

PSAMMONALIA

Newsletter of the International Association of Meibenthologists



NUMBER 97

August 1992

Newsletter of the International Association of Meiobenthologists

editor : RICHARD WARWICK

production editor : Mel Austen

INTERNATIONAL ASSOCIATION OF MEIOBENTHOLOGISTS – FOUNDED 1966

Executive Committee

Chairperson

RICHARD WARWICK

Plymouth Marine Laboratory, Prospect Place, The Hoe, Plymouth PL1 3DH, UK

Treasurer

MIKE GEE

Plymouth Marine Laboratory, Prospect Place, The Hoe, Plymouth PL1 3DH, UK

Committee Members

MARC BERGMANS

Lab. Ekologie en Systematiek, Vrije Universiteit, Pleinlaan 2, B-1050 Brussels, Belgium

JOHN FLEEGER

Department of Zoology and Physiology, Louisiana State University, Baton Rouge, LA 70803-1725, USA

LAURENCE GUIDI

C.E.R.O.V., Station Zoologique, B.P. 28, 06230 Villefranche-sur-Mer, France

GEOFFREY HICKS

National Museum of New Zealand, P.O. Box 467, Wellington 1, New Zealand

MARGARET PALMER

Department of Zoology, University of Maryland, College Park, MD 20742, USA

Board of Correspondents

BRUCE COULL

Baruch Inst. Marine Science and Coastal Research, University of South Carolina, Columbia, SC 29208, USA

DAN DANIELOPOL

Limnol. Institut, Abteilung Mondsee, A-5310 Gaisberg 116, Austria

VALJA GALTSOVA

Zool. Inst. Akad. Sci. SSSR, Universitetskaja Embankment 1, Leningrad V-164, USSR

ANDREW GOODAY

Institute of Oceanographic Sciences, Wormley, Godalming, Surrey, GU8 5UB, UK

LAURENCE GUIDI

C.E.R.O.V., Station Zoologique, B.P. 28, 06230 Villefranche-sur-Mer, France

GEOFFREY HICKS

National Museum of New Zealand, P.O. Box 467, Wellington 1, New Zealand

RONY HUYS

Lab. Morfologie, Ledeganckstraat 35, B-9000 Gent, Belgium

CATALINA PASTOR

Centro Nacional Patagonico, 28 de Julio 28, (9120) Puerto Madryn, Prov. Chubut, Argentina

TERESA RADZIEJEWSKA

Inst. Fisheries Oceanography, Kazimiera Krolewicza 4, 71-550 Szczecin, Poland

YOSHIHISA SHIRAYAMA

Ocean Research Institute, University of Tokyo, 1-15-1 Minamidai, Nakano-Ku, Tokyo 164, Japan.

DAVID STRAYER

The New York Botanical Garden, Institute of Ecosystem Studies, Box AB, Millbrook, NY 12545, USA

ZHANG ZHINAN

Department of Marine Biology, Ocean Univeristy of Qingdao, Qingdao, Shangdong, Peoples Republic of China.

Dues are £5 per year payable to Mike Gee.

“This newsletter is not deemed to be a valid publication for formal taxonomic purposes”

EDITORIAL

There are several criteria by which we can judge the health of our Association, and thus the health of the scientific discipline we pursue. One of these is the success of our triennial conferences in terms of the numbers of members attending, the scientific vigour of the programme and the level of social interaction (the latter is equally as important as the other two). On all three scores EIMCO was just perfect. Margaret Palmer and her band of willing helpers went far beyond the bounds of normal expectation in attending to our smallest needs, ensuring that all the proceedings went without the slightest hitch and the evening social events were frequent, convivial gastronomic delights. Bob Higgins put together a scientific programme which skillfully avoided conflicts of interest between the parallel sessions, but I must confess that I occasionally felt I wanted to be in two places at once! On behalf of the Association I would like to extend our thanks to all of them. It will be a difficult act to follow.

The nice thing was that the conference attracted so many new people, but at the same time retained the atmosphere of a family reunion. I don't know of any other international group of scientists where this camaraderie prevails. I discussed this with Bruce Coull, and we thought that one contributory factor was that meiofaunal research is still such a wide open field that there is no competitive element in what we do. The conference started in the right vein with Geoff Hicks reminding us that it was Olav Giere's birthday. Olav was duly presented with a large cake in the form of a gutless oligochete. It tasted good despite Olav's criticism that these animals are white, not black, and definitely *don't* have eyes! Pat Boaden's absence from the meeting (sadly missed) did not deter us from the traditional limerick competition during the final banquet. Some of the more printable entries are reproduced below.

