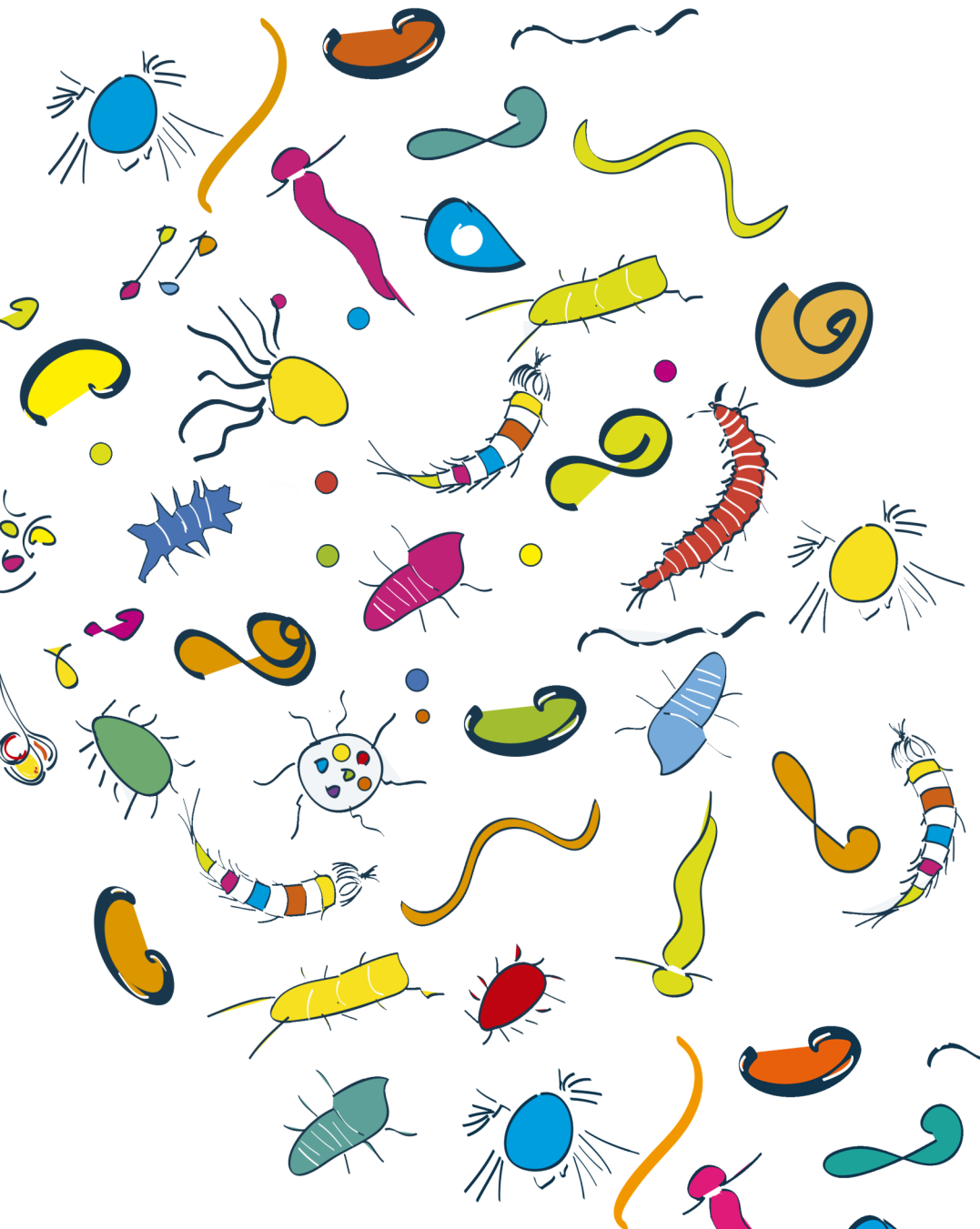




Composed at
MARE - Marine and Environmental Research Centre
University of Évora, Portugal



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- some personal
remembrances

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| Feb
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Meeting 2020 |
| Feb 28 | Submission Deadline
for the SeventIMCO
Special Issue |
| May
3-7 | 7 th International
Congress of
Nematology |
| Jun
7-21 | Meiofauna Diversity
and Taxonomy
Workshop |
| Jun
3-22 | International School
on Foraminifera
Urbino 2020 |
| Aug
23-28 | 7 th International
Symposium on
Chemosynthesis-
Based Ecosystems |
| Dec
13-16 | 5 th World
Conference on
Marine Biodiversity |

**DONT FORGET TO RENEW YOUR IAM MEMBERSHIP!
APPLICATION FORM CAN BE FOUND ON THE LAST PAGE.**

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EDITORIAL

Last July 2019, MARE - Marine and Environmental Sciences Centre, the University of Évora, together with the International Association of Meiobenthologists (IAM) organized the 17th International Meiofauna Conference (SeventIMCO). The SeventIMCO was an energetic meeting, where early-career scientists and senior scientists enthusiastically exchanged the advances in meiofaunal research. It was a historical meiofauna conference, not only because were celebrating 50 years (1969-2019) of the conference, but particularly by the significant improvement of the emerging topics of meiofauna research. Based on new tools and analytical methodological advances we are in conditions to establish the positions and roles of meiofauna and enhance understanding of biology and ecology in aquatic ecosystems, to support management decisions regarding the sustainable use of the oceans, seas and freshwater ecosystems.

The roundtables organized during the SeventIMCO allowed the identification of our major concerns regarding meiofauna research as an important need to strengthen information about the importance of meiofauna in our changing world, including to the new generations, decision-makers and all of society. The increase and growth of the meiofauna research teams around the world was also evident. To improve and open bridges between them, it is very important to guarantee a sustainable future for our science.

During 2019 we physically lost Howard Martin Platt and Jacques Soyer; they will always be in our teams and labs through their lasting legacy in meiofauna research. Their dedication and contributions are something that all generations will be grateful for.

Helena Adão,
Chairperson of the IAM

NEW IAM EXECUTIVE COMMITTEE OFFICERS



Helena Adão

MARE - Marine and Environ. Research Center
University of Évora
hadoo@uevora.pt

Helena Adão is the new chairperson of the IAM executive committee and Professor of the Biology Department of the Évora University, Portugal. Her research activities are developed in the RD&I unit MARE- Marine Environmental Sciences Centre, of which she is the coordinator of the pole at University of Évora (MARE-UÉvora).

Helena started her carrier by developing the first PhD thesis about meiofauna ecology in Portugal, since then her research activities are based on ecology of meiofauna and benthic nematodes assemblages of the intertidal, subtidal and seagrass beds of the estuarine sediments, recently including the continental shelf and deep sea sediments. Her research has been focused in spatial and temporal distribution patterns to assess the responses and resilience of the nematode assemblages during natural habitat recovery; ecosystem processes using the "Stable Isotope Ecology" and the role of the benthic nematodes in estuarine and marine food webs and also the development of a molecular approach to provide novel tools for rapid assessment of biodiversity changes. She has also been working to improve the knowledge on meiofauna ecology in Portugal by including this new subject in syllabus of the different Master courses, supervising master and Ph.D thesis and participating and coordinating projects based on meiofauna ecology. She has also recently improved her activity in Ocean Literacy through different actions, with meiofauna always supporting the initiatives.

As a new member of the IAM board, Helena would like to propose enhanced communication to bridge the gap between the numerous meiobenthologists of the different parts of the world, to meet future challenges and opportunities.



Jeroen Ingels

FSU Coastal and Marine Laboratory
Florida State University
jingels@fsu.edu

Jeroen Ingels is a marine ecologist specialized in benthic ecology and biodiversity. Investigating how biological characteristics, such as ecosystem diversity, structure and functioning, operate and interact under environmental and anthropogenic change, is what drives most of his fundamental and more applied research. Whilst he is specialized in meiofauna, particularly nematodes, his research aims at seeing them as part of the bigger research questions by connecting them to other marine components and documenting their role in ecosystem processes. It has become clear that we need to understand far more about the way in which biota interact, and how biota and their interactions change over space and time and in response to environmental change, anthropogenic or otherwise. It is in this context of biological interactions that his research has developed in the past few years, a path he is keen to pursue in the future.

Jeroen completed his MSc and PhD degrees at the University of Ghent, studying deep-sea and Antarctic meiofauna communities, using field and experimental approaches. After two years of postdoctoral projects in the Marine Biology Research Group, UGent with Prof. Ann Vanreusel, he moved

NEW IAM EXECUTIVE COMMITTEE OFFICERS

to the UK to work for Plymouth Marine Laboratory for four years as a Postdoctoral Research Fellow on Marie Curie and PML/University of Exeter Fellowships. In 2017 he took up a faculty position at the Florida State University, Coastal and Marine Laboratory where he runs the @meiolab and is involved in a variety of projects from shallow waters to the deep sea.

