	1.25	0.05							3.01	0.05	1.99	0.03	
351	1.83	0.04	1.49	0.06	1.74	0.09	1.25	0.05							3.02	0.05	2.01	0.04	
352	1.83	0.09	1.50	0.07	1.75	0.10	1.27	0.03							3.02	0.04	2.03	0.08	
353	1.84	0.04	1.51	0.07	1.75	0.10	1.28	0.05							3.02	0.05	2.05	0.07	
354	1.85	0.09	1.51	0.07	1.76	0.12	1.28	0.05							3.19	0.06	2.35	0.04	
355	1.85	0.10	1.52	0.07	1.76	0.12	1.30	0.05									2.38	0.04	
356	1.85	0.03	1.53	0.06	1.76	0.09	1.32	0.07									2.45	0.04	
357	1.85	0.09	1.56	0.06	1.76	0.08	1.33	0.07									2.46	0.04	
358	1.85	0.10	1.56	0.07	1.77	0.06	1.34	0.03									2.58	0.04	
359	1.85	0.11	1.57	0.06	1.82	0.09	1.36	0.07									2.64	0.04	
360	1.86	0.10	1.57	0.03	1.82	0.04	1.37	0.03									2.78	0.05	
361	1.86	0.11	1.58	0.06	1.83	0.11	1.41	0.07											
362	1.86	0.04	1.58	0.07	1.84	0.04	1.41	0.07											
363	1.87	0.09	1.59	0.06	1.85	0.11	1.41	0.07											
364	1.87	0.10	1.60	0.07	1.86	0.10	1.43	0.04											
365	1.87	0.08	1.62	0.07	1.86	0.12	1.45	0.07											
366	1.88	0.10	1.62	0.04	1.87	0.04	1.51	0.06											
367	1.88	0.09	1.62	0.06	1.87	0.10	1.52	0.07											
368	1.89	0.09	1.64	0.08	1.88	0.10	1.54	0.11											
369	1.89	0.12	1.64	0.06	1.88	0.10	1.55	0.02											
370	1.89	0.10	1.64	0.06	1.88	0.10	1.56	0.08											
371	1.90	0.09	1.64	0.07	1.88	0.10	1.56	0.07											
372	1.90	0.10	1.66	0.08	1.89	0.10	1.60	0.04											
373	1.90	0.10	1.67	0.08	1.89	0.10	1.64	0.08											
374	1.90	0.09	1.69	0.07	1.89	0.11	1.65	0.07											
375	1.91	0.10	1.71	0.08	1.90	0.09	1.66	0.11											
376	1.91	0.10	1.71	0.04	1.90	0.09	1.68	0.07											
377	1.91	0.09	1.75	0.08	1.90	0.11	1.70	0.09											
378	1.91	0.09	1.77	0.04	1.91	0.09	1.70	0.08											
379	1.91	0.09	1.78	0.08	1.92	0.10	1.70	0.02											
380	1.91	0.10	1.79	0.08	1.93	0.10	1.70	0.07											
381	1.92	0.09	1.79	0.11	1.93	0.11	1.74	0.08											
382	1.92	0.09	1.79	0.08	1.93	0.11	1.75	0.04											
383	1.92	0.10	1.80	0.07	1.94	0.09	1.75	0.09											
384	1.92	0.10	1.81	0.05	1.94	0.11	1.75	0.08											
385	1.92	0.12	1.84	0.09	1.96	0.11	1.76	0.08											
386	1.93	0.10	1.84	0.10	1.96	0.11	1.77	0.08											
387	1.94	0.09	1.85	0.09	1.96	0.11	1.77	0.12											
388	1.94	0.10	1.87	0.10	1.97	0.10	1.77	0.07											
389	1.94	0.11	1.87	0.09	1.98	0.12	1.77	0.10											
390	1.94	0.10	1.89	0.05	1.98	0.11	1.78	0.11											
391	1.94	0.04	1.91	0.10	1.99	0.12	1.79	0.10											
392	1.95	0.09	1.92	0.11	2.01	0.11	1.80	0.11											
393	1.95	0.10	1.92	0.05	2.03	0.10	1.81	0.13											
394	1.95	0.10	1.92	0.10	2.04	0.10	1.82	0.09											
395	1.97	0.05	1.93	0.10	2.04	0.11	1.86	0.10											
396	1.98	0.05	1.93	0.09	2.04	0.11	1.86	0.10											
397	1.98	0.10	1.93	0.10	2.07	0.06	1.86	0.09											
398	1.99	0.10	1.94	0.04	2.07	0.11	1.86	0.09											
399	1.99	0.10	1.95	0.09	2.08	0.12	1.88	0.09											
400	1.99	0.11	1.96	0.09	2.09	0.05	1.89	0.08											

Size measurements nematodes Signy

1992	Jan 10		Jan 22		Feb 9		Feb 26		Apr 16		May 4		May 15		May 29		Jun 13		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
401	1.99	0.10	1.96	0.05	2.11	0.12	1.90	0.10											
402	2.01	0.11	1.96	0.11	2.13	0.05	1.91	0.11											
403	2.01	0.04	1.98	0.10	2.14	0.12	1.92	0.12											
404	2.01	0.09	1.98	0.11	2.18	0.06	1.92	0.10											
405	2.01	0.11	2.00	0.11	2.18	0.05	1.93	0.10											
406	2.01	0.11	2.00	0.05	2.22	0.07	1.93	0.11											
407	2.02	0.11	2.00	0.10	2.28	0.06	1.94	0.11											
408	2.02	0.11	2.02	0.11	2.47	0.07	1.95	0.09											
409	2.02	0.09	2.02	0.05	2.63	0.05	1.97	0.10											
410	2.03	0.11	2.03	0.10	2.67	0.06	2.00	0.04											
411	2.03	0.10	2.05	0.11	2.72	0.06	2.00	0.09											
412	2.09	0.05	2.06	0.11	2.78	0.06	2.01	0.09											
413	2.10	0.11	2.07	0.08	2.79	0.05	2.02	0.11											
414	2.13	0.04	2.08	0.12	2.94	0.06	2.04	0.10											
415	2.17	0.04	2.10	0.05	3.35	0.08	2.05	0.10											
416	2.24	0.05	2.13	0.04			2.06	0.10											
417	2.44	0.05	2.16	0.05			2.06	0.09											
418	2.59	0.05	2.31	0.06			2.15	0.10											
419	2.60	0.14	2.34	0.04			2.17	0.12											
420	2.61	0.05	2.36	0.05			2.32	0.05											
421	2.65	0.06	2.36	0.07			2.44	0.14											
422	2.66	0.06	2.56	0.06			2.90	0.05											
423	2.69	0.05	2.57	0.06															
424	2.69	0.05	2.69	0.06															
425	2.70	0.05	2.71	0.06															
426	2.74	0.05	2.73	0.06															
427	2.81	0.06	2.87	0.06															
428	2.81	0.05	2.87	0.05															
429	2.82	0.06																	
430	2.85	0.06																	
431	2.96	0.07																	
432	2.99	0.06																	
433																			

Size measurements nematodes Signy

1992	Jul 1		Jul 16		Jul 28		Aug 15		Aug 27		Sep 11		Sep 28		Oct 7		Oct 27		Nov 10		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
1	0.26	0.01	0.31	0.02	0.30	0.01	0.35	0.01	0.23	0.02	0.57	0.02	0.25	0.03	0.40	0.02	0.27	0.01	0.37	0.02	
2	0.27	0.01	0.32	0.02	0.33	0.02	0.36	0.01	0.26	0.01	0.63	0.02	0.29	0.01	0.41	0.01	0.29	0.01	0.38	0.01	
3	0.27	0.01	0.33	0.03	0.35	0.02	0.40	0.02	0.26	0.01	0.63	0.02	0.34	0.01	0.42	0.01	0.29	0.01	0.38	0.02	
4	0.28	0.01	0.34	0.01	0.36	0.05	0.40	0.01	0.26	0.01	0.66	0.03	0.35	0.01	0.46	0.02	0.29	0.01	0.39	0.02	
