

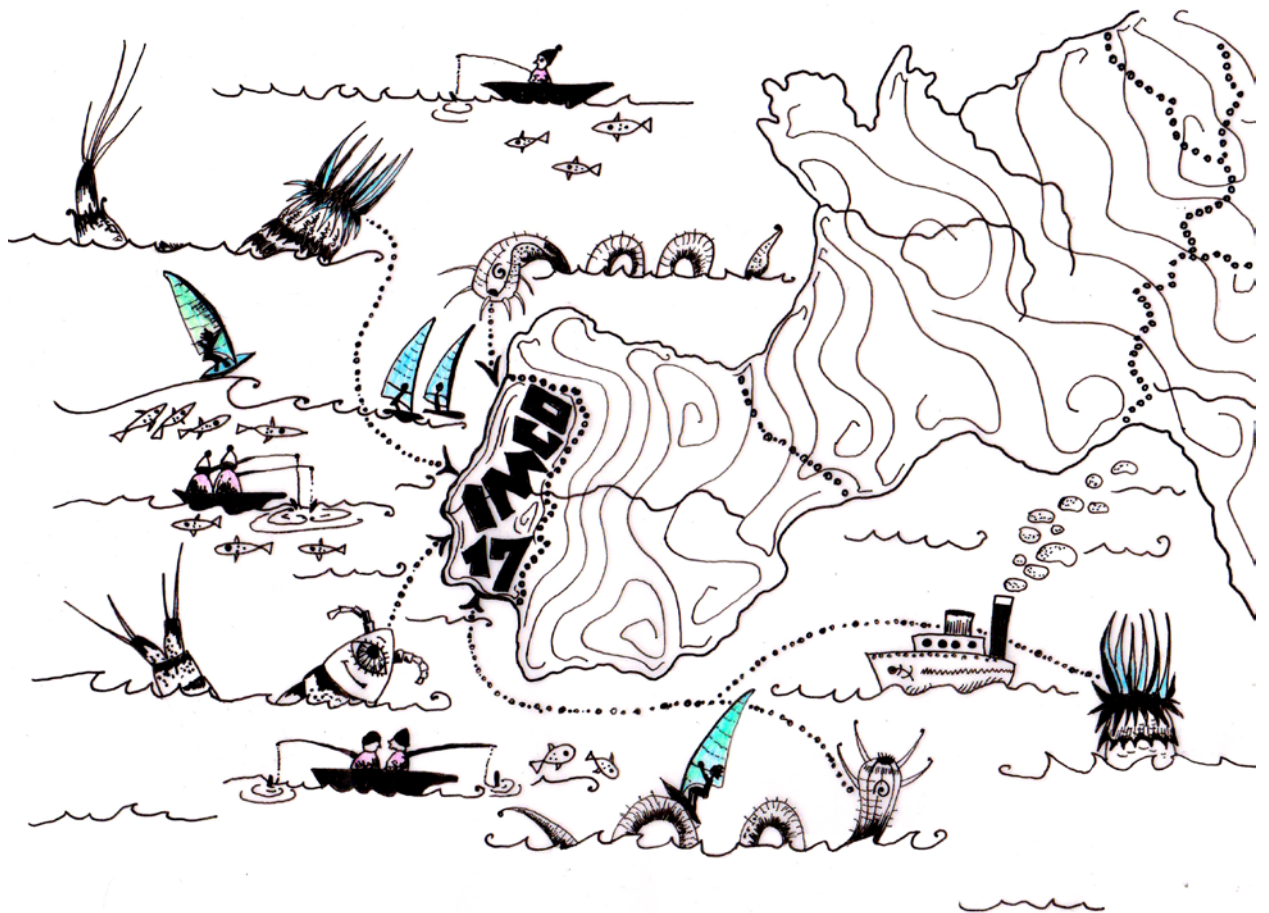
# PSAMMONALIA

The Newsletter of the  
**International Association of Meiobenthologists**

Number 170, February 2019



Composed and Printed at  
Lab. of Coastal Benthic Ecology  
P.P. Shirshov Institute of Oceanology RAS



**DONT FORGET TO RENEW YOUR MEMBERSHIP IN IAM!**  
THE APPLICATION CAN BE FOUND AT THE LAST PAGE

This newsletter is mailed electronically. Paper copies will be sent only upon request

## Executive Committee

### Vadim Mokievsky, Chairperson

P.P. Shirshov Institute of Oceanology, Russian Academy of Sciences, 36 Nakhimovskiy Prospect, 117218 Moscow, Russia.  
vadim@ocean.ru

### Wonchoel Lee, Past Chairperson

Lab Of Biodiversity, (#505), Department of Life Science, College of Natural Sciences, Hanyang University, Seoul, South Korea.  
wlee@hanyang.ac.kr

### Ann Vanreusel, Treasurer

Lab Morphologie, Universiteit Gent, Ladengancjstraat 35, B-9000 Gent, Belgium.  
ann.vanreusel@UGent.be

### Jyotsna Sharma, Assistant Treasurer

Department of Biology, University of Texas at San Antonio, San Antonio, TX 78249-0661, USA. Jyotsna.Sharma@utsa.edu