As a new member of the IAM executive committee, Jeroen has been making efforts to increase communication and collaboration between IAM members globally. A few years ago he started the IAM Facebook page and since then, twitter and SLACK accounts were created to increase meiofauna news, and membership and visibility of the association (see P10 "Connecting Meiobenthologists Around The World").



Daniela Zeppilli

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Daniela Zeppilli is an expert in taxonomy and ecology of nematodes coming from a wide range of shallow water and deep-sea extreme ecosystems (hydrothermal vents, pockmarks, mud volcanoes, anoxic sediments). Daniela has focused her research on how this important benthic group can interact with macrofauna as well as with microorganisms. In 2013, Daniela started to focus on nematode-prokaryote interactions exploring different extreme environments leading two projects: DYVA and PIONEER. In these projects, she and her team proposed an integrate approach identifying and describing nematode extreme species and investigating associated prokaryotes combining molec-

ular and visualization techniques. She discovered and described several new nematode species and revealed three new symbiotic relationships.

Daniela started her carrier investigating the role of spatial heterogeneity on deep-sea meiofauna completing her PhD and a PostDoc in Italy at the Polytechnic University of Marche. Daniela moved to France in 2011 working at CNRS on the impact of green algae blooms on meiofauna and then to Portugal (IMAR) for investigating the meiofauna of the Condor Seamount. She finally moved back to France in 2013 granted by the fellowship "Post-doctorant Internationale d'Excellence en Sciences de la Mer LabexMER" working at IFREMER on nematodes from deep-sea hydrothermal vents.

For her research, Daniela won the prestigious prix L'Oréal-UNESCO For Women in Science France 2014. In 2015, she got a permanent position as researcher at the Ifremer, and since 2018 took the lead of the Deep Sea Lab, a team formed by 39 scientists (including researchers, technicians, PhDs and post-docs) working in different deep-sea domains (<https://wwz.ifremer.fr/deep/>).

As a new member of the IAM executive committee, Daniela proposed to include the training of a new generation of meiobenthologists as a new objective of the IAM.

Daniela started in 2013 the MeioScool workshop and summer school series. This successful series (100-125 participants for each event) aims to bring together several meiofaunal experts in order to 1) increase awareness of researchers, students and general public to the fundamental role of meiofauna in marine ecosystems from the coastal zone to abyssal depth and 2) train students and researchers to the identification and description of meiofauna through several complementary disciplines (taxonomy, ecology, molecular biology). MeioScool will be now associated to the triennial international meiofauna conference and will become a regular appointment for the new generation of meiobenthologists.

UPCOMING CONFERENCES AND SEMINARS



Ocean Sciences Meeting 2020

Dates: February 16-21, 2020

Location: San Diego, California, USA

The OSM is the flagship conference for the ocean sciences and the larger ocean-connected community. As we approach the UN Decade of Ocean Science for Sustainable Development, beginning in 2021, it is increasingly important to gather as a scientific community to raise awareness of the truly global dimension of the ocean, address environmental challenges, and set forth on a path towards a resilient planet.

A special session on meiofauna had been organized, but eventually merged to form session OB13A "Benthic and Benthic-Pelagic Community Connectivity from Coastal to Deep-Ocean Environments". Water column and benthic processes are fundamentally connected through benthic-pelagic coupling, which comprises the exchange of organisms, energy, mass and nutrients between the water column and seafloor. From the land-ocean boundary to the deep sea, organismal biodiversity is key to sustaining ocean ecosystems, however, the drivers giving rise to different patterns of biodiversity on the seafloor are still not fully understood. This multidisciplinary session aims to bring together scientists and highlight recent advances at the benthic-pelagic interface and the processes giving rise to seafloor biodiversity patterns, focused on micro- to macro-scales. We also welcome presentations on how these benthic-pelagic interactions and biodiversity patterns are affected by anthropogenic stressors.

There will be a number of meiofauna oral and poster presentations dealing with these topics.

This year's theme, "For a Resilient Planet", centers around the concept that scientists, in partnership with governments and communities, have the power to affect change in fostering healthier and more resilient oceans, a safer and sustainable food supply, and to mitigate impacts of climate change.

More Information and Registration:

<https://www.agu.org/Ocean-Sciences-Meeting>



49th Benthic Ecology Meeting (BEM2020)

Dates: April 7-11, 2020

Location: Wilmington, North Carolina, USA

Abstract submission deadline: Feb 14, 2020

Early bird registration deadline: Feb 3, 2020

The Benthic Ecology Meeting Society (BEMS) is a non-profit organization established to run a yearly meeting to exchange scientific information focusing on marine benthic ecosystems (e.g., rocky intertidal, coral reef) and to foster the next generation of benthic biologists.

The mission of the BEMS is to promote research in benthic ecosystems, support the exchange of information about benthic ecology, and encourage student participation to develop the next generation of benthic ecologists. BEMS is organized exclusively for educational and scientific purposes.

At BEM2020 there will be sessions on interest topics like Anthropogenic Impacts & Climate Change, Biodiversity and Ecosystem Function, Biological Invasions, Conservation, Management, Coral Reef Ecology, Deep Sea Ecology, Community Ecology, Molecular Ecology and Evolution, Parasites and Disease Ecology, Polar Ecosystems, Recruitment and Larval Ecology, Symbiosis, Temperate Reef Ecology, Trophic Relationships and Resilience, and many others. There will also be special session on "Galapagos Marine Ecology", "Insights from the MarineGEO program" and "Understanding Life in the Marine Intertidal: Honoring David S. Wethey".

More Information and Registrations:

<https://www.bemsociety.org/bem-2020.html>

UPCOMING CONFERENCES AND SEMINARS



7th International Congress of Nematology (ICN)

Dates: May 3-7, 2020

Location: Antibes, France

Abstract submission deadline: Jan 15, 2020

Early bird registration deadline: Jan 15, 2020

The ICNs have been hosted in cities around the world every six years since 1984. The 7th ICN is being organized by the European Society of Nematology (ESN) under the auspices of the International Federation of Nematology Societies (IFNS) in Antibes Juan-les-Pins, one of the most mythical seaside resorts of the French Riviera.

The Congress' theme is "Crossing borders: a world of nematode diversity and impact to discover".

Over the five days of the Congress, we will have an academic program that includes 12 plenary lectures and 32 parallel sessions covering a variety of topics including biodiversity, biology, ecology, genetics, epidemiology, management, biocontrol, regulatory/quarantine, phylogeny and taxonomy. Poster sessions will provide further opportunities for discussing results and ideas.

More than a conference, the ICN 2020 will be an experience, a celebration of the best of nematology and the gathering of our global community. As you might expect when visiting France, this spirit of celebration will extend to a vibrant social program. We have scheduled a free day of activities to allow attendees to visit France and the French Riviera... unforgettable experiences.

We look forward to meeting you in Antibes.

Dr. Pierre Abad (Chair of the 7th ICN)

More Information and Registrations:

<https://www.alphavisa.com/icn/2020/>



Society for Freshwater Science Annual Meeting 2020

Dates: June 7-12, 2020

Location: Madison, Wisconsin, USA

Abstract submission deadline: February, 2020

"Sustaining Aquatic Ecosystems Under Global Change" is the general theme of this year's meeting. Rapid change is a defining feature of the modern era. Increasingly severe threats attributed to global environmental change involve water, including among them scarcity, security, over appropriation of water resources, extreme hydrological events, accelerating loss of aquatic biodiversity, and overstressed fisheries.

Sustaining the aquatic ecosystems is key to sustaining human welfare and the natural systems that support us.

Sustainable solutions—those that work across sectors, nations, and generations—will require major transitions in our thinking about water resources and the way they are governed and managed. By proposing a special session, we hope you'll help highlight work relevant to sustaining aquatic ecosystems under global change.

The scientific program will take place Sunday, 7 June, through Friday, 12 June. The full meeting dates are set Saturday, 6 June to Saturday, 13 June, to allow meeting participants to take part in educational activities, volunteer opportunities, and culturally relevant events.

More Information and Registration:

<https://www.aslo.org/madison-2020/>

UPCOMING CONFERENCES AND SEMINARS



14th International Conference on Copepoda

Dates: June 14-19, 2020

Location: Kruger National Park, South Africa

Early bird registration deadline: Jan 31, 2020

Every three years since 1981 the World Association of Copepodologists (WAC) holds the International Conference on Copepoda or the ICOC.

These have become the most important global gatherings for all researchers and students of copepods. Each conference gives participants the chance to meet fellow researchers, talk with students and experts, borrow material, and plan collaborations, while teaming with the individuality and culture of the host nation.

This year's themes include Marine Copepods, Freshwater Copepod, Symbiotic Copepods and Molecular Work on Copepods.