5	0.29	0.02	0.35	0.02	0.36	0.01	0.49	0.02	0.29	0.01	0.71	0.03	0.36	0.02	0.47	0.02	0.30	0.01	0.39	0.02	
6	0.32	0.01	0.36	0.01	0.37	0.01	0.50	0.02	0.29	0.01	0.74	0.03	0.36	0.02	0.47	0.02	0.30	0.02	0.42	0.01	
7	0.33	0.01	0.39	0.02	0.38	0.02	0.50	0.01	0.30	0.02	0.74	0.04	0.37	0.01	0.49	0.02	0.30	0.02	0.43	0.02	
8	0.34	0.02	0.40	0.02	0.39	0.02	0.51	0.01	0.31	0.01	0.77	0.05	0.39	0.02	0.49	0.02	0.30	0.02	0.45	0.02	
9	0.34	0.01	0.40	0.02	0.39	0.01	0.52	0.02	0.31	0.02	0.80	0.03	0.39	0.02	0.52	0.02	0.31	0.01	0.45	0.02	
10	0.35	0.01	0.40	0.02	0.39	0.02	0.53	0.02	0.32	0.02	0.80	0.02	0.42	0.02	0.53	0.02	0.34	0.02	0.45	0.02	
11	0.35	0.01	0.40	0.02	0.39	0.02	0.54	0.02	0.32	0.02	0.81	0.03	0.42	0.02	0.53	0.02	0.34	0.01	0.47	0.02	
12	0.35	0.01	0.41	0.02	0.39	0.02	0.54	0.02	0.32	0.01	0.81	0.03	0.44	0.02	0.53	0.02	0.34	0.01	0.47	0.02	
13	0.36	0.02	0.41	0.02	0.40	0.02	0.54	0.01	0.35	0.02	0.86	0.03	0.45	0.02	0.55	0.02	0.34	0.01	0.49	0.02	
14	0.36	0.01	0.41	0.02	0.40	0.02	0.55	0.02	0.35	0.02	0.87	0.03	0.46	0.02	0.55	0.02	0.35	0.01	0.49	0.02	
15	0.37	0.01	0.42	0.02	0.40	0.02	0.56	0.01	0.36	0.01	0.88	0.03	0.46	0.02	0.56	0.02	0.35	0.01	0.51	0.02	
16	0.37	0.02	0.42	0.02	0.40	0.01	0.57	0.03	0.36	0.01	0.88	0.03	0.46	0.01	0.56	0.02	0.36	0.01	0.52	0.02	
17	0.39	0.01	0.43	0.02	0.41	0.02	0.57	0.02	0.36	0.02	0.89	0.03	0.47	0.02	0.57	0.02	0.36	0.01	0.54	0.02	
18	0.40	0.01	0.43	0.02	0.41	0.02	0.59	0.02	0.36	0.01	0.90	0.03	0.47	0.02	0.57	0.02	0.36	0.01	0.55	0.02	
19	0.41	0.02	0.44	0.02	0.41	0.02	0.59	0.02	0.37	0.02	0.91	0.02	0.48	0.02	0.58	0.02	0.36	0.01	0.56	0.02	
20	0.41	0.02	0.45	0.02	0.42	0.02	0.59	0.02	0.38	0.01	0.93	0.03	0.48	0.02	0.58	0.02	0.36	0.01	0.57	0.02	
21	0.41	0.02	0.46	0.02	0.43	0.02	0.60	0.02	0.38	0.02	0.94	0.04	0.48	0.02	0.58	0.02	0.36	0.01	0.58	0.02	
22	0.42	0.02	0.46	0.02	0.43	0.02	0.61	0.02	0.38	0.02	0.94	0.03	0.49	0.01	0.58	0.02	0.37	0.02	0.58	0.02	
23	0.43	0.02	0.47	0.02	0.43	0.02	0.63	0.05	0.39	0.02	0.96	0.03	0.49	0.02	0.58	0.02	0.37	0.02	0.59	0.02	
24	0.43	0.02	0.47	0.02	0.43	0.02	0.64	0.03	0.39	0.02	0.96	0.03	0.51	0.02	0.59	0.02	0.37	0.02	0.59	0.02	
25	0.43	0.02	0.48	0.02	0.44	0.02	0.65	0.03	0.39	0.02	0.96	0.04	0.51	0.02	0.59	0.02	0.37	0.02	0.60	0.02	
26	0.43	0.02	0.48	0.03	0.44	0.02	0.65	0.02	0.39	0.01	0.97	0.03	0.51	0.02	0.60	0.02	0.38	0.02	0.60	0.02	
27	0.43	0.02	0.48	0.02	0.44	0.02	0.65	0.02	0.39	0.02	0.98	0.04	0.52	0.02	0.60	0.02	0.38	0.02	0.61	0.02	
28	0.43	0.02	0.49	0.02	0.45	0.02	0.66	0.02	0.39	0.02	0.98	0.04	0.53	0.01	0.60	0.02	0.38	0.02	0.62	0.02	
29	0.44	0.02	0.49	0.02	0.45	0.02	0.66	0.02	0.40	0.02	0.98	0.04	0.53	0.02	0.61	0.02	0.38	0.01	0.62	0.02	
30	0.44	0.02	0.49	0.02	0.45	0.02	0.66	0.02	0.40	0.02	0.99	0.02	0.53	0.01	0.61	0.02	0.38	0.01	0.63	0.02	
31	0.45	0.02	0.49	0.02	0.46	0.02	0.67	0.02	0.40	0.02	1.01	0.04	0.53	0.01	0.61	0.02	0.38	0.01	0.65	0.02	
32	0.46	0.02	0.49	0.02	0.46	0.02	0.67	0.02	0.40	0.01	1.02	0.03	0.55	0.01	0.62	0.02	0.38	0.02	0.65	0.03	
33	0.47	0.02	0.49	0.03	0.46	0.02	0.68	0.03	0.40	0.01	1.02	0.03	0.55	0.02	0.63	0.02	0.39	0.01	0.66	0.02	
34	0.47	0.02	0.49	0.02	0.46	0.01	0.69	0.03	0.41	0.02	1.03	0.04	0.56	0.01	0.63	0.02	0.39	0.02	0.67	0.03	
35	0.48	0.02	0.50	0.03	0.47	0.02	0.71	0.02	0.41	0.01	1.04	0.03	0.56	0.02	0.63	0.02	0.40	0.02	0.67	0.02	
36	0.48	0.02	0.50	0.02	0.47	0.02	0.71	0.03	0.41	0.02	1.07	0.03	0.56	0.01	0.63	0.02	0.40	0.02	0.67	0.04	
37	0.48	0.02	0.50	0.02	0.47	0.02	0.72	0.02	0.41	0.02	1.08	0.03	0.56	0.02	0.64	0.03	0.40	0.02	0.67	0.02	
38	0.49	0.02	0.50	0.02	0.47	0.02	0.72	0.02	0.41	0.02	1.08	0.03	0.56	0.02	0.64	0.03	0.40	0.02	0.67	0.02	
39	0.49	0.02	0.50	0.02	0.47	0.02	0.74	0.02	0.41	0.01	1.08	0.03	0.57	0.02	0.64	0.02	0.41	0.02	0.68	0.02	
40	0.49	0.02	0.51	0.02	0.49	0.02	0.74	0.03	0.41	0.01	1.08	0.03	0.57	0.02	0.64	0.02	0.41	0.01	0.68	0.03	
41	0.50	0.02	0.51	0.03	0.49	0.02	0.74	0.02	0.42	0.02	1.09	0.03	0.57	0.02	0.64	0.02	0.41	0.02	0.69	0.03	
42	0.51	0.03	0.52	0.02	0.49	0.02	0.75	0.03	0.42	0.02	1.10	0.03	0.58	0.02	0.64	0.02	0.41	0.02	0.69	0.03	
43	0.51	0.02	0.52	0.02	0.50	0.02	0.76	0.03	0.42	0.01	1.10	0.03	0.58	0.02	0.65	0.05	0.41	0.02	0.69	0.03	
44	0.53	0.02	0.53	0.02	0.50	0.02	0.78	0.02	0.42	0.02	1.10	0.03	0.58	0.02	0.65	0.02	0.42	0.01	0.69	0.05	
45	0.53	0.02	0.53	0.02	0.50	0.02	0.78	0.02	0.43	0.02	1.10	0.04	0.58	0.01	0.65	0.02	0.42	0.02	0.69	0.03	
46	0.53	0.02	0.53	0.02	0.50	0.02	0.79	0.02	0.43	0.02	1.11	0.03	0.58	0.02	0.65	0.02	0.42	0.01	0.69	0.03	
47	0.54	0.02	0.54	0.02	0.51	0.02	0.79	0.03	0.43	0.01	1.12	0.03	0.58	0.01	0.65	0.02	0.43	0.01	0.70	0.04	
48	0.54	0.02	0.54	0.02	0.52	0.02	0.81	0.03	0.43	0.02	1.13	0.03	0.59	0.02	0.65	0.02	0.43	0.02	0.70	0.02	
49	0.54	0.02	0.54	0.02	0.52	0.02	0.82	0.03	0.43	0.02	1.13	0.03	0.59	0.01	0.65	0.02	0.43	0.02	0.70	0.03	
50	0.55	0.03	0.54	0.02	0.52	0.02	0.82	0.02	0.43	0.02	1.15	0.03	0.60	0.02	0.66	0.02	0.44	0.02	0.70	0.02	
51	0.56	0.03	0.54	0.02	0.53	0.02	0.85	0.03	0.43	0.02	1.15	0.03	0.60	0.01	0.66	0.02	0.44	0.02	0.70	0.03	
52	0.57	0.04	0.55	0.02	0.53	0.02	0.86	0.03	0.44	0.02	1.15	0.03	0.61	0.02	0.67	0.02	0.45	0.02	0.70	0.02	
53	0.57	0.02	0.55	0.02	0.53	0.02	0.87	0.02	0.44	0.02	1.16	0.04	0.61	0.02	0.67	0.03	0.45	0.02	0.70	0.02	
54	0.57	0.02	0.56	0.02	0.53	0.02	0.87	0.01	0.44	0.01	1.16	0.03	0.62	0.01	0.67	0.02	0.45	0.02	0.70	0.03	