### Hanan Mitwally (term expires 2019)

Faculty of Science, Oceanography, University of Alexandria, Moharram Bay, 21151, Egypt .  
h\_mitwally@yahoo.com

### Gustavo Fonseca (term expires 2019)

Universidade Federal de São Paulo, Instituto do Mar, Av. AlmZ Saldanha da Gama 89, 11030-400 Santos, Brazil. gfonseca@unifesp.br

### Daniel Leduc (term expires 2022)

National Institute of Water and Atmospheric Research, Private Bag 14-901, Wellington, New Zealand. Daniel.Leduc@niwa.co.nz

### Nabil Majdi (term expires 2022)

Bielefeld University, Animal Ecology, Konsequenz 45, 33615, Bielefeld, Germany.  
nabil.majdi@uni-bielefeld.de

## Ex-Officio Executive Committee (Past Chairpersons)

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### Er Hua

College of Marine Life Science, Ocean University of China, 5 Yushan Road, Qingdao 266003, P.R.C. huaer@ouc.edu.cn

### Marten Sørensen

Natural History Museum, Denmark.  
mvsorensen@snm.ku.dk

### Samuel Gomez

Universidad Nacional Autónoma de México. Joel Montes Camarena s/n, 82040 Mazatlán, Sinaloa, México.  
samuelgomez@ola.icmyl.unam.mx

### Jeroen Ingels

Plymouth Marine Laboratory, Prospect Place, The Hoe, Plymouth PL1 3DH, UK.  
jein@pml.ac.uk

### Cheng Chen

University of Malaysia Sabah, Malaysia.  
chengann@ums.edu.my

Editor in Chief:  
*Vadim Mokievsky*  
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## Editorial

Dear Colleagues, members of International Association of Meiobenthologists and all who are interested in microscopic creatures, First, in this issue I am glad to welcome you to the 17<sup>th</sup> International Meiofauna Conference. It will held in Evora, Portugal this summer. Helena Adao and her team are doing a lot of preparatory work for the conference. I believe, this meeting will be interesting and productive. More information about the conference you will find on the first pages of the issue and on the web-site of the Conference: [www.seventimco.uevora.pt](http://www.seventimco.uevora.pt)

We are glad to announce students’ travel grants to support their interest to study meiofauna.

Unfortunately, we still have a great problem with our web-site, it still does not work. Several other resources are available for communications (a lot of thanks to Jeroen, who created and keep them working!). Twitter and Facebook are most popular among them:

[@IAMeiofauna](https://twitter.com/IAMeiofauna)  
<https://twitter.com/IAMeiofauna>

@InternationalAssociation  
ofMeiobenthologists

<https://www.facebook.com/InternationalAssociationofMeiobenthologists/>

Many interesting events, expeditions, projects and meetings took place this autumn and winter. Colleagues sharing information about some of them in the next pages. The number of papers on different aspects of the biology of meiofauna increases with the time, and some of them I suggest to put in thematic collections.

No new members came since last issue of *Psammonalia* was published. I hope, this will be improved during the conference and we will welcome new meiofauna specialists during the meeting.

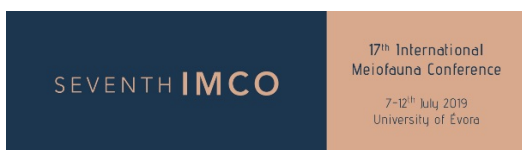
I have to thank all of members of Association who help me with preparation of this issue.

Yours

*Vadim Mokievsky*

# 17<sup>th</sup> MEIOFAUNA CONFERENCE SeventIMCO

7-12th July 2019 (Évora, Portugal)



Dear all,

The organizing committee of the 17<sup>th</sup> International Meiofauna Conference (**SeventIMCO**) would like to invite you to participate in the Conference.

From 7 to 12 July 2019, the University of Évora, the Marine and Environmental Sciences Centre (MARE) and the International Association of Meiobenthologists (IAM) will be organizing the 17<sup>th</sup> edition of the Meiofauna Conference (**SeventIMCO**) in Évora, Portugal.

Meiofauna play important roles in freshwater, estuarine and marine ecosystems. Complex interactions between meiofauna and their environment, including other organisms, create an intricate web of relationships that collectively affect a range of ecosystem processes, including those that are valued by society. Scientists are increasingly challenged to translate findings from empirical studies into evidence that supports ecosystem management. The 17<sup>th</sup> International Meiofauna Conference (**SeventIMCO**) addresses this challenge by encouraging scientists to think beyond and across disciplines and ecosystems, to embrace innovative technologies and approaches, and to consider the impact and uptake of their research findings beyond the scientific community. In light of the UN's 2030 Sustainable Development Agenda, participants are particularly encouraged to consider and discuss the contribution meiofauna studies can make to support management decisions regarding the sustainable use of the oceans, seas and freshwater ecosystems.

The program includes inspirational speakers, and the broad themes that will be discussed during the conference include:

➤ **Theme:** Advances in taxonomy, phylogeny and biogeography - Biodiversity of marine tardigrades: from intertidal to abyssal depths;  
**Keynote:** Professor Paulo Fontoura.