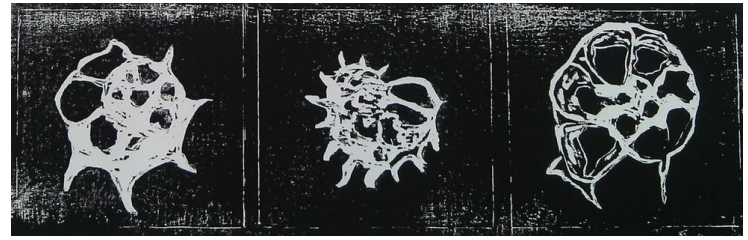
There will be a Copepod Conference Special Issue to be published in the second issue of the African Journal of Aquatic Science 2021. Original scientific contributions and critical reviews that principally focus on the Conference's themes will be considered.

There will also be a Pre-Conference Workshop on Morphology and Systematics of Copepods, held at the University of Limpopo, in Mankweng, South Africa, from June 8-12.

More Information and Registrations:

https://www.abevents.co.za/web_icoc2020/

https://www.abevents.co.za/pre_conf_workshop/



Living Forams 2020

Dates: June 24 - July 1, 2020

Location: Bremerhaven & Bremen, Germany

Early bird registration deadline: Mar 15, 2020

"Living Foraminifera as a Key to understand the Past, Present and Future" is the motto to the conference and workshops of Living Forams 2020.

This conference is the third in a series of workshops that have been held every 4 years, starting in 2012 in Okinawa (Japan) followed by one in Eilat (Israel) 4 years later.

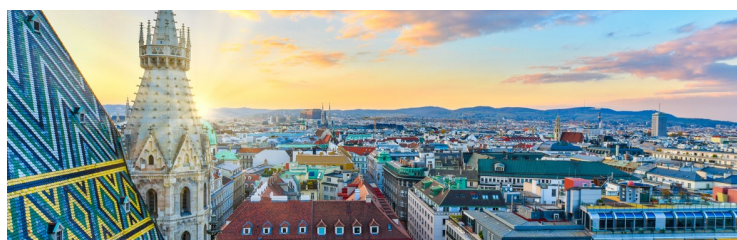
Fossil shells of foraminifera are used in many different fields of research such as evolutionary biology, monitoring, paleoceanography and climatology. Each of these disciplines requires a basic understanding of their biology, ecological functioning, their population dynamics and how they calcify and incorporate geochemical signatures. The goal of this conference is to bring together graduate and PhD students working on living foraminifera with experienced foram workers who will demonstrate new techniques and share and discuss progress in our knowledge related to biology and ecology of foraminifera.

Directly related to the Living Forams 2020 conference, 5 workshops will be offered and organized at different locations (June, 24-26). The workshops are limited to 10-15 participants and the conference is limited to ca. 100 participants.

More information and Registrations:

<https://awi.de/en/science/biosciences/marine-biogeoscience/events/living-forams-2020.html>

UPCOMING CONFERENCES AND SEMINARS



5th International Congress on Invertebrate Morphology (ICIM-5)

Dates: August 2-7, 2020

Location: Vienna, Austria

Abstract submission deadline: Mar 31, 2020

Early bird registration: Feb 15, 2020

The 5th International Congress on Invertebrate Morphology (ICIM-5) is hosted by the University of Vienna. The congress is organized on behalf of the International Society for Invertebrate Morphology (ISIM) by the Department of Integrative Zoology (Faculty of Life Sciences).

The overarching theme of ICIM-5 is the evolution of the exceptional diversity of forms and structures found in extant and extinct invertebrate animals. Special topics of the congress include evolutionary and developmental zoology, phylogenetics, paleontology, neurobiology, genomics, functional morphology, as well as methodological innovations in microscopy and imaging.

For the first time in the history of ICIM, we dedicate a discussion forum to a current hot topic in biological research: the evolution of multicellularity. The goal of this session is to discuss our current understanding as to how metazoans evolved from a unicellular ancestor.

The Vienna meeting will continue the successful tradition of the past ICIM congresses and we invite everyone with an interest in invertebrate animals to come to Vienna and to present and discuss their work. After all, it is the diversity of participants practicing intellectual exchange that fosters scientific progress.

More Information and Registration:

<https://icim5-2020.univie.ac.at/>



7th International Symposium on Chemosynthesis-Based Ecosystems

Dates: August 23-28, 2020

Location: Guarujá, São Paulo, Brazil

Abstract submission opening: Late January

Early bird opening: Late January

Dear Lovers of Chemosynthesis-Related Science,

We would like to remind you that the 7th International Symposium on Chemosynthesis-Based Ecosystems (CBE7) will be held between 23-28 August 2020 in Brazil. CBE7 represents the 7th edition of a successful symposium series that has already taken place in Europe (Portugal, France), North America (United States and Canada), and Asia (Japan). CBE is the main meeting for scientists, explorers, managers, policymakers, industry specialists and students to exchange ideas and share knowledge of advances on chemosynthesis-based ecosystems.

We are looking forward to offering you and spending with you a very productive and pleasant week at [Casa Grande Hotel Resort; Spa](#) located in Guarujá, on the north coast of São Paulo state.

Registrations and abstracts submission will open in late January.

BEM-VINDOS!

Organizing Committee: Camila Signori, Cristina Nakayama, Maurício Shimabukuro, Paulo Sumida and Vivian Pellizari.

Oceanographic Institute, University of São Paulo

Contact: cbe7brazil@gmail.com

More Information and Registration:

<https://www.cbe7.com/>

UPCOMING CONFERENCES AND SEMINARS



International Conference on Biodiversity, Ecology and Conservation of Marine Ecosystems (ICBECME 2020) & International Conference on Systematic and Evolutionary Biology (ICSEB 2020)

Dates: August 27-28, 2020

Location: Paris, France

Early bird registration deadline: July 28, 2020

ICBECME 2020 and ICSEB 2020 aim to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results on all aspects of Biodiversity, Ecology and Conservation of Marine Ecosystems and Systematic and Evolutionary Biology, respectively.

They also provide premier interdisciplinary platforms for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered and solutions adopted in the fields of Biodiversity, Ecology and Conservation of Marine Ecosystems and of Systematic and Evolutionary Biology, respectively.

More Information and Registrations:

<https://waset.org/conferences-in-2020>



5th World Conference on Marine Biodiversity

Dates: December 13-16, 2020

Location: Auckland, New Zealand

Abstract submission deadline: March 2, 2020

Early bird registration deadline: Sept 1, 2020

The 5th World Conference on Marine Biodiversity (WCMB) will be held in Auckland, New Zealand, on 13-16 December 2020. The WCMB welcomes presentations on all aspects of marine biodiversity, both fundamental and applied sciences. The year 2020 is significant in being a deadline for both Convention on Biological Diversity Aichi Targets and UN Sustainable Development Goals, including SDG 14 on the oceans, and is a starting point for 2030 goals and the UN Decade of the Oceans.

Meiofaunal research is typically well-represented at this conference and we expect that this will continue in 2020.

A parallel workshop focused on gathering and analyzing nematode distribution data across all oceans is being organized. More information will be shared once details are finalized.

You can contact Daniel Leduc if you would like to be involved (daniel.leduc@niwa.co.nz).

More Information and Registrations:

<https://www.wcmb2020.org/>

EDUCATION

Agro- and Environmental Nematology INTERNATIONAL MSC



International Master of Science in Agro- and Environmental Nematology

The MSc Nematology of Ghent University (Belgium) has changed its programme and name. The "Postgraduate International Nematology Course (PINC)" has changed into "International Master of Science in Agro- and Environmental Nematology (IMaNema)", focusing on the agricultural and environmental aspects of nematology. Notwithstanding their importance as parasites of plants and animals, certain species are very effective in bio-control programmes with some now used as a mainstream pest management strategy. Moreover, free-living species are important as bio-indicators for environmental monitoring, while others are very informative model organisms.

Next to an extensive theoretical base, practical exercises, lab classes and field work constitute an important part of this 2-year MSc programme. There are several mobility options, including a 2-month stay in Nairobi (Kenya).

Key objectives of the new programme:

- ◆ Disseminate knowledge of nematode effects on crops and their role in disease complexes;
- ◆ Transfer of information to implement sustainable farming practices and improve agricultural productivity under rapidly changing environmental and climate conditions;
- ◆ Facilitate the use of nematodes as biological control agents;
- ◆ Advance the knowledge of nematodes in their role as ecosystem service providers;

The Nematology Research Unit of Ghent University also offers two short satellite training programmes in Ethiopia (Summer Course Nematology) and Kenya (Basic Crash Course Nematology).

More information: www.imanema.ugent.be

International School on Foraminifera Urbino 2020

The 2020 ISF will take place between the 3rd and 22nd of June.