I am a little ambivalent about parallel sessions at conferences, for the reason mentioned above, but with 72 papers to be given (by presenters from 18 different countries) there is really no alternative unless the conference is extended for more than a week. One possibility might be to produce a single-session programme including specialised papers grouped together, with no official recreational day in the middle. Participants could then choose when they took time out for recreational purposes, or could choose not to do so if they were sufficiently generalist (and highly motivated!).

In my introductory address I lamented the fall in numbers of IAM members, and also the fact that no nominations for officers for the coming three years had

been received. Fortunately, both these things were put to rights during the meeting. Eleven new members joined the Association and seven lapsed members paid their subscriptions. This goes a considerable way towards stemming the declining membership trend.

Two meetings of the IAM Executive Committee were held, where verbal nominations for officers were considered. There being no more than one nomination for each vacancy, I am pleased to announce that our new Chairperson for the next three years will be Paul Montagna, and Bob Feller will be Treasurer. Marc Bergmans has withdrawn from the Executive Committee because of his changed circumstances, while Laurence Guidi and Geoff Hicks have come to the end of their 6-year terms of office. They will be replaced by Teresa Radziejewska, Yoshihisa Shirayama and James Ward. Naturally I am delighted that all these appointees accepted nomination: they constitute a great team which augers well for the future. Margaret Palmer is the remaining Committee member, plus myself as outgoing Chairperson (replacing John Fleeger).

With regard to the venue for our next conference in 1995 (NIMCO), the Committee gratefully accepted the generous offer made by Alain Dinet and Laurence Guidi for it to be held in Perpignan, SW France. Banyuls itself is full of students in the summer and so would not be a possible location, but nearby Perpignan has adequate facilities for the conference. Alain still has to confirm the availability of these facilities for 1995, but is quite confident of success.

The Committee was conscious of the fact that many students and young researchers around the world who would have benefited greatly from EIMCO had been unable to attend because of financial constraints. It was felt that membership fees for the Association were extremely cheap and that since the funds were currently in a healthy state, the Association should be able to give these students some financial assistance to attend future conferences. Many longer-standing members will remember the "Bertil Swedmark" fund which was set up to further the aims of the Association but which was subsequently amalgamated with the Association's general fund. It was decided that this should be resurrected as the "Bertil Swedmark Travel Fund", specifically to help young people get to our conferences. When renewing your membership, we would therefore encourage you to make a donation over and above the value of the subscription, which will be put into this fund. It will be seeded by £1000.00 from our existing funds. A high-interest account will be retained in Plymouth, regardless of the location of the Association's Treasurer, in order to avoid costs of transferring the account every

three years. Bob Higgins will be drafting some additions to the Constitution and Byelaws of the Association to cover the protocols for the administration of this fund. But don't wait for these to appear. *The fund is now open.*

Richard Warwick

Darcy Lonsdale
SUNY at Stony Brook
Mar. Sci. Research Centre
Stony Brook, NY 11763-5000
USA

Guilherme Lotufo
Dept. Zool. Physiol.
Louisiana State University
Baton Rouge, LA 70803 - 1725
USA

NEW MEMBERS (signed up at the Conference)

Laura Craft
Dept. Biol. Sci.
Ohio University
P.O. Box 95
Guysville, OH 45735
USA

Karen McGlothlin
Clemson University
Dept. Biol.
132 Long Hall
Clemson, SC 29634 - 1903
USA

Birger Neuhaus
Dept. Invert. Zool. NMNH
Smithsonian Institute NHB 163
Washington DC 20560
USA

Lisa Di Pinto
Baruch Institute, Mar. Sci. Prog.
University of South Carolina
Columbia, SC 29208
USA

Jenny Schmidt-Araya
Biol. Stat. Lunz
A 3293 Lunz SEE
AUSTRIA

Teresa Donelan
University of South Carolina
College of Health
Columbia, SC 29208
USA

Abbie Yorkoff
Dept. Invert. Zool. NMNH
Smithsonian Institute NHB 163
Washington DC 20560
USA

CHANGE OF ADDRESS

Onno Gross
Universitat Hamburg
Inst. fur Hydrobiol. und Fisch.
Zeisweg 9
D-2000 Hamburg 5
GERMANY

Howard Platt
Dept. of the Environment (NI)
Calvert House
23, Castle Place
Belfast BT1 1FY
UK

PROPOSED I.A.M. GLOBAL BIODIVERSITY PROJECT

Verena Kowaic
Biol. Stat. Lunz
A-3293 Lunz SEE
AUSTRIA

During EIMCO in Maryland a meeting of interested people was held to discuss the details of this collaborative project (see *Psammonalia* Nos. 91 & 92 for details). There is clearly a lot of enthusiasm for the project: the global coverage of sampling sites has been

expanded since the map published in No. 92 and further offers filling in notable gaps (Japan, Bermuda) were made at the meeting. I will publish final details in a subsequent issue of *Psammonalia*, together with a list of participants who have volunteered to deploy and retrieve the artificial substrates. But for now, here is a summary of the decisions we reached:

1. The artificial substrate units (ASUs), demonstrated at EIMCO, will be provided by the Plymouth Marine Laboratory (PML) as a pack which will come with full instructions regarding deployment, retrieval and initial sample processing.