➤ **Theme:** Meiofauna biodiversity patterns and ecosystem interactions (including Freshwater, Estuarine Coastal and Ocean, Deep sea and Frontiers ecosystems) **Keynote:** Dr Nabil Majdi - Ecology of meiobenthos in freshwater ecosystems - an overview;  
**Keynote:** Dr Jeroen Ingels - Where are we headed with meiofauna ecological research in deep-sea and other frontier ecosystems, and can we use meiofauna to address big marine science questions?

➤ **Theme:** Meiofauna in a changing world: meiofauna response to natural and anthropogenic pressures;  
**Keynote:** Dr Federica Semprucci - Quantifying the relative impacts of human activities on the coastal systems using free-living nematodes;

➤ **Theme:** Methodologic advances in meiofaunal studies: New tools and analytical and experimental approaches;  
**Keynote:** Dr Sofie Derycke

➤ **Theme:** Meiofauna and Science communication to Society  
**Keynote:** Dr Michaela Schratzberger

At the Conference website [www.seventimco.uevora.pt](http://www.seventimco.uevora.pt) and twitter [@ImcoSevent](https://twitter.com/ImcoSevent) you can find more information. Updates will be regularly performed.

You may contact us through the e-mail: **17imc2019@uevora.pt**

Please share this event with your global network using your newsletters, websites and social media.

We hope to see you in Evora,

*Helena Adão*

**The instructions for abstract submission is on the webpage of seventIMCO.**

**Instructions:**

Title: Maximum 150 characters (including spaces).

Authors: Use numbers to designate author's affiliation; use author's first name and then their last name. Example: John Smith<sup>1</sup>, Mary Silva<sup>2</sup> and Mike Davis<sup>3</sup>.

Affiliation and contact information: Provide the affiliation of all authors and insert only the e-mail of the author to whom correspondence should be addressed.

Abstract: Maximum 2000 characters including spaces, text only, no images, tables or special characters.

Keywords: provide a minimum of 4 and a maximum of 6 keywords

Indicate one preferred thematic session (Themes 1 to 5) and one alternative.

Presentation Format: select the type of presentation: oral communication or poster

Best regards,

*SEVENTIMCO Team*

[www.seventimco.uevora.pt](http://www.seventimco.uevora.pt)  
email: [17imc2019@uevora.pt](mailto:17imc2019@uevora.pt)  
[@ImcoSevent](mailto:@ImcoSevent)

**Student travel awards from the Bertil Swedmark Fund**

For the participation in the 17th edition of the International Meiofauna Conference, held from 7<sup>th</sup> to 12<sup>th</sup> of July 2019 at University of Évora, in Évora, Portugal, students can apply for a travel award from the Swedmark Fund.

This fund was originated from a bequest of Dr. Bertil Swedmark, to encourage the study of meiofauna amongst students. Recently the

fund is fuelled on a triennial base by the traditional raffle held during the conference gala dinner. Participants are invited to bring souvenirs from their country or from their university or institute and donate them to the raffle. At the conference gala dinner, participants can take part in the raffle and have the chance to win one or more of the souvenirs.

The International Association of Meiobenthologists together with the organizers will be able to provide 10 Swedmark Travel Awards of **300€** to **10 master or PhD students** (not limited to IAM members).

Candidates for these awards should provide a motivation letter (max 1 page) and a CV until the 2<sup>nd</sup> of May 2019 ([17imc2019@uevora.pt](mailto:17imc2019@uevora.pt)). The 10 students with best letters and CV will be awarded. The awarded students should attend the meeting presenting their research by means of a poster or an oral presentation.

**Important info:**

*When?*

Before the 2<sup>nd</sup> of May

*What?*

- Motivation letter (max 1 page)
- CV

*Where to apply?*

By e-mail ([17imc2019@uevora.pt](mailto:17imc2019@uevora.pt)) (please indicate "Student travel award" in the e-mail subject)

*Notes:*

- Not limited to IAM members.
- In case you have already registered in the website, please indicate your registration/abstract ID.

**XIII INTERNATIONAL  
SYMPOSIUM OF THE RUSSIAN  
SOCIETY OF NEMATOLOGISTS**

**«Nematodes and other Ecdysozoa  
under changing environments»**

**29 July – 4 August 2019,  
Petrozavodsk, Republic of Karelia,  
Russian Federation**



***Dear colleagues!***

The Organizing Committee of the XIII International Symposium of the Russian Society of Nematologists are delighted to invite you to participate in this event XIII International Symposium of the Russian Society of Nematologists «Nematodes and other Ecdysozoa under changing environments», which will be held on the 29 of July –4 August, 2019 at Karelian Research Centre of the Russian Academy of Sciences, Petrozavodsk, Republic of Karelia, Russia.

The symposium is supposed to discuss current theoretical and practical problems of nematology in the framework of plenary and sectional sessions, poster sessions. Environments will be considered as the basis of vital activity of nematodes and a tool for regulating the number of

populations. This event will provide nematologists the possibility to share their views on the recent progress in nematology, present their results as oral talks or poster presentations. Young researchers will be acquainted with the latest achievements in various areas of nematology, make presentations about their scientific work, discuss the results with experts in nematology, listen to lectures on theoretical nematology. The aim of the Symposium is also to strengthen professional links between Russian and international communities of nematologists; organization of a modern scientific platform for raising the level of information exchange between the scientific and business communities, educational organizations, executive authorities in the region.