Since its inception in 2006, the International School on Foraminifera in Urbino has been the world's leading training school devoted to the study of foraminifera. The three-week training course is held at the newly-refurbished Collegio Internazionale at the University of Urbino. The school boasts an international teaching faculty who are among the world's leading experts in their respective research fields. The full course consists of approximately 60 hours of lectures and 60 hours of practical work.

The course consists of four modules: Introduction to the Foraminifera, smaller benthic foraminifera, larger benthic foraminifera, and planktonic foraminifera. Course participants have the option of registering for one or more modules, or participating in the entire course. The course includes a one-day field trip to visit the classic micropaleontological localities near Gubbio, Italy.

The course is primarily intended for young researchers at the PhD or MSc stages of their careers and industrial staff working with Foraminifera, Meiofauna, Micropalaeontology, Paleoceanography, Paleoecology, and Climate History. For industrial staff, additional training modules or individual tutorials may be arranged upon request after the course.

More Information:

<http://isf.tmsoc.org/course.html>

WORKSHOPS

2020 Smithsonian Marine Station (SMS) Meiofauna Diversity and Taxonomy Workshop

Dates: June 7-21, 2020

Location: Fort Pierce, Florida, USA

Application deadline: February 1, 2020

Objective: The goal of this course is to help train the next generation of marine invertebrate taxonomists. Specifically, the course is designed to familiarize participants with the vast biodiversity of marine meiofauna through field and laboratory work. A taxon-survey approach will be taken to emphasize the development or enhancement of practical skills essential for collection, identification, characterization, preservation, and molecular analysis of meiofauna. Sampling of diverse habitats near Fort Pierce and the Florida Keys by snorkeling, SCUBA diving, and boat (grabbing/dredging) will provide a wealth of specimens of diverse taxa for our investigations. SCUBA-certified participants will have the opportunity to dive recreationally in the Florida Keys at their own expense/risk, but the course won't involve scientific diving.

Morphological laboratory work will emphasize the preparation of specimens for microscopic examination and sorting to the level possible with light microscopy. Participants will have the opportunity to collect specimens of meiofaunal animals for their own research (if desired).

Molecular laboratory work will begin with training in basic molecular lab skills and DNA barcoding for participants not already familiar with these techniques. Subsequently, participants will learn transcriptome (cDNA) and genomic DNA sequencing library preparation techniques that can be used on single meiofaunal animals.

The course is limited to 8 participants and will be taught in English.

More Information and How to Apply:

<https://www.kocotlab.com/2020-sms-meiofauna-diversity-and-taxonomy-workshop.html>

CALL FOR PAPERS

Deadline Extension - Special Issue on "SeventIMCO, the 17th International Meiofauna Conference: Meiofauna in a changing world "

Journal: Ecological Indicators (ISSN 1470-160X)

Extended deadline: February 28, 2020

We would like to inform you that we extended the deadline for manuscripts submission to the Special Issue of Ecological Indicators entitled: SeventIMCO, the 17th International Meiofauna Conference: Meiofauna in a changing world until 28th of February, 2020. However, this will be the final deadline and after this day it will be impossible to submit manuscripts.

The submission website for this journal is located at: <https://ees.elsevier.com/ecolind/default.asp>

Make sure that you select **VSI:SeventIMCO** when you reach the "Article Type" step in the submission process.

As soon as your article will be accepted it will be published on-line immediately. Final volume of the special issue will only be composed after all the papers being published.

Invitation to contribute to a Special Issue on the "Effects of Environmental Change on Meiofauna"

Journal: Diversity (ISSN 1424-2818)

Manuscript submission deadline: April 30, 2020

We invite you and your collaborators to contribute to a Special Issue of the journal Diversity on the "Effects of Environmental Change on Meiofauna". The Special Issue will include studies from terrestrial, freshwater and marine ecosystems around the world, addressing questions of habitat and ecosystem changes on meiofauna species, populations and communities. We also welcome in situ and laboratory studies that aim to understand the mechanisms underlying meiofauna responses and wider ecosystem consequences of such.

Diversity (ISSN 1424-2818) is an open access journal that publishes original research articles, review articles and short communications. All submissions are subject to independent peer-review. The deadline for article submission is 30 April 2020.

We look forward to working with you on this Special Issue.

Dr. Michaela Schratzberger & Dr. Paul Somerfield

More Information on the Special Issue:

https://www.mdpi.com/journal/diversity/special_issues/environmental_change_meiofauna

AFTER THE CONFERENCE: PARTICIPANTS' BRIEF NOTES

Synthesis of the Networking Discussion held at SeventIMCO about "New Methodological Tools in Meiobenthology"

by Nabil Majdi

Organizing thematic workshops at IMCO was a very good idea, and we were excited to discuss and share our experience. We hope this kind of initiative could be expanded at next IMCO editions because one hour was a bit short to list all available methods and come up with a strong consensus.

We started by noticing that obviously the minute size and cryptic nature of meiofauna poses a problem for some methodological analyses that are commonly used by ecologists. This might be a reason why meiofauna did not receive as much attention as macrofauna or zooplankton (which might be more easily collected and sorted out from bulk material). Because it is worth understanding ontogenetic/intraspecific variability, we also agreed that considering individual variance is now needed to have a better resolution of processes at the meiofauna-scale. **In other words, we urgently need to use analytical methods compatible with single specimen analysis.**

Below are the minutes of our discussion and a non-exhaustive list of analytical methods compatible with single specimen analysis:

1) Molecular-based techniques

Molecular approaches can be used to study horizontal gene transfers (known in rotifers, parasite nematodes, need application in free-living nematodes), and symbioses (e.g. microbiome in *Litoditis marina*). Metabarcoding can provide a quick assessment of the diversity of sediment-dwelling communities and thus, potentially, an efficient tool to compare sites impacted or not by a stress.

PCR is fine, but the rest (e.g. restriction-enzyme associated molecular analysis) needs more material;

Low input DNA kits are expensive, but do not need amplification (compatible with Illumina). It allows to study nematode-symbionts, with low coverage we may get the mitochondriome of the host, the full ribosome and full bacterial genomes (e.g. works in Stilbonematidae). It is possible to get some genome from inside the nematode as well.

Transcriptomics, we can learn a lot from it; **Meta-transcriptomics** add a bit of function but is

very difficult to get correspondences with such long-read lines;

Gene-by-gene knock-out works well so far in model organisms for which genome has been sequenced and several mutants strain are available (see examples in *C. elegans*).

Epigenetic code, degree of methylation as an indicator of some stressors.

2) Some techniques compatible with examination of diet at the specimen-level

Because knowing who's eating whom is a central assumption in ecology, we urgently need to assess the diet of meiofauna at the individual-level. Some standard approaches can be improved and new methods exist making it possible to examine meiofaunal diets at the specimen level.

Molecular gut content using 18S to have an information on diet at the level of a nematode. The problem is you have 99% sequences of the predator. Deep-sequencing can be used to highlight what's in there.

Stable isotopic analysis can be improved (microEA-IRMS about 1 microgram C can be measured).

NanoSIMS (heatmap for stable isotopic composition). Extremely expensive, extremely time-consuming. But Interesting for some questions (e.g. endosymbiosis). Use of DOC (host/symbionts flow of material).

Laser ablation techniques to capture the gazes from a part of nematode.

Maldi-TOF most abundant proteins in the sample (works with the smallest copepods, even cut in 2 pieces). Did not work with small nematodes, but works with larger ones. Mostly ribosomal proteins. Distinguishing cryptic species (chemo-taxonomy), perhaps possible to distinguish life-stages. Train machine learning tool.

Coherent anti-stokes Raman spectroscopy (CARS) can reveal the 3D distribution of targeted compounds (e.g. lipid droplets) in a worm body. Non-invasive technique, relatively inexpensive (only maintenance and electricity costs). Specimen can be preserved in 2% para-formaldehyde and mounted on slides prior CARS.

Confocal Laser scanning microscopy (CLSM), can reveal ingested carotenoid and chlorophyll for each individual. May be used to measure gut pigment content. Works in vivo! Or samples can be fixed with liquid nitrogen in the field, then kept at -80°C before sorting and mounting individuals on slides for CLSM.

EXPEDITIONS

Deep-sea soft-bottom benthic communities: Exploring biogeography and genetic connectivity of SE Pacific Seamounts

Jeroen Ingels¹, Eulogio Soto², Eduardo Quiroga³, Charlotte Seid⁴, Joseph Horacek¹, Natalia Catalán⁵, Jaime Romero⁵ and Dhugal Lindsay⁶.

1 Florida State University, 2 Universidad de Valparaíso, 3 Pontificia Universidad Católica de Valparaíso, 4 Scripps Institution of Oceanography 5 Universidad de Chile and 6 Jamstec.