2. The ASUs will be fixed to hard substrates (e.g. rock, pilings) at 12–15 m depth at relatively sheltered and unpolluted sites with full marine salinity, at a number of different sites in the area.

3. The desirability of time-series collections was generally agreed, but it was accepted that they were impractical.

4. The ASUs will be deployed for a 5-month period (spring–summer), starting in April 1993 in the Northern Hemisphere and October 1993 in the Southern Hemisphere. Because of slow colonisation rates in Polar regions, ASUs will be left in the field for a full year.

5. After retrieval, narcotisation of the sample prior to fixation will improve the usefulness of the samples for certain taxa.

6. Samples will be returned to PML for initial sorting and distribution to specialist taxonomists (Smithsonian Institution may be able to help here). Although PML would take on the role of co-ordination, it was emphasised that this an I.A.M. study. Field workers and analysts will be partners and the relevant persons will be co-publishers of the results.

7. For the purposes of standardisation, it will be advantageous if one person identifies all samples for a given taxon.

8. The work may offer opportunities for several PhD studies.

9. PML will be seeking funding for the project through several governmental and non-governmental agencies. Other partners should do likewise.

10. An acronym might be useful. Any suggestions?

Richard Warwick

NEWS FROM MEMBERS

NEW TEXTBOOK ON MEIOBENTHOS

Olav Giere has now finished writing a book on meiofauna, covering a wide variety of topics. Its title is

"Microscopic fauna of aquatic sediments – biology, systematics and ecology of meiofauna". It will be published by Springer, Heidelberg, Berlin, New York and will be on the market at the beginning of 1993.

HELP!

David Strayer writes "I would appreciate receiving information on the toxicological properties, safe handling, and disposal of rose bengal. We use rose bengal in our lab, and in the absence of specific toxicological information, we are forced to use expensive procedures to dispose of rose bengal-contaminated waste. Please send information to David Strayer, Institute of Ecosystem Studies, Box AB, Millbrook, NY 12545, USA."

MARYLAND LIMERICKS

What follows are some of the limericks, written under difficult conditions during the EIMCO banquet. They have been gleaned from scraps of paper (often from dubious sources rather appropriate to their literary merit) left lying on tables after the meal, and it is not possible to attribute them to authors. The first may have been the winner of the competition, but the voting procedure was so irregular that it is difficult to say this with any certainty (it doesn't even rhyme!).

There was a sand grain from Woods Hole
That only wanted to tumble and roll,
But its life was upset
By a pseudopodial net,
Now it's the keystone of a foram's abode.

Passive females, t'was said, is the rule
Which upset puritanical Coull,
But young Thomas just said
"Don't worry your head,
This behaviour is *not* very cruel!"

Nematode, copepod and tardigrade,
We do admire them it has to be said,
But we're here for the drinking,
For eating not thinking,
and limericks are a pain in the head.

Austen and Warwick, Hicks and Jude
Tried writing a limerick that wasn't too rude,
But drinking and wine
Blunted their minds
Pat Boaden, where are you, we need you!
(*He could certainly come up with a better last line!*)

Perpignan, Plymouth: England or France,
 Plymouth thought that they had a chance,
 But Perpignan's wine
 And their weather so fine,
 Had the rest of the Committee entranced.

There is this new chairman from Texas,
 Now rumours go: what's that expects us?
 A conference in France
 Wine, Science and Dance!
 A true bond which always connects us!
 (This one was definitely from Olav!)

Bruce Coull has no ifs or buts,
 Meiofauna just don't get stuck in ruts,
 As Keith let us know,
 They ride on marine snow,
 "It's better than coconuts".

"What to do with the data?" they say,
 ANOVA or ranking arrays?
 Perhaps correlate
 Or maybe ordinate
 But alas fractals will come save the day.

There was a young girl called Guidi
 Who went in a submersible to the deep-sea,
 When she came back from the dive
 With the samples alive
 All she thought of was pipi.

There was a young copepod in Coullialand
 Who thought he was born in Gondwanaland,

But he had such a fright
 From a nematode bite
 He swam all the way up to Maryland.