55	0.57	0.03	0.56	0.02	0.54	0.02	0.88	0.03	0.44	0.02	1.17	0.03	0.63	0.04	0.67	0.02	0.46	0.02	0.70	0.02	
56	0.58	0.02	0.56	0.02	0.54	0.02	0.89	0.03	0.45	0.02	1.17	0.03	0.64	0.02	0.68	0.02	0.46	0.02	0.71	0.03	
57	0.59	0.03	0.56	0.02	0.54	0.03	0.90	0.02	0.45	0.02	1.18	0.03	0.64	0.02	0.68	0.02	0.47	0.02	0.71	0.03	
58	0.59	0.02	0.57	0.02	0.55	0.02	0.90	0.03	0.45	0.02	1.20	0.05	0.65	0.02	0.68	0.02	0.47	0.02	0.72	0.03	
59	0.60	0.03	0.58	0.02	0.56	0.02	0.92	0.03	0.45	0.01	1.20	0.02	0.66	0.02	0.68	0.03	0.47	0.02	0.72	0.03	
60	0.60	0.03	0.58	0.02	0.56	0.02	0.92	0.03	0.45	0.02	1.21	0.04	0.67	0.02	0.68	0.02	0.47	0.02	0.74	0.02	
61	0.60	0.02	0.58	0.03	0.56	0.01	0.92	0.03	0.45	0.02	1.22	0.04	0.67	0.02	0.68	0.02	0.48	0.02	0.74	0.03	
62	0.61	0.02	0.58	0.02	0.56	0.03	0.93	0.03	0.46	0.02	1.22	0.04	0.68	0.02	0.69	0.02	0.48	0.02	0.74	0.03	
63	0.61	0.02	0.59	0.02	0.57	0.02	0.94	0.02	0.46	0.02	1.22	0.02	0.68	0.04	0.69	0.02	0.48	0.02	0.74	0.03	
64	0.61	0.03	0.59	0.02	0.57	0.02	0.94	0.02	0.46	0.02	1.22	0.03	0.68	0.03	0.69	0.03	0.48	0.02	0.74	0.02	
65	0.61	0.02	0.59	0.02	0.58	0.02	0.94	0.03	0.46	0.01	1.23	0.03	0.70	0.02	0.69	0.02	0.48	0.02	0.75	0.03	
66	0.62	0.02	0.59	0.02	0.58	0.02	0.96	0.04	0.46	0.02	1.23	0.04	0.71	0.02	0.69	0.02	0.48	0.02	0.75	0.03	
67	0.62	0.03	0.60	0.02	0.58	0.02	0.97	0.02	0.46	0.02	1.23	0.04	0.72	0.03	0.70	0.02	0.48	0.02	0.75	0.03	
68	0.62	0.02	0.60	0.02	0.59	0.02	0.97	0.02	0.46	0.02	1.23	0.04	0.74	0.03	0.70	0.02	0.49	0.02	0.75	0.03	
69	0.63	0.07	0.60	0.02	0.60	0.02	0.97	0.04	0.46	0.02	1.24	0.04	0.74	0.02	0.70	0.02	0.49	0.02	0.76	0.06	
70	0.63	0.03	0.60	0.02	0.60	0.02	0.98	0.02	0.46	0.02	1.24	0.04	0.74	0.02	0.71	0.03	0.49	0.02	0.76	0.02	
71	0.63	0.03	0.60	0.02	0.60	0.02	0.98	0.02	0.46	0.02	1.24	0.03	0.75	0.02	0.71	0.02	0.49	0.03	0.76	0.05	
72	0.65	0.03	0.60	0.02	0.60	0.02	1.01	0.03	0.46	0.02	1.25	0.04	0.76	0.03	0.71	0.03	0.49	0.02	0.76	0.03	
73	0.65	0.02	0.60	0.02	0.61	0.03	1.01	0.03	0.47	0.01	1.25	0.04	0.77	0.01	0.71	0.03	0.49	0.02	0.76	0.02	
74	0.66	0.02	0.61	0.02	0.61	0.02	1.01	0.02	0.47	0.02	1.25	0.03	0.77	0.02	0.71	0.03	0.49	0.02	0.76	0.03	
75	0.66	0.02	0.61	0.02	0.61	0.03	1.01	0.02	0.47	0.01	1.25	0.05	0.77	0.03	0.71	0.03	0.50	0.02	0.76	0.03	
76	0.66	0.03	0.61	0.02	0.62	0.02	1.02	0.02	0.47	0.02	1.27	0.04	0.78	0.03	0.71	0.03	0.51	0.03	0.77	0.02	
77	0.67	0.03	0.61	0.03	0.62	0.02	1.03	0.03	0.48	0.02	1.27	0.04	0.78	0.03	0.72	0.03	0.51	0.02	0.77	0.03	
78	0.68	0.02	0.62	0.02	0.63	0.03	1.05	0.02	0.48	0.02	1.29	0.04	0.80	0.03	0.72	0.02	0.51	0.02	0.78	0.03	
79	0.68	0.03	0.62	0.03	0.63	0.02	1.06	0.02	0.48	0.02	1.30	0.04	0.80	0.02	0.72	0.03	0.51	0.02	0.79	0.03	
80	0.68	0.03	0.63	0.02	0.63	0.02	1.07	0.03	0.48	0.01	1.30	0.04	0.80	0.03	0.72	0.03	0.52	0.02	0.79	0.03	
81	0.70	0.03	0.63	0.02	0.63	0.02	1.08	0.02	0.48	0.02	1.32	0.04	0.80	0.03	0.72	0.03	0.52	0.02	0.79	0.03	
82	0.70	0.02	0.63	0.03	0.65	0.03	1.08	0.03	0.48	0.02	1.32	0.04	0.80	0.02	0.73	0.03	0.52	0.02	0.80	0.03	
83	0.70	0.03	0.64	0.02	0.65	0.02	1.09	0.02	0.48	0.02	1.32	0.04	0.80	0.02	0.73	0.03	0.52	0.02	0.80	0.03	
84	0.70	0.02	0.64	0.02	0.66	0.02	1.10	0.03	0.48	0.03	1.32	0.04	0.81	0.02	0.73	0.03	0.53	0.02	0.82	0.03	
85	0.71	0.04	0.64	0.03	0.66	0.02	1.10	0.02	0.48	0.01	1.33	0.04	0.81	0.03	0.73	0.02	0.53	0.03	0.82	0.03	
86	0.71	0.03	0.64	0.02	0.67	0.02	1.10	0.04	0.48	0.02	1.35	0.04	0.82	0.03	0.73	0.02	0.53	0.02	0.82	0.03	
87	0.72	0.03	0.64	0.02	0.67	0.03	1.10	0.02	0.49	0.02	1.35	0.05	0.82	0.03	0.73	0.02	0.54	0.02	0.82	0.03	
88	0.72	0.02	0.64	0.02	0.67	0.02	1.12	0.02	0.49	0.02	1.35	0.02	0.85	0.02	0.73	0.02	0.54	0.01	0.82	0.03	
89	0.72	0.02	0.64	0.03	0.67	0.02	1.12	0.03	0.49	0.02	1.35	0.05	0.85	0.03	0.73	0.02	0.54	0.02	0.82	0.03	
90	0.72	0.03	0.64	0.02	0.68	0.02	1.12	0.02	0.50	0.02	1.36	0.04	0.86	0.03	0.73	0.03	0.54	0.02	0.82	0.03	
91	0.73	0.02	0.65	0.01	0.68	0.01	1.13	0.04	0.50	0.02	1.36	0.03	0.86	0.03	0.73	0.03	0.54	0.02	0.84	0.03	
92	0.73	0.02	0.65	0.02	0.68	0.02	1.13	0.03	0.50	0.02	1.37	0.04	0.87	0.03	0.74	0.03	0.54	0.02	0.84	0.03	
93	0.73	0.02	0.65	0.02	0.68	0.02	1.13	0.03	0.50	0.02	1.37	0.04	0.89	0.02	0.74	0.03	0.55	0.02	0.84	0.03	
94	0.74	0.02	0.65	0.02	0.69	0.01	1.13	0.03	0.50	0.02	1.37	0.04	0.89	0.03	0.74	0.03	0.55	0.02	0.85	0.03	
95	0.74	0.02	0.65	0.03	0.69	0.02	1.14	0.03	0.50	0.02	1.38	0.02	0.89	0.03	0.74	0.02	0.55	0.02	0.85	0.03	
96	0.75	0.03	0.66	0.03	0.69	0.02	1.14	0.03	0.50	0.02	1.39	0.04	0.89	0.02	0.74	0.02	0.55	0.02	0.86	0.03	
97	0.76	0.02	0.66	0.02	0.70	0.03	1.14	0.04	0.51	0.02	1.39	0.04	0.89	0.02	0.75	0.02	0.55	0.03	0.86	0.03	
98	0.76	0.02	0.66	0.03	0.70	0.03	1.14	0.04	0.51	0.02	1.40	0.04	0.90	0.03	0.75	0.03	0.56	0.01	0.86	0.03	
99	0.77	0.02	0.66	0.02	0.70	0.02	1.15	0.03	0.51	0.02	1.41	0.03	0.91	0.04	0.75	0.02	0.56	0.02	0.86	0.03	
100	0.77	0.03	0.66	0.06	0.71	0.02	1.15	0.04	0.52	0.02	1.42	0.04	0.91	0.03	0.76	0.02	0.56	0.02	0.86	0.04	

Size measurements nematodes Signy

1992	Jul 1		Jul 16		Jul 28		Aug 15		Aug 27		Sep 11		Sep 28		Oct 7		Oct 27		Nov 10		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
101	0.77	0.04	0.66	0.03	0.71	0.03	1.17	0.04	0.52	0.02	1.43	0.05	0.92	0.03	0.76	0.02	0.56	0.02	0.86	0.03	
102	0.78	0.03	0.66	0.02	0.71	0.02	1.18	0.03	0.52	0.02	1.43	0.04	0.92	0.03	0.76	0.03	0.56	0.02	0.87	0.03	
103	0.78	0.02	0.67	0.02	0.72	0.02	1.20	0.04	0.52	0.02	1.44	0.03	0.93	0.03	0.76	0.02	0.57	0.02	0.87	0.04	