Between January 27th and March 2nd the oceanographic cruise MR18-06 "East/central Pacific International Campaign (EPIC)" aboard the R/V *Mirai*, JAMSTEC was carried out from Valparaíso, Chile to Tahiti, French Polynesia. Seven study sites were successfully sampled using a Multicore. Core samples with surficial sediments (columns up to 40 cm) were obtained from the Atacama Trench (7742 m depth, Fig. 1) and at the base of different seamounts (depths between 2895 and 4114 meters) located inside the jurisdiction of Marine Protected Areas belonging to Chile as well as in the high seas.



Figure 1. Sediment cores obtained from Atacama Trench at 7742 m depth (Image by Eulogio Soto).

Live-sorting of macrofauna from the upper ~5 cm of a subset of sediment cores yielded very few organisms (average ~2 per core), mainly polychaetes and copepods. Analysis of the remaining cores has not yet been completed.

Meiofaunal samples were preserved in DESS and contained very low abundances of organisms (<170 individuals per core) compared to other seamounts and Atacama trench studies, but with distinct assemblages. Communities were dominated by nematodes (Fig. 2), followed by copepods, polychaetes, tardigrades, gastrotrichs, kinorhynchans, and hydrozoans.

Joseph Horacek, a PhD student with Jeroen Ingels, is currently analysing the meiofauna higher taxa communities and identifying nematode assemblages from each

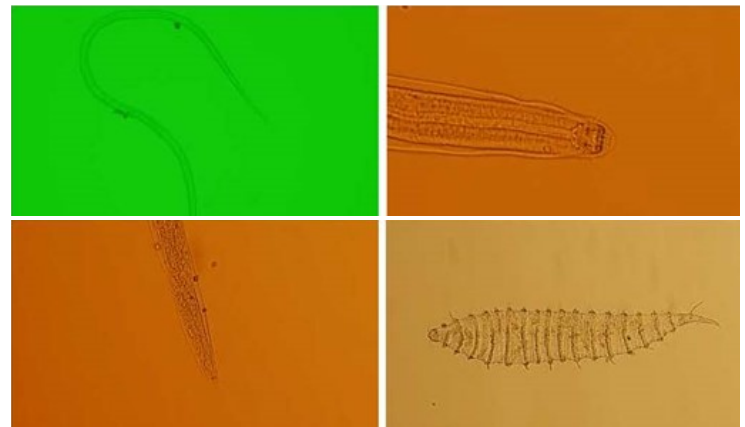


Figure 4. Nematodes found at study site. Clockwise, *Halalaimus* sp., *Metasphaerolaimus* sp., *Monhystrella* sp. and *Desmoscolex* sp. (Photo by Joseph Horacek)

site. The nematodes are also being extracted and vouchered using video and high-resolution images, prior to molecular analyses (Sanger sequencing, 18S and COI) to investigate phylogeny and across-site diversity. He hopes to gain better insight in how seamounts in this remote region may be connected and how their nematode and meiofauna diversity may compare to other seamounts and different deep-sea environments globally.

In this project, also bacterial communities are being analysed using high-throughput sequencing of bacterial 16S rRNA gene fragments from DNA extracted from sediments samples. After taxonomic assignment (OTUs; defined at 99% 16S rRNA gene identity) the structure of the community from 7 samples were analysed, showing a similar composition of the bacterial community at phylum level.

Manganese crusts and nodules were collected at two sites, some of them containing possible evidence of invertebrates (cnidarians, bryozoans) on their surfaces. The geological characterization of these minerals is in progress.

Results from the project consortium are expected to improve our knowledge and understanding of biodiversity, biogeography and geochemistry of seafloor from one of the most unexplored regions in the world.

The overall project is led by Dr. Eulogio Soto (eulogio.soto@uv.cl) and Dr. Eduardo Quiroga (eduardo.quiroga@pucv.cl).

The meiofauna work is being supervised by Dr. Jeroen Ingels (jingels@fsu.edu) and conducted by Joseph Horacek (hjhoracek3@gmail.com) at the Florida State University, Coastal and Marine lab.

EXPEDITIONS

The Hydrodynamics and Habitat Suitability for Meiofauna And Corals (HydroSMAC) Mission

Jeroen Ingels, Sandra Brooke, Amy Baco-Taylor

Florida State University

October 1-10, 2019, a team of scientists from Florida State University (FSU), Florida Agricultural and Mechanical University (FAMU) and NOAA National Centers for Coastal Ocean Science (NCCOS), sailed aboard the [Research Vessel Point Sur](#) and used the Remotely Operated Vehicle (ROV) *Global Explorer* to study benthic communities off the West Florida Escarpment (WFE).

Our mission focused on exploration of deep (>1,000m) habitats of the WFE, with particular emphasis on hard-bottom communities such as corals and sponges, and the meiofauna that live in sediments. Our objectives were to generate new data on distribution of coral species in this understudied area, and to assess whether we can use meiofauna communities as indicators of ambient current regimes. We will work with NOAA collaborators to incorporate our data into their Habitat Suitability Mod-



HydroSMAC team with ROV Global Explorer

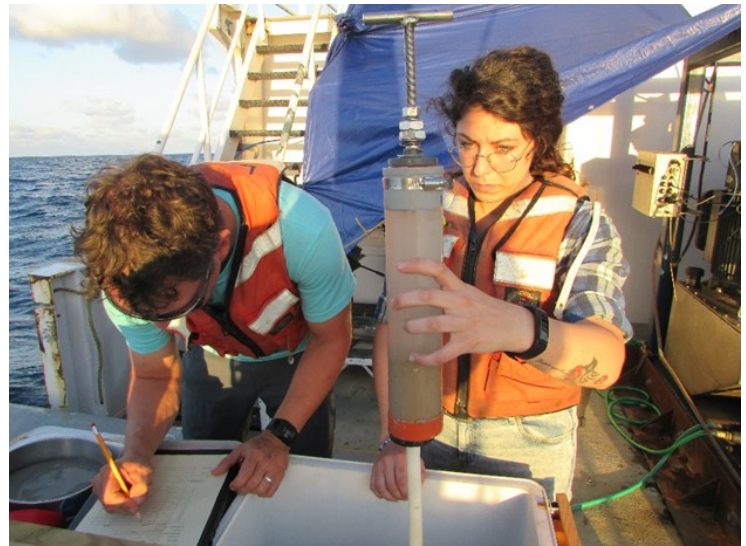
els and to 'ground truth' oceanographic current models.

Background: The eastern Gulf of Mexico (GOM) is dominated by a massive carbonate platform that slopes gently for over 200km offshore before dipping sharply down to abyssal depths. The deep slope and escarpment of this platform is one of the least accessible places in the GOM; it is far from shore, very deep and is subject to high current conditions.

Unlike the northern GOM, there has been little research effort in this region; however, in recent years several cruises (funded primarily by NOAA), conducted mapping and surveying of the west Florida slope (WFS) and in

search of deep coral communities. The cruises revealed extensive deep coral habitats including large *Lophelia* reefs. Most of this work was on the upper slope (350-600m). Further offshore, the slope steepens to form the WFE, which is virtually unexplored.

Variables such as current speed are essential in advancing habitat suitability and oceanographic models. In the project one of the aims is to assess whether the latest Gulf of Mexico hydrodynamic models can be ground-truthed using meiofauna communities on the premises that meiofauna assemblages respond to the physical disturbances that come with near-seafloor currents. The study area is characterized by different current regimes with intermittent high current speeds.



Jeroen Ingels and Gabriella Panto making notes on one of the push cores recovered from an ROV dive

Meiofauna samples: During the cruise, nearly 300 meiofauna samples were recovered, by means of ROV push cores, ROV slurp gun (degraded sponge assemblages), and multicorer. Twenty-four samples have so far yielded over 15,000 meiofauna individuals: nematodes, copepods (nauplii), priapulids, isopods, gastropods, halacarids, ostracods, kinorhynchs, syncarids, oligochaetes and tardigrades, suggesting a relatively high higher-taxon diversity at depths between 1473 and 3220 m in the Florida Escarpment region. Maximum abundance was achieved in a multicore with 2952 individuals (=404.5 ind. 10cm⁻²) in the top 5cm.

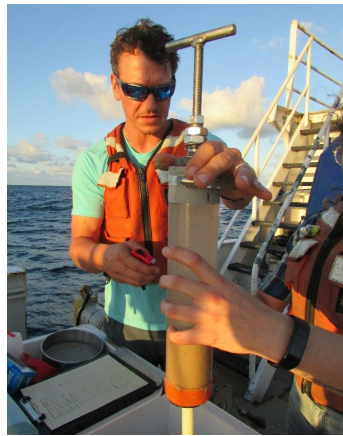
Further processing and analysis of the community samples will be conducted in 2020, as well as metabarcoding on recovered sediment samples. The combination of morphological and metabarcoding approaches offers a powerful tool for investigating benthic communities and

EXPEDITIONS

assess diversity, as well as potentially discover taxa that have not been identified through morphological methods only (avoiding underestimations).