In order to popularize science, a presentation of scientific achievements in the field of nematology and their practical application in the form of an Open Scientific Lectures and workshops on practical nematology for adults and children will be held.

### **Symposium venue**

The symposium will be held in the conference hall of the Federal Research Centre "Karelian Research Centre of the Russian Academy of Sciences", Pushkinskaya St., 11, Petrozavodsk, 185910, Republic of Karelia

A wide spectrum of scientific issues will be considered in the course of the meeting. Themes for this symposium will include, but will not be limited to:

- Modern Views on Origin and Phylogeny of Nematoda and other Ecdysozoa;
- Morphology, Physiology and Biochemistry of Roundworms and Ecdysozoa;
- Ecology and Diversity of Nematodes;
- Nematode Communities as Bioindicators of Changes in Terrestrial and Aquatic (fresh and marine) Ecosystems;

- Control Measures of Economically Significant and Quarantine Species of Parasitic Nematodes
- Host-Parasite Interactions;

### Key dates

Participants are invited to contribute presentations under the above themes; submissions should take place **before March 10, 2019**.

Registration of participants on the symposium site will be open **February 1, 2019**.

Registration of participants will take place in the foyer of the conference hall of the KarRC of RAS on **July 29, 2019** from 13.00 to 18.00.

The opening of the conference will take place on **July 30, 2019** at 10.00 in the conference hall of the KarRC of RAS.

Early registration for preferential payment of the registration fee - until **April 15, 2019**  
Information on registration fee, accommodation is presented on the symposium site  
[conf.krc.karelia.ru/index.php/nematode/nematode2019](http://conf.krc.karelia.ru/index.php/nematode/nematode2019).

Within the frames of symposium workshops “Statistics in nematode community’s analysis” and “Perspectives of nematological investigations in Arctic” will be organized to facilitate the knowledge exchanges on the new methods to study the environmental changes using nematodes. For young researchers and specialists in the field of plant protection and quarantine and for researchers and specialists in the field of veterinary science there will be held two seminars: “Training course on phytoparasitic nematodes” and “Large workshop on parasitic nematodes of small mammals and fishes”.

During the Symposium, a meeting of members of the Russian Society of Nematologists is scheduled to discuss current tasks facing the RSN.

Official language: **English**, Russian

### Contact information:

Laboratory of Animal and Plant Parasitology of the Institute of Biology of Karelian Research Centre RAS  
St. Pushkinskaya 11, 185910, Petrozavodsk, Republic of Karelia, Russia  
Tel .: +7 (814 2) 783622, 762706  
Fax: +7 (814 2) 769810  
e-mail: [nematode2019@gmail.com](mailto:nematode2019@gmail.com)  
Matveeva Elizaveta Mikhailovna  
Sushchuk Anna Alekseevna

### and the last but not the least:

Participants will be given a great opportunity to visit picturesque places and nice sightseeing in Karelia.

### AFTER THE CONFERENCE: PARTICIPANTS’ BRIEF NOTES

#### Fifth International Scalidophora Workshop



From January 28 to February 1, 2019 the Fifth International Scalidophora Workshop was held at the University of Paraná in Pontal do Sul, Brazil. With great support from their students, the organizers Maikon Di Domenico, André Garaffoni and Marcello Fukuda, had put together an intriguing workshop program that included lectures and contributed talks from the participants, and sampling in and outside Baía de Paranaguá, and on the amazing Brazilian beaches. Keeping in mind that the two most aberrant kinorhynch genera - *Cateria* and *Franciscideres* – were described from Brazilian beaches, it was impossible to think of a better location for a Scalidophora workshop.

As a warm-up for the actual Scalidophora workshop, the hosts had organized a general meiofauna workshop for Brazilian students, and the Scalidophora workshop participants were invited to act as tutors. During this workshop, the students were introduced to the different meiofaunal groups, and the lectures were followed by sampling in the field and observation of live animals.

Fernando Pardos opened the Scalidophora Workshop with a lecture about scalidophoran research through history, and this was followed by plenary lectures about kinorhynch, loriciferan and priapulid morphology and systematics. The following days offered contributed talks covering a great variety of aspects, inclusive scalidophoran taxonomy, morphology, ecology and genomics. As a grande final, the whole workshop went on excursion the amazing Iguazú Falls.

The Sixth International Scalidophora Workshop will be arranged in Europe in the summer of 2021.

*Martin V. Sørensen*

### **Invertebrate zoology - a new century**

A conference entitled “*Invertebrate zoology — a new century*” was held at Moscow State University in December 2018 (19.12 — 21.12.2018). It was dedicated to the 160<sup>th</sup> anniversary of the Invertebrate Zoology department of Moscow State University.

In total 16 plenary lectures, 41 talks and 62 posters were presented by researchers who came from various cities and towns of Russia and Ukraine (Moscow, St. Petersburg, Kazan, Vladivostok, Borok and Kiev). More than 120 researchers, students and young scientists from all over Russia came to meet at the Biological faculty of MSU to share their outstanding results and celebrate the anniversary.

Some of the oral presentations were dedicated to meiofauna.