John Lambshead and Brad Robbins admitted responsibility for the next two compositions:
 I'm a full professor, she said,
 But I don't let that go to my head,
 For I'm a deanlet named Bell,
 And a space Czar as well,
 Although fractally speaking I'm dead.

There was a young lady called Palmer,
 Who thought she might be a charmer,
 But high living palled,
 And copepods called,
 I guess it was all in her Karma.

And finally some reflections from Olav Giere:
To Bob Higgins
 The Eighth Meiofauna Conference
 Had a Programme rich in top events.
 Arranged by Bob Higgins,
 Both minor and big things
 went smoothly: for this he deserves a big "thanks".

To Margaret Palmer
 The Conference is over, good bye!
 Nice people and standards set high
 Arranged by M. Palmer
 Things went so much calmer,
 We leave College Park with a sigh.

PS's Doodles from EIMCO Maryland!?



This one was a reminder of the lively discussion following Thomas Glatzels presentation on the mating behaviour of Parastenocaris



Keith Walters proposed that meiofaunal immigration and emmigration might take place through animals rafting onto marine snow. PS obviously agrees with Bruce Coull who said 'It's got to be better than coconuts!'

CURRENT LITERATURE

- Abdou, H.F., Samir, A.M. and Frihy, O.E. 1991. Distribution of benthonic foraminifera on the continental shelf off the Nile Delta. *Neues Jahrbuch für Geologie und Paläontologie, Monatshefte*, no. 1, 1991, 1–11.
- Alexeev, V.M. 1992. Morphology of new and rare nematode species from the waters in the south of the far east of Russia. *Zoologicheskyy Zhurnal*, 71, 9–18.
- Alongi, D.M. and Christoffersen, P. 1992. Benthic infauna and organism–sediment relations in a shallow, tropical coastal area: influence of outwelled mangrove detritus and physical disturbance. *Marine Ecology Progress Series*, 81(3), 229–245.
- Altenbach, A.V. 1992. Short term processes and patterns in the foraminiferal response to organic flux rates. *Marine Micropaleontology*, 19, 119–129.
- Armonies, W. 1992. Transport of benthos with tidal waters: another source of indetermination. In: Keegan, B.F., compiler. *COST 647: coastal benthic ecology: activity report 1988–91*. p.13–30. Commission of the European Communities. (EUR 13984 EN)
- Ax, P. 1991. *Promesostoma teshirogii* n. sp. (Plathelminthes, Rhabdocoela) from brackish water of Japan. *Mikrofauna Marina*, 7, 159–166.
- Ax, P. 1991. Plathelminthes from brackish water of Northern Japan: no identical species with the corresponding boreal community. *Mikrofauna Marina*, 7, 341–
- Ax, P. and Schmidt–Rhaesa, A. 1991. The fastening of egg capsules of *Multipeniata* Nasonov, 1927 (Prolethophora, Plathelminthes) on bivalves – an adaptation to living conditions in soft bottom. *Mikrofauna Marina*, 7, 167–176.
- Barbieri, R. 1990. Phenotypic variation in *Gyroidinoides altiformis* (Stewart and Stewart) and *Gyroidinoides subangulatus* (Plummer) (Foraminifera). *Journal of Micropaleontology*, 9(2), 1–3.
- Bartolomaeus, T. and Ax, P. 1992. Protonephridia and Metanephridia – Their relation within the bilateria. *Zeitschrift für Zoologie Systematik und Evolutionsforschung*, 30, 21–45.
- Benfatti, D.M., Mari, and Moselli, I. 1992. Halacaroidea (Acari, Actinedida) from 4 lakes of volcanic origin in Lazio (Central Italy). *Bollettino di Zoologia*, 59, 105–110.
- Bhat, S.T., Sonawane, A.V. and Mayak, B.U. 1992. Design of a gravity corer for near shore sediment sampling. *Indian Journal of Marine Sciences*, 21, 83–84.
- Biserov, V.I. 1992. A new genus and 3 new species of tardigrades (Tardigrada, Eutardigrada) from the USSR. *Bollettino di Zoologia*, 59, 95–104.
- Boltovskoy, E. 1992. On the destruction of foraminiferal tests (laboratory experiments). *Revue de Micropaléontologie*, 34(1), 19–25.
- Boltovskoy, E., Scott, D.B. and Medioli, F.S. 1991. Morphological variations of benthic foraminiferal tests in response to changes in ecological parameters: A review. *Journal of Paleontology*, 65(2), 175–185.
- Bostrom, S. 1991. Some Cephalobidae (Nematoda, Rhabditidae) from sand on the Island of Samos, Greece. *Nematologica*, 37, 367–375.
- Bussau, C. 1992. New deep–sea Tardigrada (Arthrotardigrada, Halechiniscidae) from a manganese nodule area of the Eastern South Pacific. *Zoologica Scripta*, 21, 79–91.
- Chaproniere, G.C.H. 1991. *Discospirina* (Miliolina, Foraminiferida) from the Coral Sea off North-western Australia: a new record. *Journal of Paleontology*, 65(2), ?–?
- Chardy, P. and Dauvin, J.C. 1992. Carbon flows in a subtidal fine sand community from the western English Channel – a simulation analysis. *Marine Ecology – Progress Series*, 81, 147–161.
- Cherchi, A. and Schroeder, R. 1991. Ramified borings produced by a cryptobiotic foraminifera in Recent and fossil shells. *Comptes Rendus de l'Académie des Sciences, Paris*, 313, 111–115.