We will also analyze benthic (live and dead) foraminifera assemblages across 2cm slices in cores from each station, as well as grain size and organic matter.

In a final step, all the meiofauna data will be used to correlate with the hydrodynamic model data for the sampling areas to assess how current speed predictions may be reflected in meiofauna and nematode assemblages. We know that physical seabed disturbance can have an effect on the infaunal assemblages, resulting in modification of the assemblage with abundance increases of typical disturbance-tolerant genera suggesting some ranking of susceptibility to disturbance or recovery based on species-specific properties such as population growth rates and tolerance to environmental change, as well as performance in competitive ecological interactions. Taxonomic, morphological, trophic, and life history trait (K-r strategies) analyses will be used to infer the influence of current and disturbance regimes.



Measuring the sediment depth of the push core before slicing.



Consequences of scientists getting too much or not enough mud from the multicorer during a cruise

This study is being funded by NOAA's Office of Ocean Exploration and Research, NA180AR0110285.

For more information please visit the website <https://marinelab.fsu.edu/hydrosmac/> and look for #hydrosmac on social media. For questions, please contact Jeroen Ingels at jingels@fsu.edu.

UPCOMING:

Meiofauna sampling cruise in the Weddell Sea, Antarctica in November 2020

Kevin Kocot

University of Alabama

Kevin Kocot would like to share that his lab will be conducting a meiofauna (and small macrofauna) sampling cruise in the Weddell Sea in Antarctica in November 2020 and another one in March 2023 in the Davis Sea as part of his NSF CAREER project focused on aplacophoran molluscs.

Aplacophora is a diverse group of shell-less, worm-shaped marine molluscs. Although they are not common at intertidal depths, aplacophorans are abundant and ecologically important members of deep-sea communities. Around 400 species have been named, but it is estimated that tenfold more are awaiting discovery. They are of interest because aplacophorans along with chitons form the sister group to all other Mollusca, which is the second most species-rich animal phylum and exhibits some of the most dramatically disparate body plans in the animal kingdom. Unfortunately, in recent years, the number of taxonomists working on this already understudied group has dropped significantly as three of the world experts have passed away. The NSF CAREER project "Revolutionizing Biodiversity and Systematics Research on Aplacophora (Mollusca) and Training the Next Generation of Invertebrate Systematists" will resurrect aplacophoran biodiversity and systematics research through training of a new generation of scientists and answer fundamental questions about the biodiversity and evolution of these understudied animals.

Some of the goals are to identify thousands of specimens, describe >50 new species, characterize the faunas of particularly diverse and understudied regions, and develop a DNA barcode library to help future non-experts. Specimen identification will employ a novel workflow combining light microscopy, micro-CT, scanning electron microscopy, and DNA barcoding - all from the same specimen. Further, the first aplacophoran genomes will be sequenced, enabling target-capture phylogenomics to sample hundreds of molecular markers from species broadly spanning the diversity of the group.

This project is jointly supported between the Division of Environmental Biology (Systematics and Biodiversity Sciences Cluster) and the Office of Polar Programs.

For more information or questions, please contact Kevin Kocot at kmkocot@ua.edu.

CONNECTING MEIOBENTHOLOGISTS AROUND THE WORLD

IAM: How we can connect with the meiofauna community

by Jeroen Ingels (IAM Exec. Committee)

At the IAM General Assembly during SeventIMCO in Évora in July 2019, several ways of increasing the communication between meiofauna scientists, collaborators, students, and enthusiasts worldwide were discussed and are being put to action. Here are a few ways to connect and spread information as members of this global community:

- ◆ **IAM website**, www.meiofauna.org, which holds all Psammonalia editions since 1966;
- ◆ **Psammonalia**, this IAM Newsletter. Comes out twice a year. A call for news and contents is asked to all the members for each issue;
- ◆ **Facebook IAM page**, if you would like to share a post related to meiofauna on this page, do send us a FB message on the page with the link and some information;
- ◆ **Twitter @IAMeiofauna**, with short news and updates. If you're on twitter, come follow and like our posts, retweet and comment. Use the [#meiofauna](https://twitter.com/#!/meiofauna) to better reach other members;
- ◆ **SLACK**, a closed workspace for collaborators, colleagues, project members, etc. We have an [IAM SLACK workspace](#).

We are aiming for a collective social media effort to increase meiofauna's digital presence across social media platforms and to keep our community connected and dynamic throughout the 3 year gaps between IMCO's. We can only do this with your help and collaboration.

If you'd like us to share your most recent article, send us a message, if you have some great microscopy pictures of our tiny meiofauna monsters that you'd like to share with the world, let us know.

Participate, get involved and share with us any and everything about the meiofauna topicality that you think should be shared on our platforms.

IAM SLACK Workspace



SLACK may be new and unfamiliar to many people, but it is designed to facilitate communication and collaboration between global (in this case IAM) members and easy to use. Invites to

join have been sent to all the participants at SeventIMCO and to the IAM members list. Please consider joining and of course, use sensibly.

Here are some notes on how SLACK works and how it can be useful:

- ◆ SLACK can be used on your browser or you can download on computer or mobile devices. Downloading the app or desktop version is recommended for better experience;
- ◆ "Channels" are basically themed forums with a particular topic. Members can post messages and documents to share in channels and when people reply to a message, they can choose to make it a thread, a conversation in the channel;
- ◆ You can send direct messages to people in SLACK, either individuals or a group of members (much like social media chats); that's right, you can send a message to any or all meiobenthologists that join SLACK;
- ◆ We are thinking of potentially adding the Google Drive and Calendar apps. Which would allow a centralized area to share documents. Currently you can drag and drop any document in a channel, which will become visible to any member;
- ◆ There is a twitter channel, where all the IAM tweets and mentions to IAM can be seen;
- ◆ SLACK represents an opportunity to share your work with meiobenthologists, by sharing papers, news or other materials related to meiofauna;
- ◆ It is a great place to start discussion forums for specific topics, like the one suggested by Matthew Lee for South American Meiobenthologists;

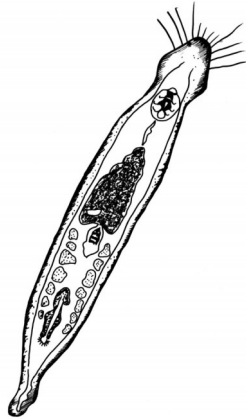
We hope this platform will facilitate communication between all IAM members and meiobenthologists worldwide.

CONNECTING MEIOBENTHOLOGISTS AROUND THE WORLD

Hi there, Gnathostomulids anyone?

by Wolfgang Sterrer

At 79 years of age, retired, and working now from home in England I continue to be fascinated by the global diversity of Gnathostomulida, a phylum with about 100 known species (of which I described 70). There are still major unexplored regions, such as both sides of South America south of the equator, all polar areas, as well as most Asian and Australian coasts.



These slow-moving ciliated worms are much more widely distributed than we thought, occurring mostly in tidal to subtidal detritus-rich sand such as between seagrasses, mangroves, coral reefs or in coastal lagoons.

I would love to get specimens from wherever, and collaborate with the finder. Methods of sample collecting and extraction are described in Sterrer (1998), which can be found on Researchgate (https://www.researchgate.net/publication/271443447_Gnathostomulida_from_the_subtropical_Northwestern_Atlantic).

The easiest start would be to make live photographs, and a permanent slide of a specimen by letting it sit, in a drop of magnesium chloride, under a cover slip until it is squeezed enough to show internal organs such as jaws, stylet and sperm. Then add a little formaldehyde, seal the edges with varnish – et voilà! You have a specimen that is ready to be shipped.

(If you also made scale drawings of the living animal, and preserved more specimens for DNA studies you may be in for a new species publication – a great way for a student to get started).

Let me know at westerrerr@gov.bm if and when it works!

In a similar vein (and belatedly!) here is a list of participants at the 2018 Flatworm Symposium in Alghero who expressed an interest in having specimens sent to them:

Happy Global Worming!