Professor *Alexey Tchesunov* who is one of the leading researchers of the Invertebrate Zoology department gave a talk on the nematode communities of the deep sea. He explained the differences in community structure, morphology and biodiversity of nematodes from various deep sea biotops such as hydrothermal vents, abyssal plane, bathial zone and seamounts. A very particular composition of nematodes was found in the well structured sediment of the Great Meteor seamount. This type of meiofaunal habitat is characterized by large particle size and is mainly composed of





forameniferan and pteropod shells. The diversity of nematodes here is very high, while the community is mainly composed of originally shallow water genera and is dominated by predatory species.

Professor Vladimir Yushin from the Far Eastern branch of Russian Academy of Sciences (Vladivostok) discussed various modern techniques and methods of morphological studies of invertebrates including nematodes. He was focusing on the cryofixation methods which enable to obtain high quality morphological and ultrastructural data. High-pressure freezing is a modern technique which allows to preserve cells absolutely intact without any changes in location of even single organelles. Dr. Yushin shared his personal experience with these yet too expensive methods as well as a broad analysis of the literature data.



The director of the White Sea Biological station Professor *Alexander Tzetlin* was talking about multidisciplinary research at the White sea. One of the aspects treated in his presentation was how the sediment is structured by various meiofaunan species.

A competition for the best poster presentation among students was organized after the poster session. The jury shortly interviewed all participants of the competition and were able to announce three winners. A PhD student Vladimir Kutymov from St. Petersburg State University as awarded for his study named «Mitogenome of the fresh water bryozoan *Cristatella mucedo* (Bryozoa: Phylactolaemata».

Second place award was shared by two students from Moscow State University Maria Petrova (Leg regeneration in sea spider *Nymphon brevirostre* Hodge, 1863 (Pycnogonida) and Peter Kurnezov (Morphology and 3d reconstruction of the anatomy of *Ochetostoma* sp. - a key to understanding of the biology of echiuran worms).

The majority of the participants expressed their satisfaction with the content of the conference and were surprised with particularly high level of research presented. They appreciated that the conference was organized with warmth and hospitality especially needed in the freezing December.

*Nadezhda Rimskaya-Korsakova*

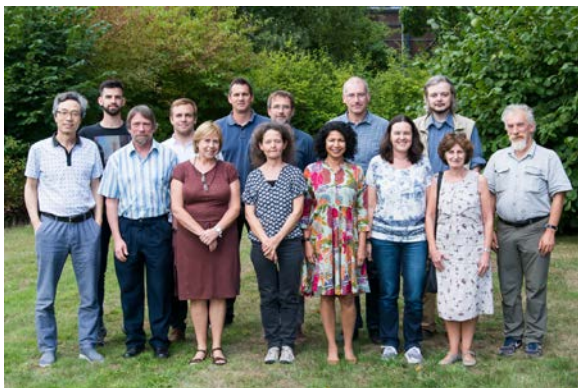
*Aleksandra Petrunina*

*Photos by Galina Fesenko*

## **Nemys**

Since 1998 nematologists from many countries worldwide use the NeMys online tool to verify checklists of valid nematode species, its authority and distribution, to look into the available literature and also to identify some genera and species. From 2014 on, NeMys is integrated into the World register of Marine Species (WoRMS) hosted at the Flanders Marine Institute (VLIZ), operated by an international team of taxonomists editors and the Aphia-WoRMS data management team. In the past years NeMys was more directed to marine and brackish nematodes but as an evolving tool, NeMys is starting to focus also on continental nematodes, comprising freshwater and terrestrial records. With 9.534 checked nematode species, NeMys has become an indispensable tool for taxonomical and ecological research and for educational purposes, displaying information based on the latest classification and offering documentation on free-living marine, brackish, fresh-water and terrestrial

nematodes. It displays mainly taxonomical but also ecological information and provides literature on type species, which can be consulted by the registered users of this online tool.



*Nemys team in Gent*

From 05 to 07 September 2018 we had the second Nemys Editors workshop, organized by the Marine Biology Research group of Ghent University, together with the Flanders Marine Institute (VLIZ) and promoted by LifeWatch. During the workshop we welcome and introduced new editor members; evaluated the work that has been previously done; indicated/created new tasks; uploaded new taxa and focused on the introduction of freshwater/terrestrial nematodes. We also evaluated the status of the taxonomic information integrating them with ecological and biogeographical documentation.

It was very rewarding to have the editors working together and achieve the objectives we had planned. Some tasks were completed and as Nemys is an ongoing work, we are continuously working to display more information and keep it updated.

*Tânia Campinas Bezerra*

## **EXPEDITION**

From March 2nd till April 2nd, an international team of researchers, led by Professor Ronnie N. Glud, University of Southern Denmark and Dr. Frank Wenzhöfer from Max-Planck-Institut für

Marine Mikrobiologie in Bremen, were on a 32-day cruise on the German research vessel Sonne to the Atacama Trench in the eastern Pacific Ocean.