- Cunningham, J.R. and Ustach, J.F. 1992. Protozoan numbers and biomass in the sediments of the Blake Outer Ridge. *Deep-Sea Research*, 39(5A), 789-794.
- Curini-Galletti, M.C. and Martens, P.M. 1992. Systematics of the Unguiphora (Platyhelminthes Proseriata) II. Family Nematoplanidae Meixner, 1938. *Journal of Natural History*, 26(2), 285-302.
- Dahms, H.-U. and Pottek, M. 1991. *Metahuntemannia* Smirnov, 1964 and *Talpina* gen. nov. (Copepoda, Harpacticoida) from the deep-sea of the high Antarctic Weddell Sea with description of eight new species. *Mikrofauna Marina* 7, 7-78
- Davidovich, N.A. and Chepurnov, V.A. 1991. Periodic components of variations in the abundance of harpacticoids of the upper sublittoral zone of the Black Sea near Karadag. *Oceanology, Moscow*, 31(1), 102-105.
- Debenay, J.-P. 1991. Benthic foraminifera used as indicators of a gradient of marine influence in paralic environments of Western Africa. *Journal of African Earth Sciences*, 12, 335-340.
- Delablanca, N.P.J., Fdezvaldivia, P., Castillo, and Gomezbarcina, A. 1992. Detecting nematode features from digital images. *Journal of Nematology*, 24, 289-297.
- Doleolivier, M.J. and Marmonier, P. 1992. Effects of spates on the vertical distribution of the interstitial community. *Hydrobiologia*, 230, 49-61.
- Doleolivier, M.J. and Marmonier, P. 1992. Patch distribution of interstitial communities - Prevailing factors. *Freshwater Biology*, 27, 177-193.
- Ehlers, U. 1991. Dermonephridia - modified epidermal cells with a probable excretory function in *Paratomella rubra* (Acoela, Platyhelminthes). *Mikrofauna Marina*, 7, 253-264.
- Ehlers, U. 1991. No mitosis of differentiated epidermal cells in the Platyhelminthes: mitosis of intrapidermal stem cells in *Rhynchoscolex simplex* Leidy, 1851 (Catenulida). *Mikrofauna Marina*, 7, 311-322.
- Ehlers, U. 1991. "Pulsatile bodies" in *Anaperus tvaerminnensis* (Luther, 1912) (Acoela, Platyhelminthes) are degenerating epidermal cells. *Mikrofauna Marina*, 7, 295-310.
- Ehlers, U. 1991. On the fine structure of *Paratomella rubra* Rieger and Ott (Acoela) and the position of the taxon *Paratomella* Dorjes in a phylogenetic system of the Acoelomorpha (Platyhelminthes). *Mikrofauna Marina*, 7, 265-294.
- Epstein, S.S. and Shiaris, M.P. 1992. Rates of microbenthic and meiobenthic bacterivory in a temperate muddy tidal flat community. *Applied and Environmental Microbiology*, 58(8), 2426-2431.
- Erseus, C. 1992. A generic revision of the Phallogrillinae (Oligochaeta, Tubificidae). *Zoologica Scripta*, 21, 5-48.
- Fernando-Leborans, G. and Novillo, A. 1992. Morphology and taxonomy of two new species of marine ciliates (Ciliophora: Spirotrichea: Stichotrichida: Amphisiellidae). *Proceedings of the Biological Society of Washington*, 105, 165-179.
- Ferrari, F.D. 1992. The antennal exopod of *Noodtortopsyllus* and the next evolutionary synthesis. *Crustaceana*, 62, 128-132.
- Gaston, G.R. 1992. Green-winged Teal ingest epibenthic meiofauna. *Estuaries*, 15, 227-229.
- Glatzel, T. 1992. Description of the six nauplius stages of *Parastenocaris phyllura* Kiefer, 1938 in comparison with *P. vicesima* Klie, 1935 (Copepoda, Harpacticoida). *Bijdragen Tot de Dierkunde*, 61, 185-191.
- Gooday, A.J., Levin, L.A., Linke, P. and Heeger, T. 1992. The role of benthic foraminifera in deep-sea food webs and carbon cycling. In: Rowe, G.T., Pariente, V., editors. *Deep-sea food chains and the global carbon cycle*
- Gooday, A.J., Levin, L.A., Thomas, C. and Hecker, B. 1992. The distribution and ecology of *Bathysiphon filiformis* Sars and *B. major* de Folin (Protista, Foraminiferida) on the continental slope off North Carolina. *Journal of Foraminiferal Research*, 22(2), 129-146.
- Graf, G. and Linke, P. 1992. Adenosine nucleotides as indicators of deep-sea benthic metabolism. In: Rowe, G.T. and Pariente, V., editors *Deep-sea food chains and the global carbon cycle*, p.237-243, Kluwer Academic, Netherlands.