Name	Email	Taxa
Tom Artois	tom.artois@uhasselt.be	Rhabdozoa in general
Marco Curini-Galletti	curini@uniss.it	Proseriata
Ana Maria Leal-Zanchet	zanchet@unisinov.br	Triclad
Marlies Monnens	marliesmonnens@hotmail.com	Neodalyellida (Rhabdozoa)
Julian Smith III	smithj@winthrop.edu	Platyhelminthes (Carolinids, Caribbean, Bermuda)
Wolfgang Sterrer	westerrerr@gov.bm	Gnathostomulida
Maarten Vanhove	marten.vanhove@uhasselt.be	Monogeneans from fish (esp. Dactylogyridae, Gyrodactylidae)
Niels van Steenkiste	niels.vansteenkiste@botany.ubc.ca	Anything from British Columbia

From the editor of *Zootaxa* / marine nematodes

by Oleksandr Holovachov

Over three years ago, I accepted the editorship position and began working with the manuscripts on systematics of marine nematodes submitted to the [journal Zootaxa](#). It has been an interesting challenge and a great learning experience, but not without its disappointments and frustrations. With this letter, I would like to speak to current and prospective contributors to the journal on how to make editorial processing of their submissions more efficient and get their manuscripts accepted for the publication faster than the current rate. Granted, it often takes a long time to get the manuscripts reviewed, but it is not the only, and sometimes not the main reason for delays with editorial processing. Unfortunately, the way many manu-

CONNECTING MEIOBENTHOLOGISTS AROUND THE WORLD

scripts are written and prepared at the time of submission, not meeting many or all the technical and linguistic requirements of the journal, have considerable impact. Originally, I thought that all the technical details could be addressed by the authors after the review process. And sometimes it is being done exactly this way. However, more commonly the manuscript has to be sent back and forth multiple times between the editor and the corresponding author, until it is ready to be accepted. Hence, the need for this letter.

Authors must be aware that any manuscript submitted to me for the consideration in the journal *Zootaxa* that does not satisfy all the requirements outlined in the [instructions](#) and the criteria outlined below will be returned back to the authors immediately, without going through the review process.

Formatting of the text should be done as close to the style of *Zootaxa* as possible, but without using built-in styles, complicated spacing, unusual and hidden symbols, text boxes, hidden hyperlinks, macros, etc. Use of page breaks by the authors is encouraged, whereas line breaks should not be used to separate various sections of the manuscript to different pages. Similarly, spaces and tabs should not be used to indent first lines of the paragraphs. Authors should pay close attention to when to use hyphen and when to use en-dash. The email of the corresponding author should be the same as the email used for original submission and all the correspondence. If your supervisor or project leader must be a corresponding author, please make sure this person will respond when the proofs are sent – proofs are prepared by the desk editor who will use the email of the corresponding author to communicate, even if the original submission and all the editorial correspondence was done with another author. Authors must also remember to add the Running title to the first page of the manuscript.

Main text of the manuscript should be written in clear and grammatically correct English language – neither editors nor reviewers are able to provide linguistic assistance. The rules of the International

Code of Zoological Nomenclature must be followed without any exceptions. Only generally accepted in nematode systematics abbreviations that do not require special explanations (such as indices of de Man) can be used. Non-standard abbreviations must be avoided in both the main text and the tables for ease of comprehension and convenience – there are numerous examples when different authors, and even the same author in different articles, used different abbreviations to describe the same character, or used the same abbreviation to describe different characters. Instructions to authors give a clear example on how to prepare identification keys. If reference lists are created with one of the reference managers, authors must make sure that they are not just formatted according to the journals requirements, but also do not have any hidden links. Tables should be placed at the end of the manuscript, on individual pages; with all borders as thin lines; anchored as a symbol, without text wrapping. Measurements in tables should not be given for individual specimens; instead, average, standard deviation and range of values should be given whenever appropriate.

Illustrations must meet all the criteria outlined in the instructions and must be submitted as flattened raster images. PDF or JPG files are acceptable for the original submission, but TIFF files are required when the manuscript is returned to the editor after incorporation of reviewers comments. Authors are encouraged to prepare the most detailed and highest quality illustrations they can – there should be no discrepancies between what is drawn in the figure and what is written in the text of the descriptions. If the illustrations contain any copyrighted material, the author must be able to provide the proof that the material is reproduced legally – otherwise, authors are advised to redraw the copyrighted material that they want to republish.

It is my sincere hope that this short note will help the authors when preparing their next submission and will streamline the editorial process starting from the year 2020.

NEW IAM MEMBERS

Xiuqin Wu

Ghent University, Germany

Research Interests: Meiofauna ecology, Nematode related topics

Marie Zhai

Masaryk University, Czech Republic

Research Interests: Harpacticoida, Ostracoda, Freshwaters, Springs, (Meta)community ecology

Annalisa Franzo

National Institute of Oceanography and Experimental Geophysics, Italy

Research Interests: Free-living nematodes, Biological traits, Bioindicators, Marine shallow environments

Luuk van der Heijden

University de La Rochelle, France

Research Interests: Marine ecology, Meiofauna, Food web, Ecosystem functioning, Trophic markers

Sofia Pinto Ramalho

University of Aveiro, Portugal

Research Interests: Harpacticoida, Ostracoda, Freshwaters, Springs, (Meta)community ecology

Mauricio Shimabukuro

Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER), France

Florian Scharhauser

University Vienna, Austria

Research Interests: Marine free-living nematodes, barcoding, ecology

Nabil Majdi

Bielfeld University, Germany

Research Interests: Nematodes, Freshwater Ecology, Food webs, Body-size distribution

Nabil Majdi

Bielfeld University, Germany

Research Interests: Nematodes, Freshwater Ecology, Food webs, Body-size distribution

Hong Zhou

Ocean University of China, China

Research Interests: Nematode biodiversity, Molecular ecology

Amanda Heidt

University of California, Santa Cruz, USA

Research Interests: Molecular ecology, Invertebrate zoology, Science communication

Nancy Fabiola Mercado-Salas

Senckenberg Research Institute, Germany

Research Interests: Copepoda, Phylogeny, Barcoding, Metabarcoding, Biodiversity assessments

Sahar Khodami

Senckenberg Research Institute, Germany

Research Interests: Molecular approaches for meiofauna diversity assessment

Lenke Tödter

Centrum für Naturkunde, Germany

Research Interests: Meiofaunal organisms, Ecology

Julie Neury-Ormanni

Irstea-Bordeaux, France

Research Interests: Micromeiofauna, Ecotoxicology, Benthic community, Biofilm, Nematodes

Jisu Yeom

Hanyang University, South Korea

Er Hua

Ocean University of China, China

Research Interests: Nematode ecology and taxonomy

Lizhe Cai

Xiamen University, China

Research Interests: Benthic Ecology, Community structure and ecology, Invasive Species, Taxonomy

José de Olivera

Research Interests: Evolutionary history of meiofauna and invertebrates in general

Peter Bowler

University of California, Irvine, USA

Research Interests: Benthic Ecology, Community structure and ecology, Invasive Species

NEW MEIOFAUNA PHD STUDENTS

Joseph Horacek

PhD Student

Florida State University,
Biological Sciences
Department



I am a second year PhD student at Florida State University, Biological Sciences Department, under supervision of Dr. Jeroen Ingels (@Meiolab, FSU Coastal and Marine Lab) and for my dissertation I am investigating meiofaunal assemblages (density, higher taxa community composition) and meiofaunal nematode assemblages (density, abundance, diversity, community composition) as well as genetic connectivity between disparate populations of meiofaunal nematodes.

In February, I was able to go on the EPIC cruise aboard the RV Mirai to take samples from the Atacama Trench and different seamounts in the Southeast Pacific Ocean. I also plan to take sediment samples from Apalachee Bay, Florida. Initial results indicate that the densities of meiofauna at these seamounts are much lower than is normally expected for deep-sea sediment. In 2018 I received an M.S. in Biology from Winthrop University (South Carolina, USA), and my dissertation focused on whether cryptic speciation had occurred for two different morphospecies of meiofaunal flatworms in North Carolina and Florida. I found evidence that one morphospecies (Onslow Bay, North Carolina) did not undergo cryptic speciation, and that another morphospecies comprised in fact two different cryptic species: one in Onslow Bay (North Carolina) and one in Northwest Florida.

Azadeh Gharakhani

PhD Student

Tarbiat Modares University,
Iran



Azadeh began working on her PhD entitled "Identification of marine nematodes in tidal regions of the Persian Gulf, Iran" in September 2016, under the supervision of Prof Ebrahim Pourjam and Dr. Majid Pedram.

Her research is leading to the discovery of several new species which she is in the process of describing using both morphological and molecular data. Very little is known about the nematode fauna of the Persian Gulf and her thesis will make a valuable contribution to the knowledge of nematode diversity in the region. Azadeh also has experience in the taxonomy of plant parasitic nematodes, including from mangrove forest.

REMEMBERING

Howard Platt

**Nature Conservationist,
Nematologist**

Last August, we received the very sad news that our dear Professor Howard Platt died, after a protracted, courageous and characteristically noble battle against cancer.



To the international meiofauna community, Howard was perhaps best known for his extensive contributions to the scientific literature on nematodes. Howard co-authored the definitive identification synopses (3 volumes) to free-living marine nematodes with Richard Warwick (vols 1 and 2) and also Paul Somerfield (volume 3).