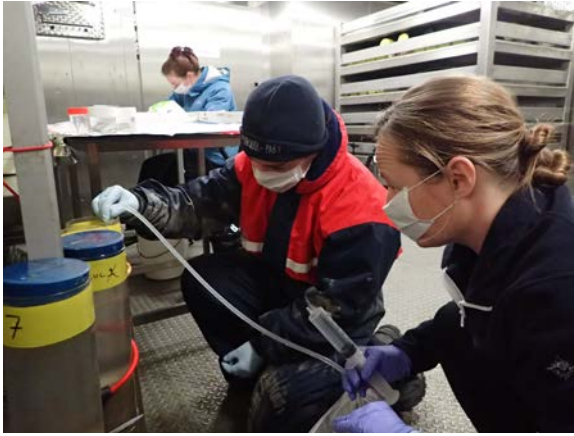
During their cruise they collected samples from the water column and sediments from the slope and the bottom of the 8066 meters trench. They covered a transect of 450 kilometers length by sampling 10 sites. Scientists from 15 different nations with a broad expertise in different scientific fields joined forces to elucidate the biology, biogeography and transport processes of this uncharted ecosystem.

Daniela Zeppilli (Ifremer) participated to the cruise during which meiofauna samples were obtained from depths of ca. 2500 to 7800 m inside the trench. Mauricio Shimabukuro is post-doc at Ifremer, supervised by D. Zeppilli and F. Wenzhöfer who will be investigating the abundance, diversity and community structure of meiofauna organisms in the Atacama samples collected during the cruise SO-261. Benthic organisms coming from a less productive trench, Kermadec Trench in Southwest Pacific, and nearby abyssal and shelf sites will be compared to achieve a better understanding in biogeochemical processes, community structure and biodiversity and ecosystem functioning (BEF) relationships (collaboration with D. Leduc, NIWA).

*Daniel Leduc*



*Daniela onboard the "Sonne" (Cruise SO-261 to the Atacama Trench, 2 March to 2 April 2018; HADES-ERC project). Photo by Manfred Schloesser*



*Daniela Zeppilli (middle), with Sophie Arnaud (right) and Blandine Trouche (back) in the cold room processing sediment core onboard the Sonne (copyright A. Pursen)*

## EDUCATION

### **Identification Course of Aquatic Nematodes (ICAN) at Ghent University**

Upon request of some young nematologists from different countries, an identification course on Aquatic nematodes was organized for the first time in the period 10<sup>th</sup> - 21<sup>st</sup> December 2018: one week identification of marine nematodes and 1 week identification of freshwater nematodes.

© Yen Nguyen Thi My

The Identification Course was followed by 17 students coming from Austria, Brazil, France, Israel, Italy, Japan, Taiwan, The Netherlands and the Philippines; 16 followed the ‘Marine’ part and 7 followed the ‘Freshwater’ part. Some arrived without any experience with nematodes and some had started identifying up to genus level.

This course included techniques such as sampling, extraction and mounting into slides and provided introductory lectures on ‘General morphology’, ‘Ecology’, ‘Classification and identification tools’, ‘Nemys database’ and ‘Bar-coding and video-vouchering’ and of course demonstration of typical characters of the important families and genera. Slides of many genera were available and some

participants brought their personal slides for identification.

A manual was provided for each part and important literature was available on-line.

This course was given by Wim Bert, Tania Nara Bezerra, Nic Smol, Ann Vanreusel and Aldo Zullini, and was organized jointly by the Nematology Research Unit and the Marine Biology research unit of Ghent University. It is part of the MSc course “International Master of Science in Agro- and Environmental Nematology” at Ghent University, Belgium, only to be organized upon request.

Notwithstanding the differences in expertise among the participants, the course went well and the group was very enthusiastic and pleasant and the general feedback was very positive.



In case you are interested in a future identification course, let us know by contacting Inge Dehennin: [inge.dehennin@ugent.be](mailto:inge.dehennin@ugent.be) or Ann Vanreusel: [ann.vanreusel@ugent.be](mailto:ann.vanreusel@ugent.be) or Wim Bert: [wim.bert@ugent.be](mailto:wim.bert@ugent.be)

*Nic Smol*

## NEW PROJECTS

### **Exploration of the deep Eastern Gulf of Mexico – using meiofauna to assess benthic community drivers and effects of variable hydrodynamic regimes**

*Ingels, J.*

Florida State University, Coastal and Marine laboratory

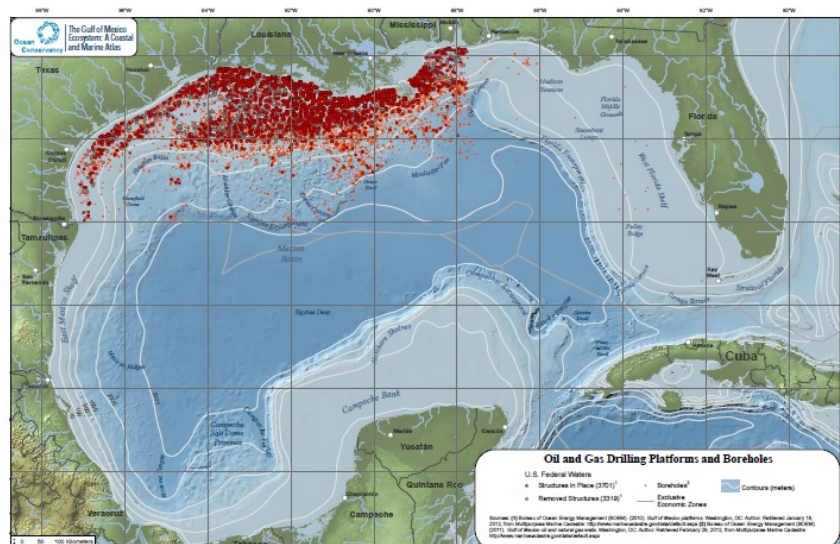
[jingels@fsu.edu](mailto:jingels@fsu.edu)