104	0.79	0.02	0.67	0.02	0.72	0.02	1.21	0.04	0.52	0.02	1.44	0.04	0.94	0.03	0.76	0.03	0.58	0.02	0.87	0.03	
105	0.79	0.02	0.67	0.02	0.73	0.03	1.21	0.04	0.52	0.02	1.45	0.03	0.94	0.02	0.76	0.03	0.58	0.02	0.87	0.03	
106	0.79	0.03	0.67	0.02	0.73	0.03	1.21	0.04	0.53	0.02	1.45	0.03	0.95	0.03	0.77	0.03	0.58	0.03	0.87	0.03	
107	0.80	0.03	0.67	0.03	0.73	0.02	1.22	0.03	0.53	0.02	1.46	0.05	0.96	0.03	0.77	0.03	0.58	0.03	0.88	0.04	
108	0.81	0.03	0.68	0.03	0.73	0.02	1.22	0.03	0.53	0.02	1.46	0.04	0.96	0.03	0.77	0.03	0.59	0.02	0.88	0.03	
109	0.82	0.04	0.68	0.04	0.74	0.03	1.22	0.03	0.53	0.02	1.47	0.05	0.98	0.03	0.77	0.03	0.59	0.03	0.88	0.05	
110	0.83	0.02	0.68	0.02	0.74	0.02	1.23	0.04	0.53	0.02	1.48	0.04	0.99	0.04	0.77	0.03	0.59	0.02	0.89	0.03	
111	0.83	0.02	0.68	0.02	0.75	0.02	1.23	0.04	0.54	0.02	1.49	0.09	1.00	0.03	0.77	0.03	0.59	0.03	0.89	0.03	
112	0.84	0.03	0.68	0.03	0.75	0.02	1.24	0.04	0.54	0.02	1.49	0.05	1.00	0.03	0.77	0.03	0.61	0.02	0.90	0.04	
113	0.84	0.03	0.69	0.03	0.75	0.02	1.24	0.04	0.55	0.02	1.50	0.03	1.00	0.02	0.77	0.03	0.61	0.02	0.90	0.04	
114	0.85	0.05	0.69	0.02	0.75	0.03	1.24	0.04	0.55	0.02	1.51	0.05	1.01	0.03	0.77	0.03	0.61	0.02	0.91	0.04	
115	0.85	0.03	0.69	0.03	0.76	0.02	1.25	0.04	0.55	0.02	1.53	0.03	1.02	0.03	0.77	0.03	0.62	0.02	0.91	0.04	
116	0.86	0.03	0.70	0.02	0.76	0.02	1.25	0.05	0.55	0.02	1.54	0.04	1.03	0.02	0.77	0.02	0.62	0.04	0.91	0.03	
117	0.87	0.02	0.70	0.02	0.77	0.03	1.25	0.05	0.56	0.02	1.55	0.04	1.03	0.01	0.78	0.03	0.62	0.03	0.91	0.03	
118	0.87	0.03	0.70	0.02	0.77	0.02	1.25	0.04	0.56	0.02	1.56	0.05	1.03	0.02	0.78	0.04	0.62	0.02	0.92	0.03	
119	0.88	0.02	0.71	0.02	0.77	0.02	1.26	0.04	0.57	0.02	1.56	0.03	1.03	0.03	0.78	0.03	0.63	0.02	0.92	0.02	
120	0.88	0.03	0.71	0.02	0.78	0.02	1.27	0.04	0.57	0.02	1.57	0.03	1.04	0.02	0.79	0.03	0.64	0.02	0.92	0.03	
121	0.88	0.03	0.71	0.03	0.79	0.03	1.27	0.03	0.57	0.02	1.57	0.05	1.04	0.02	0.79	0.02	0.65	0.02	0.92	0.04	
122	0.88	0.04	0.71	0.02	0.80	0.03	1.28	0.04	0.58	0.03	1.57	0.05	1.04	0.03	0.79	0.02	0.65	0.02	0.92	0.04	
123	0.88	0.04	0.71	0.03	0.80	0.03	1.29	0.04	0.58	0.02	1.57	0.03	1.04	0.04	0.79	0.03	0.65	0.04	0.92	0.03	
124	0.89	0.03	0.72	0.03	0.80	0.03	1.29	0.04	0.59	0.02	1.58	0.07	1.05	0.02	0.79	0.03	0.66	0.03	0.92	0.03	
125	0.92	0.03	0.72	0.03	0.80	0.02	1.29	0.04	0.59	0.02	1.59	0.05	1.05	0.04	0.79	0.03	0.66	0.02	0.93	0.03	
126	0.92	0.04	0.73	0.03	0.80	0.03	1.31	0.04	0.59	0.03	1.59	0.03	1.05	0.05	0.79	0.03	0.66	0.01	0.93	0.03	
127	0.92	0.03	0.73	0.02	0.80	0.03	1.32	0.05	0.59	0.03	1.61	0.06	1.06	0.03	0.79	0.03	0.66	0.02	0.93	0.04	
128	0.92	0.03	0.73	0.03	0.80	0.03	1.32	0.04	0.60	0.02	1.61	0.05	1.06	0.03	0.79	0.03	0.66	0.02	0.94	0.03	
129	0.92	0.04	0.73	0.02	0.81	0.03	1.32	0.03	0.60	0.02	1.61	0.03	1.06	0.04	0.80	0.04	0.66	0.02	0.94	0.04	
130	0.92	0.02	0.73	0.05	0.81	0.02	1.32	0.04	0.60	0.03	1.61	0.06	1.07	0.03	0.80	0.03	0.66	0.02	0.94	0.04	
131	0.93	0.04	0.74	0.02	0.81	0.03	1.32	0.02	0.60	0.03	1.62	0.05	1.07	0.02	0.80	0.03	0.67	0.02	0.94	0.04	
132	0.93	0.04	0.74	0.03	0.81	0.04	1.32	0.03	0.61	0.02	1.63	0.04	1.08	0.04	0.80	0.03	0.67	0.02	0.95	0.03	
133	0.93	0.03	0.74	0.03	0.81	0.04	1.32	0.06	0.61	0.01	1.64	0.03	1.10	0.03	0.81	0.03	0.67	0.02	0.95	0.03	
134	0.94	0.04	0.75	0.02	0.81	0.03	1.37	0.05	0.61	0.02	1.64	0.04	1.11	0.02	0.81	0.03	0.67	0.03	0.95	0.04	
135	0.94	0.03	0.75	0.03	0.81	0.02	1.37	0.04	0.62	0.02	1.65	0.03	1.11	0.04	0.81	0.03	0.67	0.02	0.96	0.04	
136	0.94	0.03	0.75	0.02	0.81	0.02	1.37	0.03	0.62	0.02	1.65	0.03	1.11	0.04	0.81	0.03	0.68	0.02	0.96	0.04	
137	0.95	0.02	0.75	0.03	0.82	0.03	1.38	0.04	0.62	0.02	1.66	0.04	1.12	0.03	0.81	0.03	0.68	0.04	0.96	0.04	
138	0.96	0.03	0.75	0.02	0.82	0.02	1.39	0.04	0.63	0.02	1.66	0.03	1.12	0.04	0.81	0.03	0.69	0.02	0.97	0.04	
139	0.96	0.03	0.75	0.03	0.82	0.03	1.40	0.03	0.63	0.02	1.67	0.06	1.13	0.03	0.81	0.03	0.70	0.03	0.98	0.03	
140	0.96	0.02	0.75	0.03	0.82	0.03	1.41	0.04	0.63	0.02	1.68	0.03	1.13	0.05	0.81	0.03	0.70	0.02	0.98	0.04	
141	0.97	0.04	0.75	0.03	0.83	0.03	1.41	0.03	0.63	0.03	1.68	0.03	1.13	0.02	0.81	0.03	0.70	0.03	0.99	0.04	
142	0.97	0.02	0.76	0.02	0.83	0.03	1.42	0.03	0.64	0.02	1.68	0.03	1.16	0.05	0.81	0.02	0.70	0.02	0.99	0.03	
143	0.99	0.03	0.76	0.02	0.83	0.05	1.42	0.03	0.64	0.03	1.69	0.04	1.16	0.04	0.82	0.03	0.71	0.02	1.01	0.03	
144	1.00	0.03	0.76	0.02	0.83	0.02	1.44	0.04	0.64	0.03	1.69	0.03	1.17	0.04	0.82	0.03	0.72	0.03	1.02	0.03	
145	1.02	0.03	0.76	0.02	0.83	0.03	1.45	0.03	0.64	0.05	1.70	0.04	1.18	0.04	0.82	0.03	0.72	0.02	1.03	0.03	
146	1.02	0.04	0.76	0.03	0.84	0.03	1.45	0.03	0.65	0.02	1.71	0.03	1.18	0.04	0.82	0.03	0.72	0.02	1.05	0.03	
147	1.05	0.04	0.77	0.03	0.84	0.03	1.47	0.04	0.65	0.01	1.71	0.03	1.18	0.04	0.82	0.03	0.73	0.03	1.05	0.04	
148	1.05	0.03	0.77	0.03	0.85	0.04	1.47	0.03	0.65	0.02	1.71	0.06	1.18	0.04	0.83	0.02	0.74	0.03	1.05	0.04	
149	1.05	0.03	0.77	0.03	0.85	0.03	1.48	0.03	0.66	0.02	1.72	0.03	1.19	0.04	0.83	0.03	0.74	0.03	1.06	0.03	
150	1.06	0.03	0.78	0.02	0.85	0.02	1.49	0.03	0.67	0.03	1.75	0.02	1.19	0.03	0.83	0.03	0.74	0.02	1.07	0.03	
151	1.08	0.05	0.78	0.02	0.85	0.03	1.49	0.04	0.69	0.02	1.75	0.07	1.19	0.03	0.83	0.04	0.75	0.03	1.07	0.03	
152	1.09	0.03	0.78	0.03	0.85	0.03	1.50	0.03	0.69	0.02	1.75	0.06	1.19	0.05	0.83	0.03	0.75	0.02	1.07	0.03	