He headed up the nematode section at the Natural History Museum and published prolifically on taxonomy and ecology of marine nematodes. Howard is a former Head of Conservation Science for the Northern Ireland Environment Agency (NIEA). He represented Northern Ireland on many UK and European advisory bodies and before joining the Joint Nature Conservation Committee in the UK, Howard was well known from his role on the Chief Scientists' Group in JNCC.

Howard previously held posts with the British Antarctic Survey, the Natural History Museum and as a Director of an environmental consultancy company. Howard also served as a Council member of Ulster Wildlife and Deputy Chair of the Council for Nature Conservation and the Countryside.

We take this chance to remember him for his seminal contributions to our society through his many works most of us are familiar with.

Jeroen Ingels

(Read Professor Richard Warwick's personal reminiscences of Howard, in the final pages of this newsletter)

Jacques Soyer

**Marine Ecologist,
Meiobenthologist**

8 August 1938 - 16 December 2019



Jacques started his career as Assistant-Professor of Pierre et Marie Curie – Paris 6 University at Villefranche-sur-Mer. In the late 60s, he moved to Banyuls-sur-Mer in another Mediterranean Station of the same university where he was appointed Professor in biological oceanography.

He taught benthic ecology to university students, supervised masters and doctoral students. He studied the benthic biometrics of the continental shelf both in Banyuls-sur-Mer and Kerguelen Islands (Antarctic).

He specialized in benthic copepods, and between 1963 and 1975, described many new harpacticoid species. In the mid-80s, he developed the multidisciplinary research program ECOMARGE (France-JGOFS) to study the ecosystem of continental margins in the North-Western Mediterranean, and better understand the relationship between trophic inputs (particle fluxes) and meiofaunal abundances.

The second part of his career was more administrative. He directed the Observatoire Océanologique de Banyuls-sur-Mer (OOB) between 1976 and 1989, and the Observatoire Océanologique de Villefranche-sur-Mer (OOV) between 1989 and 2001. He retired in 2002.

*Laurence Guidi-Guilvard,
one of his former PhD students*

RECENT LITERATURE

NOTE: Although there's been an effort to compile them all, this is not a complete list of ALL meiofauna related literature of 2019.

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Howard Martin Platt - some personal reminiscences

by Richard Warwick

Howard lived and appreciated a full and fulfilling life, a small part of which I had the pleasure and privilege to share. This essay is not intended as an obituary (Jeroen has provided this elsewhere in this issue of *Psammonalia*), but rather to provide a few affectionate glimpses of some of my experiences with Howard that might provide an insight, not only into his scientific contributions, but also to his *joie de vivre*, humour, kindness, stoicism, and why I will miss him so much.

On 15th August 2019, just six days before he died, Howard posted the following farewell message on Facebook:

"Well it's been a blast. Working for excellent organisations and visiting amazing places. But more important than all, meeting and working with wonderful people many of whom have become close friends.

Having said that, much more than all, what has given me more pleasure by far have been my three children - Kerry, Ronan and Conor. To which I should add granddaughter Isla and K, R and C's partners Andy, Rachel and Louise and my 'young' brother Nigel.

But now it's time for me to say goodbye to you all. Today diagnosed with cancer number three which is aggressive and stopping from eating. No treatment worth considering and no strength to continue fight. So I've been given weeks - i.e. not days or months.

So that's it! Not the end but the completion of a journey.

Thanks everyone and Tera!"

(I assume that "Tera" meant "ta-ra", a colloquialism for goodbye originating in the north of England where Howard was born).

Howard and I first met at a very early stage in our careers, both fresh from completing PhDs on the ecology of freeliving marine nematodes, Howard in Strangford Lough in Northern Ireland and me in the Exe Estuary, South West England. Inevitably, we had both become embroiled in the problems of species identification, the taxonomic literature at that time being sparse and scattered. Our kindred interests and sprits rapidly evolved from early scientific collaboration into a lifetime of friendship.

We collaborated closely in those early years, and subsequently Howard went on to take up a very successful career in nature conservation, as documented in his obituary in this volume of *Psammonalia*, and my interests broadened to wider aspects of ecology (but not abandoning nematodes altogether). We first worked directly together in July 1971, where we spent an idyllic few weeks working with our colleague and friend Pat Boaden on the ecology of the meiobenthos in a sandy beach at Firemore Bay in Loch Ewe among the stunning scenery of Wester-Ross in Scotland, facilities of a field laboratory being made available to us there by Alasdair McIntyre. We discovered and described many new and interesting species of nematodes, but perhaps our pride and joy was a new genus and species *Gairleanema anagremilae* Warwick & Platt, 1973. It is a little known, and unpublished, fact that both the generic and specific names of this species are anagrams of the combined names of Howard's (then) wife Angela and my (still) wife Maire, the name being particularly apt in view of the pair of large rounded mammiform protuberances that constitute the preloocal supplements in the male – who says nematology can't be fun!

Although we spent some time working together in each other's laboratories, Howard at the Natural History Museum in London and me in Plymouth, some of our best experiences were at the triennial International Meiofauna Conferences of the IAM and the biennial Symposia on Aquatic Nematodes

(now discontinued). Aquatic nematologists had no formal organisation or society but the biennial gatherings enjoyed the strong and loyal international participation of a like-minded family of scientists. Two such symposia had particular significance for Howard and me. The 1979 symposium was hosted by Sebastian Gerlach in Bremerhaven, and below is a photo of Howard in conversation with Prof Gerlach at that symposium, in which Howard has whimsically imagined the conversation that might have taken place had the location been different!



The two of us spent a few rainy evenings in Bremerhaven bars over a beer or two, resulting in discussions that resulted in a change in the course of our research activities for the following few years. We had both become disillusioned with the use of dichotomous or tabular keys and discussed the possibility of producing pictorial keys that would enable the user to identify nematodes in the same way as we might identify, say, a bird or a butterfly, i.e. by scanning through illustrations until the closest resemblance to our specimen was arrived at. We challenged each other to produce a sketch of a particular nematode genus on the back of a beer-mat that would unequivocally correspond to that genus and no other. These caricatures subsequently evolved into the pictorial keys to the world genera that preface the three volumes on free living marine nematodes in the "Synopsis of the British Fauna" series, which also utilised many of the drawings and descriptions of British species that we had produced in our respective PhD theses. (On reflection, it does seem rather appropriate that these pictorial keys were initiated on what was, at one time, the only known habitat of the nematode now known as *Panagrellus redivivus*. In describing the diversity and abundance of nematodes in 1914, Cobb referred to a unique species occurring in "the felt mats on which the Germans are accustomed to set their mugs of beer, and has been found in no other habitat". At the present time, *Panagrellus redivivus* is commonly referred to as the "beer mat nematode" and also the "vinegar eelworm" as it favours acetic conditions– I hasten to add that this is not a comment on German beer!).

Howard and I organised the 1981 Symposium on Aquatic Nematodes in Plymouth, and in 1983 it was hosted in Roscoff by Guy Boucher and Nicole Goubault. It was at that meeting that Franz Riemann presented us with a trophy, the Riemann Cup for Popular Nematology, which acknowledged our recent article on the significance of free-living nematodes to the littoral ecosystem. Although we recognised that this was a tongue-in-cheek gesture (another English idiom - something humorous expressed in a mock serious manner) we were secretly rather chuffed (pleased) about it! For the next 32 years I was the custodian of this trophy until, in June 2015, Howard spent a nostalgic few days with Maire and me at our house in Cornwall. The picture below depicts the handover of the trophy, posted by Howard on Facebook together with his (again tongue-in-cheek) account of the event.



"BREAKING NEWS. IMMEDIATE. After 32 years, the Riemann Cup for Popular Nematology, awarded at Roscoff, France to Richard Warwick and Howard Platt for their seminal papers on the importance of free living marine nematodes in marine ecosystems, it passes from Richard to Howard at small ceremony in Pillaton, Cornwall on 23rd June 2015. It is now Professor Platt's to hold for the next 32 years before handing back to Professor Warwick in 2047."

Howard's stay us that year was one of several visits he made from his home in Northern Ireland to friends in England. He made light of the condition of his health, but must have suspected then that it would be the last time he would see us. Sadly his suspicions were well founded, but neither of us would have made it to 2047.

INTERNATIONAL ASSOCIATION OF MEIOBENTHOLOGISTS

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The International Association of Meiobenthologists is a non-profit scientific society representing meiobenthologists in all aquatic disciplines. The Association is dedicated to the dissemination of information by publishing a quarterly newsletter and sponsoring a triennial International Conference. The newsletter, *Psammonalia*, is published mid-month in January and August. Membership is open to any person who actively is interested in the study of meiofauna. Annual membership dues are EU\$10 (US\$10) and payment for up to 3 years in advance is possible. New members will receive *Psammonalia* beginning with the January issue of the year after joining. Additional contributions to the **Bertil Swedmark Fund**, used to support student attendance at the triennial conferences, is encouraged.

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