- Guerin, J.P. and Rieper-Kirchner, M. 1992. Influence of three bacteria strains on the population dynamics of *Tisbe holothuriae* (Copepoda, Harpacticoida). *Helgoländer Meeresuntersuchungen*, 45, 495–511.
- Hansen, H.J. and Revets, S. 1992. A revision and reclassification of the Discorbidae, Rosalinidae, and Rotaliidae. *Journal of Foraminiferal Research*, 22(2), 166–180.
- Harmelin, J.-G. and Vénec-Peyré, 1992. Morphology, ecology, and biogeography of *Discoramulina bollii* Seiglie, 1964, a cyclostomata-like Foraminifer. *Journal of Foraminiferal Research*, 22(2), 181–186.
- Haynes, J.R. 1992. Supposed pronounced ecophynotypy in foraminifera. *Journal of Micropalaeontology*, 11(1), 59–63.
- Hottinger, L., Halicz, E. and Reiss, Z. 1991. Architecture of *Eponides* and *Poroeponides* (foraminifera) reexamined. *Micropalaeontology*, 37(1), 60–75.
- Ishida, T. 1992. Cyclopoid and harpacticoid copepods (Crustacea) from southeastern Alaska, USA. *Proceedings of the Biological Society of Washington*, 105, 249–254.
- Jacobs, L.J. and Heyns, J. 1992. Morphology of *Monhystera coomansi* sp.n. from Algeria (Nematoda, Monhysteridae). *Nematologica*, 38, 1–21.
- Jensen, P., Emrich, R. and Weber, K. 1992. Brominated metabolites and reduced numbers of meiofauna organisms in the burrow wall lining of the deep-sea enteropneust *Stereobalanus canadensis*. *Deep-Sea Research*, 39(7/8A), 1247–1253.
- Jensen, P., Rumohr, J. and Graf, G. 1992. Sedimentological and biological differences across a deep-sea ridge exposed to advection and accumulation of fine-grained particles. *Oceanologica Acta*, 15, 287–296.
- Kaminski, M.A. and Kuhnt, W. 1991. Depth-related shape variation in *Ammobaculites agglutinans* (d'Orbigny). *Annales Societatis Geologorum Poloniae*, 61, 221–230.
- Kennedy, A.D. 1991. The energetic role of meiofauna in the foodweb of the Exe estuary. 276p. Exeter University. (PhD Thesis)
- Kosovskaya, G.V. 1991. Small detritivorous Polychaetes in benthic communities of the north-western part of the Black Sea. *Gigrobiologicheskii Zhurnal*, 27(6), 24–29.
- Kramer, K.J.M., Warwick, R.M. and Brockmann, U.H. 1992. Manual of sampling and analytical procedures for tidal estuaries. JEEP 92: A joint European estuarine project on major biological processes in European tidal estuaries. 238p. TNO Institute of Environmental Sciences, Laboratory of Applied Marine Research. Den Helder, the Netherlands.
- Lagadeuc, Y. 1991. Mud substrate produced by *Polydora ciliata* (Johnston, 1828) (Polychaeta, Annelida) – origin and influence on fixation of larvae. *Cahiers de Biologie Marine*, 32, 439–450.
- Langer, M.R. 1992. New Recent foraminiferal genera and species from the lagoon at Madang, Papua New Guinea. *Journal of Micropalaeontology*, 11(1), 85–93.
- Levenstein, R.Y. 1991. Distributional patterns of Polychaeta in deep-sea trenches. *Ophelia*, Supplement 5, 587–592.
- Levin, L.A. and Gooday, A.J. 1992. Possible roles for xenophyophores in deep-sea carbon cycling. In: Rowe, G.T., Pariente, V., editors. *Deep-sea food chains and the global carbon cycle*. p.93–104. Kluwer Academic Publishers. (NATO ASI Series C: Mathematical and Physical Sciences Vol.360)
- Lucchesi, P. 1992. The interstitial ciliated Protozoa of a Mediterranean microcommunity. *Hydrobiologia*, 230, 79–92.
- Lutze, G.F. and Altenbach, A.V. 1991. Technik und Significanz der Lebendfärbung benthischer Foraminiferen mit Bengalrot. *Geologisches Jahrbuch*, A128, 251–265.
- Malumian, N., Nanez, C. and Caramelo, A. 1991. Unilocular foraminifera of reticular surface from Argentina. *Micropalaeontology*, 37(4), 393–406.