153	1.09	0.03	0.78	0.03	0.85	0.03	1.50	0.05	0.70	0.02	1.76	0.03	1.20	0.03	0.83	0.03	0.76	0.02	1.07	0.05	
154	1.09	0.03	0.79	0.03	0.85	0.03	1.51	0.03	0.70	0.02	1.76	0.03	1.20	0.03	0.83	0.03	0.76	0.03	1.07	0.04	
155	1.10	0.03	0.79	0.03	0.86	0.03	1.51	0.03	0.71	0.02	1.78	0.03	1.21	0.03	0.83	0.03	0.76	0.01	1.08	0.03	
156	1.10	0.02	0.79	0.02	0.86	0.03	1.52	0.03	0.71	0.02	1.78	0.03	1.22	0.05	0.83	0.03	0.76	0.03	1.08	0.03	
157	1.11	0.05	0.79	0.03	0.86	0.03	1.52	0.03	0.72	0.02	1.79	0.08	1.22	0.04	0.83	0.03	0.76	0.02	1.08	0.04	
158	1.11	0.03	0.80	0.03	0.87	0.03	1.53	0.04	0.72	0.01	1.79	0.03	1.22	0.04	0.83	0.02	0.77	0.03	1.10	0.03	
159	1.11	0.03	0.81	0.04	0.87	0.03	1.53	0.05	0.72	0.03	1.79	0.08	1.23	0.04	0.83	0.03	0.78	0.03	1.11	0.04	
160	1.12	0.03	0.81	0.03	0.87	0.03	1.55	0.03	0.73	0.03	1.80	0.06	1.23	0.04	0.83	0.03	0.78	0.03	1.11	0.03	
161	1.12	0.05	0.81	0.03	0.87	0.02	1.56	0.04	0.74	0.02	1.80	0.07	1.23	0.05	0.84	0.03	0.78	0.03	1.11	0.04	
162	1.13	0.03	0.81	0.03	0.88	0.03	1.56	0.04	0.75	0.04	1.80	0.03	1.24	0.05	0.84	0.02	0.78	0.03	1.12	0.03	
163	1.13	0.03	0.81	0.03	0.88	0.03	1.56	0.05	0.75	0.03	1.80	0.03	1.24	0.03	0.84	0.03	0.79	0.03	1.12	0.04	
164	1.15	0.03	0.82	0.03	0.89	0.03	1.59	0.05	0.75	0.03	1.81	0.04	1.24	0.04	0.84	0.03	0.80	0.03	1.12	0.04	
165	1.15	0.04	0.82	0.03	0.89	0.03	1.61	0.03	0.75	0.02	1.82	0.03	1.24	0.04	0.84	0.03	0.80	0.02	1.13	0.05	
166	1.17	0.04	0.82	0.04	0.89	0.03	1.61	0.05	0.75	0.02	1.83	0.04	1.25	0.04	0.84	0.03	0.80	0.03	1.14	0.04	
167	1.17	0.03	0.82	0.03	0.89	0.03	1.61	0.03	0.75	0.02	1.83	0.04	1.25	0.04	0.84	0.03	0.80	0.02	1.15	0.04	
168	1.17	0.04	0.83	0.03	0.90	0.03	1.61	0.05	0.78	0.02	1.83	0.04	1.26	0.05	0.84	0.03	0.80	0.03	1.16	0.04	
169	1.18	0.05	0.83	0.03	0.90	0.03	1.62	0.06	0.78	0.02	1.83	0.03	1.27	0.04	0.84	0.03	0.81	0.02	1.17	0.04	
170	1.19	0.04	0.83	0.03	0.91	0.04	1.64	0.05	0.78	0.03	1.83	0.03	1.27	0.02	0.84	0.03	0.82	0.04	1.17	0.03	
171	1.19	0.04	0.83	0.03	0.91	0.03	1.64	0.03	0.79	0.02	1.83	0.03	1.27	0.04	0.84	0.03	0.82	0.02	1.17	0.04	
172	1.20	0.04	0.83	0.03	0.91	0.03	1.66	0.05	0.79	0.02	1.84	0.08	1.27	0.04	0.84	0.03	0.82	0.03	1.17	0.05	
173	1.21	0.04	0.84	0.03	0.92	0.03	1.66	0.05	0.81	0.02	1.84	0.08	1.27	0.04	0.84	0.03	0.83	0.03	1.18	0.04	
174	1.21	0.04	0.84	0.03	0.92	0.03	1.69	0.03	0.81	0.01	1.85	0.04	1.28	0.04	0.85	0.03	0.83	0.03	1.18	0.04	
175	1.21	0.03	0.84	0.03	0.92	0.04	1.70	0.03	0.81	0.03	1.86	0.03	1.28	0.04	0.85	0.03	0.83	0.03	1.19	0.04	
176	1.23	0.04	0.84	0.04	0.92	0.03	1.70	0.06	0.82	0.03	1.86	0.03	1.28	0.04	0.85	0.03	0.84	0.03	1.19	0.04	
177	1.23	0.04	0.84	0.03	0.93	0.04	1.72	0.03	0.82	0.02	1.87	0.03	1.28	0.04	0.85	0.03	0.84	0.02	1.19	0.04	
178	1.23	0.03	0.85	0.03	0.93	0.03	1.73	0.03	0.82	0.02	1.88	0.07	1.28	0.04	0.85	0.03	0.84	0.03	1.19	0.04	
179	1.23	0.04	0.85	0.04	0.93	0.04	1.74	0.03	0.83	0.03	1.89	0.04	1.29	0.04	0.85	0.03	0.84	0.03	1.20	0.03	
180	1.23	0.03	0.85	0.03	0.94	0.03	1.74	0.03	0.83	0.02	1.89	0.03	1.29	0.04	0.85	0.03	0.85	0.03	1.20	0.03	
181	1.24	0.04	0.85	0.03	0.95	0.03	1.74	0.06	0.83	0.02	1.89	0.03	1.30	0.04	0.85	0.03	0.85	0.02	1.21	0.03	
182	1.24	0.04	0.85	0.03	0.95	0.04	1.74	0.06	0.84	0.03	1.89	0.03	1.30	0.04	0.85	0.03	0.85	0.03	1.21	0.04	
183	1.25	0.05	0.85	0.03	0.96	0.03	1.75	0.03	0.84	0.03	1.90	0.03	1.30	0.04	0.86	0.04	0.85	0.03	1.21	0.03	
184	1.26	0.05	0.85	0.03	0.96	0.03	1.76	0.05	0.85	0.03	1.90	0.04	1.30	0.04	0.86	0.04	0.87	0.03	1.21	0.04	
185	1.27	0.07	0.86	0.04	0.96	0.03	1.76	0.03	0.85	0.03	1.90	0.03	1.32	0.04	0.86	0.04	0.88	0.03	1.21	0.05	
186	1.28	0.04	0.86	0.04	0.96	0.03	1.77	0.03	0.85	0.03	1.91	0.04	1.32	0.04	0.86	0.03	0.88	0.03	1.22	0.04	
187	1.28	0.04	0.86	0.03	0.96	0.04	1.78	0.03	0.85	0.03	1.92	0.03	1.33	0.04	0.86	0.03	0.89	0.04	1.22	0.05	
188	1.28	0.04	0.87	0.03	0.98	0.04	1.79	0.03	0.85	0.03	1.93	0.04	1.33	0.05	0.86	0.03	0.90	0.03	1.23	0.04	
189	1.29	0.04	0.87	0.03	0.99	0.03	1.79	0.03	0.86	0.02	1.93	0.04	1.33	0.05	0.86	0.03	0.90	0.03	1.23	0.05	
190	1.29	0.04	0.87	0.03	0.99	0.03	1.81	0.03	0.86	0.03	1.94	0.03	1.33	0.04	0.86	0.03	0.90	0.03	1.23	0.04	
191	1.31	0.04	0.87	0.03	1.00	0.04	1.82	0.03	0.86	0.03	1.94	0.04	1.33	0.04	0.86	0.03	0.90	0.03	1.23	0.04	
192	1.31	0.04	0.87	0.03	1.00	0.03	1.82	0.06	0.86	0.02	1.94	0.04	1.33	0.05	0.86	0.02	0.92	0.03	1.24	0.04	
193	1.31	0.04	0.87	0.03	1.00	0.03	1.83	0.03	0.86	0.03	1.95	0.03	1.33	0.05	0.86	0.03	0.92	0.03	1.25	0.04	
194	1.32	0.04	0.87	0.04	1.00	0.03	1.84	0.06	0.87	0.03	1.95	0.03	1.34	0.04	0.87	0.03	0.92	0.03	1.25	0.04	
195	1.32	0.04	0.88	0.04	1.01	0.03	1.84	0.03	0.87	0.03	1.95	0.07	1.35	0.05	0.87	0.03	0.92	0.03	1.25	0.04	
196	1.33	0.04	0.88	0.03	1.01	0.03	1.84	0.03	0.87	0.03	1.96	0.03	1.36	0.03	0.87	0.03	0.95	0.03	1.25	0.04	
197	1.34	0.06	0.88	0.04	1.02	0.04	1.86	0.03	0.88	0.03	1.97	0.03	1.37	0.04	0.87	0.03	0.95	0.04	1.25	0.05	
198	1.35	0.04	0.88	0.04	1.02	0.03	1.87	0.07	0.88	0.03	1.97	0.03	1.37	0.04	0.87	0.03	0.96	0.03	1.26	0.04	
199	1.35	0.03	0.88	0.03	1.02	0.03	1.87	0.03	0.88	0.03	1.97	0.08	1.37	0.03	0.87	0.03	0.98	0.03	1.26	0.05	
200	1.35	0.04	0.88	0.03	1.03	0.04	1.89	0.03	0.91	0.03	1.99	0.04	1.37	0.05	0.87	0.03	1.00	0.03	1.26	0.04	

Size measurements nematodes Signy

1992	Jul 1		Jul 16		Jul 28		Aug 15		Aug 27		Sep 11		Sep 28		Oct 7		Oct 27		Nov 10		
	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