The Florida State University Coastal and Marine Laboratory, on the Gulf of Mexico (GoM) coast in north Florida, is a beautiful place. It is not uncommon there to see ospreys and bald eagles eyeing the coastline, pelican formations flying low, dolphins churning the water in a feeding frenzy or sharks cruising the shallows seeking out their next meal. It is also a place where a clear view of the horizon when standing on the beach is the rule, rather than the exception. Unfortunately, this is not the case everywhere in the GoM, with 1000s of miles of pipelines and 100s of oil and gas platforms to the west of Florida. The image that illustrates this like no other was shown during Tracy Sutton's plenary talk at the Deep-Sea Biology Symposium in Monterey last September (Fig.). This map shows the stark contrast between the unexplored nature of Florida's Gulf waters, and the waters to the west, taken over by energy production. The contrast is the result of Florida's federal exemption for oil and gas exploitation, and in Florida's state waters there is an oil drilling ban which has recently been voted into the state's constitution. Whether or not the federal exemption will last into the longer-term future is unsure, but in the meantime it does mean that the waters are unaffected by oil and gas drilling and are underexplored, with relatively little research effort in the region.

Most deep-sea research in the deep GoM has focused on the northern region, particularly

areas that are important for the energy industry. An indicator of this are the studies that have been published in recent years that assess the impacts of the 2010 Deepwater Horizon disaster in the deep GoM, but also along the coasts of the states affected by the oil spill. Some of these studies include meiofauna, but relatively little attention has been paid to the potential of meiofauna communities to detect and assess the extent of the impact of this huge oil spill.

Exploratory work, funded primarily by the Bureau of Ocean Energy (BOEM), have contributed to the discovery of extensive chemosynthetic and deep-sea coral (DSC) communities in the northern GoM, advancing our understanding of sediment infaunal communities. New research efforts recently funded by the National Academies of Science Gulf Research Program will expand physical oceanographic observations and study of the deep Gulf, but there will be few if any new observations on the outer shelf and escarpment in the eastern Gulf. The eastern GoM, therefore, remains relatively unexplored; the moratorium on oil and gas extraction has precluded this area from BOEM funding, and the deep west Florida slope is a remote and challenging place to work.



*Fig. Map of Gulf of Mexico, US oil and gas drilling platforms and boreholes*

Under the lead of Dr. Sandra Brooke, a team of Florida State University (Brooke, Jeroen Ingels, Amy Baco-Taylor) and Florida

Agricultural and Mechanical University (Steven Morey) scientists were awarded a grant under the NOAA Ocean Exploration call, to investigate deep-water ecosystems in the Gulf of Mexico.

The one-year project will focus on the deep (>1,000m) habitats and associated communities of the West Florida Slope that includes deep-sea coral and seep systems. Bathymetric maps, habitat suitability models and a high-resolution oceanographic model will be used to select target study sites. As part of the project, the oceanographic model will be validated using meiofaunal communities. A number of studies have indicated that meiofauna are a valuable group of organisms that can be used as ecological or biological indicators: meiofauna communities change in response to a wide range of disturbances such as sediment deposition, eutrophication, pollutants, and of course physical disturbance through currents impinging on the seafloor. The research team will take samples at sites of variable hydrodynamic disturbance (according to the oceanographic model) and assess whether the meiofauna community structure and function responds to the variable current speeds in a fashion that allows future meiofauna studies to indicate the level of hydrodynamic disturbance in understudied areas of the Earth's Ocean. The ROV and benthic sampling cruise has been planned to take place in autumn 2019.

Deep ocean discoveries appeal to the public sense of exploration and help to create excitement for ecosystems that are inaccessible to the vast majority of people, but are vulnerable to human activities. This project has great scope for such discoveries and outreach opportunities. Information generated by this work will be disseminated to the scientific community, resource managers and the general public, to stimulate future research and conservation efforts. Using meiofauna as a responsive tool to validate other research efforts, and understanding the drivers of meiofauna community structure and function will help

facilitate ecosystem assessments and support conservation efforts to work towards keeping our Ocean healthy.