- Martens, K. 1992. On *Namibocypris costata* n.gen., n.sp. (Crustacea, Ostracoda, Candoninae) from a spring in northern Namibia, with the description of a new tribe and a discussion on the classification of the Podocopina. *Stygologia*, 7, 27–42.
- Mason, W.T. 1991. Sieve sample splitter for benthic invertebrates. *Journal of Freshwater Ecology*, 6, 445–449.
- Mielke, W. 1991. Six representatives of the Tetragonicipitidae (Copepoda) from Costa Rica. *Mikrofauna Marina*, 7, 101–146.
- Mielke, W. 1991. Description of some benthic Copepoda from Chile and a discussion on the relationships of *Paraschizopera* and *Schizopera* (Diosaccidae). *Mikrofauna Marina*, 7, 79–100.
- Miliou, H. 1992. Effects of light (photoperiod, spectral composition) on the population dynamics of *Tisbe holothuriae* Humes (Copepoda, Harpacticoida). *Hydrobiologia*, 231, 201–209.
- Murray, J.W. 1992. Distribution and population dynamics of benthic Foraminifera from the southern North Sea. *Journal of Foraminiferal Research*, 22(2), 114–128.
- Nebelsick, M. 1992. A new glandular sensory organ in *Catanema* sp. (Nematoda, Stilbonemittinae). *Zoomorphology*, 112, 17–26.
- Nigam, R., Khare, N. and Borole, D.V. 1992. Can benthic foraminiferal morpho-groups be used as indicators of paleomonsoonal precipitation? *Estuarine, Coastal and Shelf Science*, 34, 533–542.
- 'Olafsson, E. 1992. Small-scale spatial distribution of marine meiobenthos—the effects of decaying macrofauna. *Oecologia*, 90, 37–42.
- 'Olafsson, E. and Moore, C.G. 1992. Effects of macroepifauna on developing nematode and harpacticoid assemblages in a subtidal muddy habitat. *Marine Ecology Progress Series*, 84(2), 161–171.
- Palacin, C., Gill, J.-M. and Martin, D. 1992. Evidence for coincidence of meiofauna spatial heterogeneity with eutrophication processes in a shallow-water Mediterranean bay. *Estuarine, Coastal and Shelf Science*, 35(1), 1–16.
- Pfannkuche, O. 1992. Organic carbon flux through the benthic community in the temperate abyssal northeast Atlantic. In: Rowe, G.T. and Pariente, V., editors. *Deep-sea food chains and the global carbon cycle*, p.183–198, Kluwer Academic, Netherlands.
- Preobrazhenskaya, T.V., Levchuk, L.K., Troitskaya, T.S. and Pursenko, K.B. 1991. Distribution of benthic Foraminifera in the littoral zone of Shikotan Island of the Malaya Kurilskaya Ridge. *Biologiya Morya*, 2, 15–21.
- Preobrazhenskaia, T.V., Levchuk, L.K., Troitskaia, T.S. and Fursenko, K.B. 1992. Distribution of benthic Foraminifera in the littoral of Shikotan Island of the Malaya Kurile Ridge. *Soviet Journal of Marine Biology*, 17(2), 75–78.
- Revels, S.A. 1992. The structure and taxonomic position of *Millettia* Schubert, 1922 (Foraminiferida). *Journal of Micropalaeontology*, 11(1), 37–46.
- Rogozin, A.G. 1992. Topographical anatomy of the protonephridial vessel system in Rhabdocoela (Turbellaria). 2. Typhloplanidae (Opisthomininae, Typhloplaninae, Mesostominae). *Zoologicheskii Zhurnal*, 71(3), 23–32. (In Russian)
- Rosoff, D.B. and Corliss, B.H. 1992. An analysis of recent deep-sea benthic foraminiferal morphotypes from the Norwegian and Greenland Seas. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 91, 13–20.
- Santangelo, C. and Lucchesi, P. 1992. The interstitial ciliated Protozoa of a Mediterranean microcommunity. *Hydrobiologia*, 230, 79–92.
- Sarda, R. 1991. Polychaete communities related to plant covering in the mediolittoral and infralittoral zones of the Balearic Islands (Western Mediterranean). *P.S.Z.N.I. Marine Ecology*, 12(4), 341–360.
- Sarkka, J. 1992. Effects of eutrophication and organic loading on the occurrence of profundal harpacticoids in a lake in southern Finland. *Environmental Monitoring and Assessment*, 21, 211–224.
- Satake, K. 1992. A new transparent handy sampler for collecting water from lakes, rivers and seas. *Hydrobiologia*, 232(2), 149–156.