201	1.36	0.04	0.88	0.04	1.03	0.03	1.90	0.08	0.91	0.03	1.99	0.10	1.39	0.04	0.87	0.03	1.00	0.04	1.26	0.04	
202	1.36	0.04	0.89	0.04	1.04	0.04	1.90	0.03	0.92	0.03	1.99	0.04	1.39	0.05	0.87	0.03	1.01	0.03	1.26	0.04	
203	1.37	0.04	0.89	0.04	1.04	0.04	1.91	0.03	0.93	0.04	2.00	0.04	1.39	0.05	0.87	0.03	1.01	0.03	1.27	0.03	
204	1.41	0.05	0.90	0.03	1.05	0.04	1.91	0.07	0.95	0.04	2.00	0.03	1.40	0.05	0.87	0.06	1.02	0.03	1.27	0.04	
205	1.41	0.03	0.90	0.02	1.05	0.04	1.92	0.03	0.96	0.04	2.01	0.04	1.41	0.04	0.87	0.03	1.03	0.03	1.28	0.04	
206	1.41	0.05	0.90	0.03	1.05	0.03	1.93	0.04	0.96	0.03	2.01	0.04	1.41	0.05	0.88	0.03	1.04	0.03	1.28	0.04	
207	1.42	0.04	0.90	0.03	1.05	0.03	1.94	0.03	0.97	0.03	2.03	0.03	1.42	0.03	0.88	0.04	1.04	0.03	1.29	0.04	
208	1.44	0.04	0.90	0.04	1.05	0.04	1.95	0.03	0.97	0.03	2.03	0.04	1.42	0.03	0.88	0.03	1.04	0.03	1.29	0.04	
209	1.44	0.05	0.91	0.03	1.06	0.04	1.95	0.03	0.98	0.03	2.04	0.04	1.43	0.03	0.88	0.03	1.06	0.03	1.31	0.05	
210	1.45	0.04	0.92	0.04	1.07	0.04	1.96	0.04	0.98	0.03	2.05	0.04	1.43	0.06	0.88	0.03	1.06	0.03	1.32	0.04	
211	1.47	0.07	0.92	0.04	1.07	0.03	1.97	0.04	1.00	0.03	2.05	0.04	1.44	0.05	0.88	0.03	1.08	0.03	1.32	0.04	
212	1.47	0.05	0.93	0.03	1.08	0.04	1.97	0.03	1.00	0.04	2.05	0.04	1.46	0.02	0.88	0.03	1.08	0.03	1.32	0.03	
213	1.48	0.05	0.93	0.04	1.09	0.04	1.97	0.03	1.00	0.03	2.06	0.04	1.46	0.04	0.88	0.03	1.08	0.01	1.32	0.05	
214	1.49	0.04	0.93	0.04	1.11	0.03	1.97	0.04	1.01	0.03	2.06	0.03	1.47	0.05	0.88	0.03	1.08	0.04	1.33	0.04	
215	1.50	0.05	0.93	0.03	1.11	0.04	1.98	0.04	1.01	0.04	2.06	0.04	1.47	0.04	0.89	0.03	1.09	0.03	1.33	0.05	
216	1.50	0.05	0.93	0.04	1.12	0.05	1.98	0.03	1.02	0.03	2.09	0.04	1.47	0.05	0.89	0.03	1.10	0.04	1.33	0.05	
217	1.52	0.05	0.93	0.03	1.12	0.04	2.02	0.09	1.02	0.03	2.09	0.05	1.47	0.05	0.89	0.03	1.10	0.04	1.33	0.05	
218	1.53	0.05	0.93	0.03	1.14	0.05	2.03	0.04	1.02	0.03	2.09	0.03	1.47	0.02	0.89	0.03	1.10	0.03	1.33	0.04	
219	1.53	0.04	0.94	0.03	1.14	0.04	2.03	0.04	1.03	0.04	2.10	0.04	1.48	0.02	0.90	0.03	1.10	0.04	1.34	0.05	
220	1.54	0.04	0.94	0.04	1.15	0.05	2.04	0.04	1.03	0.04	2.10	0.04	1.48	0.05	0.90	0.03	1.12	0.04	1.35	0.05	
221	1.55	0.05	0.94	0.03	1.15	0.04	2.06	0.04	1.03	0.04	2.11	0.04	1.49	0.04	0.90	0.03	1.13	0.03	1.35	0.04	
222	1.55	0.04	0.95	0.03	1.15	0.04	2.07	0.03	1.04	0.04	2.12	0.04	1.50	0.05	0.90	0.03	1.13	0.04	1.35	0.05	
223	1.56	0.04	0.95	0.03	1.15	0.05	2.08	0.04	1.05	0.03	2.12	0.03	1.52	0.03	0.90	0.03	1.13	0.04	1.35	0.05	
224	1.56	0.03	0.95	0.03	1.16	0.05	2.09	0.04	1.05	0.04	2.13	0.04	1.53	0.03	0.90	0.03	1.13	0.03	1.36	0.03	
225	1.58	0.04	0.96	0.03	1.16	0.05	2.10	0.04	1.05	0.04	2.14	0.04	1.54	0.03	0.90	0.03	1.14	0.03	1.36	0.04	
226	1.58	0.04	0.96	0.04	1.18	0.03	2.11	0.03	1.05	0.02	2.14	0.04	1.54	0.05	0.91	0.03	1.15	0.04	1.36	0.04	
227	1.60	0.04	0.96	0.03	1.18	0.03	2.11	0.04	1.06	0.04	2.14	0.04	1.55	0.03	0.91	0.03	1.16	0.04	1.37	0.04	
228	1.62	0.04	0.97	0.03	1.18	0.04	2.11	0.04	1.06	0.03	2.15	0.04	1.55	0.05	0.91	0.03	1.16	0.03	1.39	0.04	
229	1.62	0.05	0.97	0.04	1.18	0.04	2.11	0.04	1.06	0.03	2.15	0.04	1.55	0.04	0.91	0.03	1.16	0.05	1.40	0.05	
230	1.62	0.05	0.97	0.03	1.20	0.04	2.11	0.03	1.07	0.04	2.15	0.04	1.55	0.05	0.91	0.04	1.16	0.03	1.40	0.06	
231	1.64	0.04	0.97	0.04	1.20	0.04	2.11	0.03	1.08	0.04	2.15	0.03	1.57	0.04	0.92	0.04	1.17	0.04	1.41	0.04	
232	1.64	0.05	0.98	0.04	1.20	0.05	2.12	0.04	1.08	0.04	2.16	0.04	1.57	0.06	0.93	0.04	1.17	0.04	1.42	0.05	
233	1.65	0.03	0.98	0.04	1.21	0.05	2.13	0.03	1.09	0.03	2.16	0.04	1.58	0.05	0.93	0.03	1.18	0.03	1.43	0.05	
234	1.68	0.03	0.98	0.04	1.21	0.05	2.13	0.05	1.09	0.03	2.16	0.04	1.59	0.03	0.93	0.03	1.18	0.04	1.44	0.04	
235	1.69	0.05	0.98	0.04	1.21	0.04	2.14	0.04	1.11	0.03	2.16	0.08	1.60	0.05	0.94	0.03	1.18	0.03	1.44	0.05	
236	1.71	0.03	0.98	0.04	1.22	0.05	2.15	0.04	1.12	0.03	2.17	0.04	1.60	0.06	0.94	0.04	1.20	0.05	1.44	0.04	
237	1.74	0.03	0.98	0.05	1.22	0.04	2.16	0.04	1.12	0.03	2.17	0.04	1.61	0.05	0.94	0.04	1.20	0.04	1.44	0.05	
238	1.75	0.07	0.99	0.03	1.22	0.04	2.18	0.03	1.13	0.04	2.18	0.04	1.61	0.05	0.94	0.03	1.21	0.03	1.46	0.05	
239	1.75	0.06	0.99	0.03	1.24	0.04	2.19	0.04	1.14	0.03	2.19	0.04	1.63	0.05	0.94	0.03	1.22	0.04	1.46	0.03	
240	1.77	0.06	1.00	0.04	1.26	0.04	2.21	0.04	1.14	0.03	2.19	0.03	1.63	0.03	0.94	0.03	1.22	0.04	1.46	0.05	
241	1.78	0.05	1.00	0.05	1.27	0.04	2.21	0.04	1.15	0.03	2.21	0.09	1.64	0.05	0.95	0.03	1.22	0.04	1.47	0.03	
242	1.78	0.06	1.00	0.04	1.28	0.04	2.21	0.04	1.15	0.04	2.21	0.04	1.64	0.03	0.96	0.04	1.24	0.04	1.47	0.04	
243	1.79	0.06	1.00	0.04	1.28	0.04	2.22	0.04	1.18	0.03	2.21	0.04	1.64	0.05	0.96	0.03	1.25	0.03	1.47	0.05	
244	1.79	0.05	1.01	0.04	1.28	0.06	2.22	0.04	1.18	0.03	2.22	0.04	1.64	0.03	0.96	0.03	1.25	0.01	1.48	0.05	
245	1.80	0.06	1.01	0.03	1.29	0.04	2.23	0.05	1.18	0.04	2.22	0.04	1.64	0.05	0.96	0.03	1.25	0.04	1.49	0.05	
246	1.83	0.07	1.01	0.04	1.31	0.03	2.23	0.04	1.18	0.05	2.23	0.04	1.67	0.07	0.96	0.03	1.26	0.04	1.50	0.03	
247	1.83	0.06	1.01	0.03	1.34	0.04	2.24	0.04	1.19	0.03	2.24	0.04	1.67	0.06	0.98	0.03	1.27	0.04	1.50	0.05	
248	1.83	0.03	1.01	0.05	1.36	0.04	2.25	0.03	1.19	0.03	2.26	0.04	1.68	0.05	0.98	0.04	1.28	0.04	1.53	0.05	
249	1.85	0.06	1.02	0.03	1.38	0.04	2.25	0.04	1.20	0.01	2.27	0.03	1.69	0.03	0.99	0.03	1.31	0.04	1.53	0.05	
250	1.86	0.06	1.03	0.04	1.39	0.03	2.25	0.04	1.20	0.04	2.27	0.04	1.69	0.07	0.99	0.04	1.32	0.04	1.56	0.03	