Olaf!!
Fagen!

- Schaeffer, C.T., Collins, E.S. and Smith, J.N. 1991. Relationship of foraminifera and thecamoebian distributions to sediments contaminated by pulp mill effluent. *Marine Micropaleontology*, 17, 255-283.
- Scott, D.B., Suter, J.R. and Kisters, E.C. 1991. Marsh foraminifera and arcellaceans of the lower Mississippi Delta: controls on spatial distribution. *Micropaleontology*, 37(4), 373-392.
- Shirayama, Y. 1992. Respiration rates of bathyal meiobenthos collected using a deep-sea submersible SHINKAI 2000. *Deep-Sea Research*, 39(5A), 781-788.
- Sopot-Ehlers, B. 1991. *Coelogytopora sequana* nov. spec. (Proseriata, Plathelminthes) aus der Seinemündung. *Mikrofauna Marina*, 7, 177-184.
- Sopot-Ehlers, B. 1991. *Coelogytopora faenofurca* nov. spec. (Proseriata, Plathelminthes) aus Wohnröhren des Polychaeten *Arenicola marina*. *Mikrofauna Marina*, 7, 185-190.
- Sterrer, W. 1992. Clausognathidae, a new family of Gnathostomulida from Belize. *Proceedings of the Biological Society of Washington*, 105, 136-142.
- Suren, A.M. 1992. Meiofaunal communities associated with bryophytes and gravels in shaded and unshaded alpine streams in New Zealand. *New Zealand Journal of Marine and Freshwater Research*, 26, 115-125.
- Tietjen, J.H. 1992. Abundance and biomass of metazoan meiobenthos in the deep sea. In: Rowe, G.T., Pariente, V., editors. *Deep-sea food chains and the global carbon cycle*. p.45-62. Kluwer Academic Publishers. (NATO ASI Series C: Mathematical and Physical Sciences Vol.360)
- Tretjakova, E.I. 1992. 3 new species of the genus *Chaetonotus* (Gastrotricha) from the waters of Yaroslavl district. *Zoologicheskij Zhurnal*, 71(3), 15-22. (In Russian)
- Vincx, M. and Li, J. 1992. Temporal distribution of meiobenthos (nematodes) in an estuary: a sub-model for meiobenthos is needed. In: Keegan, B.F., compiler. *COST 647: coastal benthic ecology: activity report 1988-91*. p.193-210. Commission of the European Communities. (EUR 13984 EN)
- Webb, D. and Parsons, T.R. 1992. Winter-spring recruitment patterns of epiphytic harpacticoid copepods in a temperate-zone seagrass bed. *Marine Ecology Progress Series*, 82, 151-162.
- Wenzel, C., Ehlers, U. and Lanfranchi, A. 1991. The larval protonephridium of *Stylochus mediterraneus* Galleni (Polycladida, Plathelminthes): an ultrastructural analysis. *Mikrofauna Marina*, 7, 323-340.
- Westheide, W. 1991. Neue interstitielle Polychaeten (Hesionidae, Dorvilleidae) aus dem Litoral des Golfs von Bengalen. *Mikrofauna Marina*, 7, 147-159.
- Westheide, W. and Purschke, G. 1992. *Microphthalmus simplicichaetosus* (Annelida: Polychaeta), a new hesionid from the northwestern American Pacific coast with exclusively simple chaetae. *Proceedings of the Biological Society of Washington*, 105, 132-135.
- Wright, J.C., Westh, P. and Ramlov, H. 1992. Cryptobiosis in Tardigrada. *Biological Reviews of the Cambridge Philosophical Society*, 67, 1-30.
- Yushin, V.V. and Malakhov, V.V. 1992. Body cuticle formation in the embryogenesis of a free-living marine nematode *Halichoanolaimus sonorus* (Chromadorida, Selachinematidae). *Zoologicheskij Zhurnal*, 71(1), 23-30. (In Russian)
- Zhao Jing and Wu Baoling, 1991. Two new species of *Exogone* and *Sphaerosyllis* (Polychaeta, Syllidae) from the Huanghai Sea. *Acta Oceanologica Sinica*, 11(1), 131-137.