251	1.86	0.06	1.03	0.04	1.39	0.05	2.26	0.04	1.20	0.03	2.28	0.04	1.70	0.05	0.99	0.04	1.33	0.05	1.59	0.05	
252	1.86	0.07	1.04	0.04	1.39	0.06	2.26	0.04	1.21	0.04	2.29	0.03	1.71	0.03	1.00	0.03	1.33	0.04	1.62	0.05	
253	1.86	0.03	1.04	0.04	1.40	0.05	2.27	0.04	1.21	0.03	2.29	0.04	1.71	0.06	1.00	0.04	1.35	0.04	1.62	0.05	
254	1.88	0.06	1.05	0.05	1.40	0.05	2.27	0.04	1.21	0.04	2.29	0.03	1.72	0.03	1.01	0.03	1.38	0.06	1.63	0.06	
255	1.91	0.07	1.05	0.04	1.43	0.04	2.28	0.04	1.22	0.04	2.30	0.04	1.72	0.05	1.01	0.04	1.38	0.01	1.65	0.05	
256	1.92	0.07	1.05	0.04	1.44	0.05	2.28	0.04	1.22	0.05	2.30	0.04	1.72	0.06	1.01	0.03	1.41	0.05	1.66	0.03	
257	1.93	0.08	1.05	0.04	1.45	0.04	2.30	0.11	1.23	0.04	2.31	0.04	1.74	0.06	1.01	0.04	1.44	0.05	1.66	0.05	
258	1.93	0.08	1.06	0.04	1.45	0.07	2.31	0.04	1.24	0.04	2.32	0.04	1.75	0.03	1.02	0.03	1.44	0.01	1.66	0.05	
259	1.94	0.04	1.08	0.05	1.47	0.06	2.32	0.04	1.25	0.04	2.33	0.04	1.75	0.06	1.02	0.04	1.45	0.04	1.66	0.05	
260	1.94	0.03	1.10	0.04	1.47	0.06	2.33	0.05	1.25	0.04	2.33	0.04	1.75	0.06	1.03	0.03	1.46	0.04	1.67	0.03	
261	1.95	0.07	1.11	0.04	1.49	0.07	2.34	0.03	1.25	0.04	2.33	0.04	1.75	0.06	1.04	0.03	1.46	0.05	1.67	0.05	
262	1.95	0.06	1.12	0.04	1.50	0.05	2.36	0.03	1.25	0.05	2.33	0.04	1.77	0.06	1.05	0.03	1.51	0.06	1.68	0.04	
263	1.96	0.08	1.13	0.03	1.51	0.05	2.38	0.04	1.25	0.04	2.34	0.04	1.78	0.07	1.05	0.04	1.52	0.05	1.68	0.04	
264	1.97	0.03	1.13	0.04	1.54	0.05	2.39	0.04	1.26	0.04	2.34	0.04	1.78	0.04	1.06	0.04	1.52	0.05	1.68	0.05	
265	1.97	0.07	1.14	0.04	1.54	0.05	2.39	0.04	1.27	0.03	2.35	0.04	1.78	0.07	1.06	0.03	1.52	0.04	1.68	0.03	
266	1.98	0.07	1.15	0.05	1.55	0.05	2.40	0.04	1.30	0.04	2.35	0.04	1.78	0.06	1.06	0.04	1.53	0.04	1.68	0.05	
267	1.99	0.03	1.16	0.04	1.56	0.06	2.41	0.05	1.30	0.04	2.35	0.05	1.79	0.04	1.07	0.03	1.60	0.05	1.69	0.06	
268	1.99	0.06	1.17	0.04	1.57	0.06	2.41	0.04	1.30	0.04	2.36	0.05	1.80	0.03	1.09	0.04	1.61	0.07	1.69	0.05	
269	2.04	0.07	1.18	0.05	1.57	0.06	2.43	0.04	1.30	0.04	2.37	0.04	1.80	0.07	1.09	0.04	1.62	0.05	1.70	0.05	
270	2.06	0.03	1.19	0.05	1.58	0.05	2.44	0.04	1.31	0.04	2.38	0.04	1.81	0.07	1.10	0.04	1.65	0.05	1.70	0.04	
271	2.06	0.08	1.19	0.05	1.59	0.04	2.44	0.04	1.32	0.04	2.38	0.04	1.84	0.06	1.10	0.04	1.66	0.06	1.70	0.06	
272	2.14	0.06	1.20	0.04	1.60	0.05	2.47	0.04	1.32	0.03	2.39	0.04	1.84	0.08	1.10	0.03	1.67	0.06	1.70	0.04	
273	2.15	0.04	1.20	0.06	1.61	0.07	2.47	0.04	1.33	0.05	2.41	0.04	1.85	0.06	1.11	0.04	1.68	0.06	1.71	0.05	
274	2.15	0.04	1.20	0.05	1.62	0.06	2.48	0.04	1.33	0.04	2.44	0.04	1.85	0.07	1.11	0.04	1.69	0.05	1.72	0.06	
275	2.17	0.03	1.20	0.05	1.62	0.07	2.49	0.04	1.34	0.04	2.44	0.04	1.85	0.07	1.12	0.03	1.71	0.06	1.72	0.08	
276	2.20	0.04	1.20	0.04	1.63	0.05	2.50	0.04	1.36	0.07	2.45	0.04	1.86	0.03	1.13	0.04	1.71	0.06	1.73	0.03	
277	2.21	0.03	1.20	0.04	1.63	0.03	2.51	0.03	1.40	0.03	2.46	0.03	1.86	0.03	1.15	0.05	1.73	0.05	1.73	0.07	
278	2.24	0.04	1.21	0.04	1.63	0.08	2.52	0.05	1.41	0.04	2.47	0.04	1.86	0.06	1.15	0.04	1.74	0.06	1.74	0.07	
279	2.26	0.04	1.21	0.05	1.66	0.06	2.52	0.04	1.45	0.06	2.47	0.04	1.87	0.06	1.15	0.04	1.76	0.05	1.74	0.06	
280	2.31	0.04	1.21	0.04	1.70	0.05	2.52	0.04	1.46	0.04	2.47	0.04	1.87	0.07	1.16	0.05	1.79	0.07	1.74	0.06	
281	2.32	0.04	1.21	0.04	1.74	0.07	2.52	0.05	1.47	0.04	2.48	0.04	1.88	0.04	1.16	0.04	1.79	0.07	1.75	0.03	
282	2.33	0.04	1.21	0.04	1.75	0.06	2.52	0.04	1.48	0.05	2.49	0.04	1.89	0.07	1.16	0.04	1.79	0.02	1.76	0.07	
283	2.39	0.04	1.22	0.05	1.77	0.07	2.54	0.05	1.50	0.05	2.50	0.04	1.89	0.03	1.16	0.04	1.81	0.06	1.76	0.06	
284	2.39	0.03	1.22	0.07	1.78	0.06	2.55	0.04	1.51	0.01	2.51	0.04	1.90	0.04	1.17	0.04	1.82	0.07	1.77	0.03	
285	2.42	0.04	1.22	0.06	1.78	0.07	2.61	0.03	1.53	0.06	2.51	0.04	1.91	0.07	1.17	0.03	1.82	0.06	1.78	0.06	
286	2.44	0.04	1.23	0.05	1.78	0.07	2.61	0.05	1.56	0.06	2.52	0.05	1.91	0.09	1.17	0.05	1.83	0.07	1.78	0.08	
287	2.44	0.04	1.23	0.03	1.81	0.07	2.61	0.05	1.56	0.08	2.52	0.04	1.91	0.04	1.17	0.04	1.83	0.07	1.78	0.07	
288	2.45	0.05	1.23	0.05	1.82	0.07	2.61	0.04	1.57	0.05	2.53	0.03	1.93	0.07	1.18	0.04	1.84	0.07	1.80	0.05	
289	2.50	0.04	1.23	0.04	1.85	0.03	2.61	0.05	1.57	0.05	2.53	0.04	1.94	0.04	1.18	0.04	1.85	0.07	1.80	0.06	
290	2.59	0.04	1.24	0.05	1.88	0.08	2.61	0.04	1.58	0.07	2.56	0.04	1.95	0.08	1.18	0.04	1.86	0.06	1.80	0.03	
291	2.60	0.03	1.25	0.06	1.89	0.06	2.63	0.05	1.58	0.05	2.56	0.04	1.95	0.03	1.19	0.04	1.86	0.07	1.81	0.08	
292	2.65	0.05	1.26	0.04	1.93	0.07	2.64	0.04	1.58	0.05	2.56	0.03	1.96	0.08	1.19	0.05	1.87	0.06	1.81	0.06	
293	2.65	0.03	1.26	0.05	1.95	0.08	2.66	0.04	1.58	0.05	2.56	0.04	1.97	0.08	1.19	0.04	1.87	0.06	1.81	0.06	
294	2.65	0.04	1.26	0.04	1.96	0.07	2.67	0.04	1.59	0.04	2.56	0.04	1.97	0.08	1.19	0.05	1.88	0.07	1.82	0.07	
295	2.67	0.04	1.26	0.04	1.96	0.08	2.67	0.04	1.60	0.05	2.57	0.05	1.98	0.04	1.19	0.04	1.89	0.07	1.82	0.07	
296	2.68	0.04	1.27	0.05	1.97	0.08	2.68	0.04	1.62	0.06	2.57	0.04	1.98	0.08	1.21	0.06	1.90	0.08	1.83	0.03	
297	2.68	0.04	1.27	0.05	1.97	0.08	2.68	0.05	1.63	0.06	2.57	0.04	1.99	0.04	1.21	0.05	1.90	0.07	1.84	0.08	
298	2.70	0.05	1.27	0.05	1.99	0.07	2.68	0.04	1.63	0.06	2.58	0.04	1.99	0.06	1.22	0.04	1.91	0.07	1.84	0.04	
299	2.78	0.04	1.27	0.04	2.02	0.04	2.70	0.05	1.63	0.05	2.58	0.04	2.00	0.07	1.22	0.05	1.91	0.07	1.85	0.03	
300	2.82	0.04	1.28	0.05	2.05	0.08	2.71	0.04	1.63	0.05	2.58	0.04	2.02	0.04	1.23	0.05	1.92	0.08	1.85	0.04	

Size measurements nematodes Signy

1992	Jul 1		Jul 16		Jul 28		Aug 15		Aug 27		Sep 11		Sep 28		Oct 7		Oct 27		Nov 10		
301	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	L	W	mm
302	2.91	0.05	1.29	0.05	2.09	0.08	2.71	0.04	1.64	0.05	2.58	0.04	2.03	0.04	1.23	0.03	1.92	0.07	1.85	0.08	
303	2.97	0.05	1.29	0.04	2.12	0.08	2.72	0.04	1.65	0.05	2.59	0.04	2.04	0.08	1.23	0.04	1.93	0.08	1.85	0.03	
304	2.97	0.05	1.32	0.05	2.12	0.05	2.73	0.05	1.65	0.05	2.59	0.05	2.08	0.04	1.23	0.04	1.94	0.08	1.86	0.09	
305			1.33	0.05	2.15	0.08	2.76	0.05	1.66	0.06	2.61	0.05	2.08	0.08	1.24	0.05	1.96	0.07	1.87	0.03	
306			1.33	0.04	2.15	0.09	2.78	0.05	1.67	0.10	2.62	0.05	2.08	0.03	1.24	0.05	1.96	0.07	1.87	0.06	
307			1.35	0.05	2.29	0.09	2.80	0.04	1.67	0.01	2.62	0.05	2.08	0.04	1.25	0.05	1.96	0.07	1.88	0.05	
308			1.36	0.05	2.35	0.04	2.80	0.05	1.67	0.07	2.63	0.04	2.08	0.04	1.25	0.04	1.99	0.06	1.89	0.03	
309			1.36	0.04	2.41	0.09	2.86	0.06	1.68	0.06	2.64	0.05	2.09	0.05	1.26	0.04	1.99	0.07	1.89	0.07	
310			1.38	0.05	2.45	0.03	2.87	0.05	1.68	0.06	2.65	0.05	2.09	0.07	1.26	0.04	1.99	0.07	1.90	0.07	
311			1.39	0.05	2.71	0.04	2.88	0.04	1.69	0.06	2.65	0.04	2.11	0.08	1.26	0.05	2.01	0.07	1.90	0.03	
312			1.42	0.05	2.78	0.05	2.92	0.05	1.69	0.06	2.65	0.04	2.14	0.04	1.27	0.05	2.02	0.07	1.90	0.06	
313			1.44	0.05			2.94	0.05	1.71	0.06	2.66	0.04	2.18	0.08	1.28	0.04	2.04	0.08	1.90	0.07	
314			1.44	0.06			2.94	0.04	1.72	0.06	2.66	0.05	2.22	0.04	1.29	0.04	2.05	0.07	1.92	0.07	
315			1.49	0.09			2.99	0.05	1.72	0.07	2.66	0.04	2.22	0.08	1.31	0.04	2.10	0.08	1.93	0.03	
316			1.50	0.04			3.01	0.04	1.73	0.05	2.67	0.04	2.23	0.04	1.31	0.05			1.93	0.04	
317			1.51	0.04			3.05	0.04	1.74	0.05	2.67	0.04	2.24	0.00	1.32	0.05			1.93	0.07	
318			1.52	0.07			3.06	0.05	1.75	0.06	2.68	0.05	2.30	0.04	1.32	0.04			1.94	0.07	
319			1.53	0.06			3.09	0.05	1.76	0.08	2.68	0.04	2.32	0.04	1.32	0.05			1.94	0.10	
320			1.56	0.07			3.18	0.05	1.77	0.06	2.71	0.04	2.34	0.04	1.36	0.04			1.94	0.07	
321			1.57	0.05			3.24	0.08	1.77	0.06	2.71	0.04	2.41	0.05	1.42	0.05			1.95	0.07	
322			1.58	0.05					1.77	0.06	2.72	0.04	2.45	0.05	1.42	0.05			1.96	0.03	
323			1.60	0.06					1.78	0.05	2.72	0.04	2.51	0.05	1.43	0.04			1.97	0.09	
324			1.61	0.10					1.78	0.06	2.73	0.04	2.59	0.04	1.44	0.06			1.97	0.10	
325			1.62	0.08					1.78	0.06	2.74	0.04	2.60	0.04	1.48	0.05			1.98	0.09	
326			1.62	0.05					1.78	0.07	2.74	0.04	2.62	0.04	1.51	0.04			2.03	0.04	
327			1.63	0.06					1.79	0.06	2.74	0.04	2.68	0.05	1.51	0.05			2.04	0.07	
328			1.67	0.06					1.79	0.07	2.75	0.04	2.73	0.05	1.52	0.07			2.05	0.08	
329			1.69	0.06					1.79	0.08	2.75	0.05	2.78	0.05	1.52	0.07			2.06	0.08	
330			1.74	0.06					1.81	0.08	2.76	0.04	2.80	0.05	1.57	0.06			2.06	0.08	
331			1.81	0.06					1.81	0.07	2.77	0.04	2.83	0.04	1.59	0.05			2.06	0.04	
332			1.83	0.07					1.81	0.06	2.77	0.05	2.87	0.05	1.60	0.05			2.09	0.04	
333			1.84	0.08					1.81	0.06	2.77	0.04	2.89	0.06	1.60	0.05			2.10	0.10	
334			1.85	0.06					1.82	0.06	2.77	0.05	2.89	0.05	1.60	0.05			2.10	0.03	
335			1.85	0.11					1.84	0.06	2.78	0.05	2.90	0.05	1.60	0.06			2.10	0.08	
336			1.85	0.08					1.85	0.07	2.79	0.05	2.90	0.04	1.61	0.05			2.11	0.04	
337			1.86	0.06					1.85	0.07	2.80	0.05	2.93	0.05	1.64	0.05			2.11	0.05	
338			1.86	0.08					1.85	0.06	2.81	0.04	2.98	0.05	1.65	0.05			2.22	0.03	
339			1.90	0.09					1.87	0.07	2.81	0.04	3.02	0.03	1.68	0.06			2.24	0.04	
340			1.90	0.08					1.87	0.06	2.81	0.05	3.03	0.06	1.70	0.05			2.26	0.05	
341			1.91	0.11					1.88	0.06	2.81	0.04	3.03	0.06	1.70	0.05			2.33	0.05	
342			1.92	0.06					1.88	0.07	2.83	0.05	3.04	0.05	1.73	0.06			2.34	0.07	
343			1.92	0.08					1.88	0.07	2.84	0.04	3.06	0.05	1.73	0.06			2.35	0.04	
344			1.92	0.07					1.90	0.07	2.85	0.11	3.07	0.06	1.82	0.06			2.36	0.06	
345			1.93	0.08					1.90	0.07	2.85	0.04	3.11	0.06	1.84	0.06			2.40	0.04	
346			2.03	0.08					1.91	0.08	2.85	0.04	3.15	0.06	1.84	0.06			2.47	0.05	
347			2.04	0.07					1.93	0.07	2.86	0.05	3.16	0.06	1.87	0.07			2.48	0.04	
348			2.06	0.09					1.93	0.04	2.87	0.04	3.23	0.04	1.87	0.07			2.48	0.06	
349									1.94	0.07	2.87	0.04			1.88	0.07			2.51	0.04	
350									1.94	0.08	2.88	0.04			1.89	0.06			2.52	0.04	
351									1.94	0.07	2.88	0.05			1.89	0.07			2.53	0.05	
352									1.94	0.08	2.88	0.05			1.91	0.06			2.60	0.05	
353									1.94	0.06	2.88	0.07			1.91	0.06			2.61	0.04	
354									1.95	0.07	2.90	0.05			1.91	0.07			2.66	0.04	
355									1.95	0.08	2.91	0.04			1.91	0.07			2.67	0.04	
356									1.96	0.07	2.91	0.05			1.95	0.03			2.68	0.05	
357									1.99	0.07	2.94	0.06			1.95	0.06			2.70	0.04	
358									2.00	0.07	2.98	0.05			1.96	0.07			2.71	0.05	
359									2.00	0.09	3.00	0.04			1.97	0.06			2.72	0.04	
360									2.01	0.07	3.00	0.05			1.97	0.08			2.77	0.04	
361									2.01	0.07	3.00	0.05			2.16	0.08			2.82	0.05	
362									2.02	0.08	3.01	0.04			2.54	0.05			2.85	0.05	
363									2.03	0.07	3.01	0.04			2.67	0.04			2.92	0.05	
364									2.03	0.02	3.03	0.04			2.68	0.06			3.05	0.06	
365									2.08	0.07	3.10	0.04							3.17	0.05	
366									2.33	0.05	3.11	0.05							3.41	0.06	
367									2.47	0.05	3.13	0.05									
368											3.14	0.05									
369											3.15	0.06									
370											3.21	0.05									
371											3.24	0.05									