### **Deep-Sea Meiofauna Biogeography and Genetic Connectivity of Southeast Pacific Seamounts**

*Jeroen Ingels<sup>1</sup>, Henry Joseph Horacek<sup>1</sup>, Eulogio Soto<sup>2</sup>*

<sup>1</sup> Florida State University, Coastal and Marine laboratory [jingels@fsu.edu](mailto:jingels@fsu.edu)

<sup>2</sup> Universidad de Valparaiso, Chile

From 27 January to 3 March a Japanese/Chilean deep-sea research expedition (RV Mirai) will be conducted in the southeast Pacific Ocean, targeting unexplored seamounts. The study area covers a longitudinal transect at 25-26°S from Chilean continental margin (77°W) to the Indo-West Pacific Region (112°W), targeting seamounts on the Nazca Ridge (Nazca-Desventuradas Marine Park), the Salas y Gomez Ridge and near Easter Island (now named Rapa Nui). The main goals will be to investigate the biogeography and genetic connectivity of benthic communities; assess their response to different food supply regimes in terms of biodiversity, benthic standing stock, and describe the main sediment drivers (biogeochemical variables) affecting faunal distribution patterns. Dr. Jeroen Ingels (Florida State University Coastal and Marine Lab) and his PhD student Joseph Horacek are scientific partners in the project. Joseph will join the cruise and take meiofauna samples as part of his PhD. He is particularly interested in the free-living nematode communities and the degree of nematode genetic connectivity between these remote seamounts. During his Master thesis, Joseph was investigating cryptic speciation and genetic connectivity of Platyhelminthes along the coast of the southeastern US. In his PhD he hopes to expand his expertise and learn ways of applying his techniques to a new meiofauna group, in an effort to answer questions on meiofauna geographic barriers, dispersal and

connectivity, as well as environmental drivers for meiofauna biodiversity.

Seamounts from highly productive areas to oligotrophic areas will be sampled to test a first hypothesis related to how different food supply regimes to the seabed influence the benthic standing stock and biodiversity. It is thought that the Salas y Gomez Ridge acts as a transitional zone between Nazca Ridge and Easter Island Ridge, possibly forming as a biogeographic-genetic ‘stepping stone’ between both zones. Meiofauna samples will be taken on target seamounts using a multiple corer. Results will allow the description of soft-bottom benthic fauna from one of the most unexplored regions in the world; to improve our knowledge and understanding of biogeographic distribution patterns and their genetic connectivity and assessing the standing stock response to different food supply regimes for this fauna. The information obtained will allow a review of the geographic boundaries of bathyal benthic meiofauna in the region and potentially support management measurements for newly created Marine Protected Areas.

The overall project is led by Dr Eulogio Soto (Universidad de Valparaíso) and Dr Eduardo Quiroga (Pontificia Universidad Católica de Valparaíso) both from Chile. Dr Greg Rouse (Scripps Institution of Oceanography, University of California in Sand Diego) and Dr Jeroen Ingels (The Florida State University) are collaborative partners. The research is part of the “East/Central Pacific International Campaign (EPIC)”, MR18-06 on board the R/V Mirai, Jamstec and will take place during Leg 3 (Chief Scientist: Dhugal Lindsay, JAMSTEC) from 27 January 2019, Valparaiso, Chile to 2 March 2019, Papeete, Tahiti, French Polynesia.

## **Life on Loggerheads: an integrated epibiosis study to assess foraging behavior, reproductive success, and habitats of Northern Gulf of Mexico loggerheads nesting at St. George Island”**

Jeroen Ingels<sup>1</sup>, Leticia Pontes Pereira<sup>2</sup>, Alexandra Silva Cavalcante<sup>2</sup>, Yirina Valdes Vazquez<sup>3</sup>, Ian Silver-Gorges<sup>4</sup>, Mariana Fuentes<sup>1</sup>, Giovanni Santos<sup>2</sup>.

<sup>1</sup> Florida State University, USA  
[jingels@fsu.edu](mailto:jingels@fsu.edu)

<sup>2</sup> Federal University of Pernambuco, Recife, Brazil

<sup>3</sup> Federal University of Pernambuco, Paraíba, Brazil

<sup>4</sup> Purdue University – Fort Wayne, USA

Ever wondered what lives on the carapace of a turtle?

A lot it seems,

<https://theconversation.com/sea-turtle-hitchhikers-could-play-an-important-role-in-conservation-62081>

and it may not come as a surprise that (epi-) meiofauna can be really abundant on the backs of these ocean nomads (e.g. Correa et al. 2014; dos Santos et al. 2018). A team of investigators from Florida State University (USA) and the Federal Universities of Pernambuco and Paraíba (Brazil) spent two weeks in the field during the peak of the loggerhead nesting season (June-July 2018) on St George Island, at the coast of North Florida, USA. Forty-three nesting loggerhead turtles were encountered and the entire carapace epibiont community was collected from 23 turtles. Meiofaunal and macrofaunal analyses are still being conducted, but preliminary results show that these turtles can harbor thousands of little meiofauna hitch-hikers. The research team is now working to finalize the identification of free-living nematodes and macrofauna, and to analyze turtle samples for stable isotopes and nest inventory data.

The main objective is to see whether meiofauna community analyses, in combination with turtle stable isotope analysis can give us a better idea of where loggerheads forage, following the premises that turtles pickup meiofauna organisms from areas where they come into contact with sediments. Finding out where loggerheads hang out when they are not nesting would aid conservation measures. Meiofauna samples were preserved in DESS, allowing for morphological as well as molecular work in the future. If you would like more information, please contact Dr. Jeroen Ingels [jingels@fsu.edu](mailto:jingels@fsu.edu).

For more information on meiofauna on sea turtles see these papers on Hawksbill epi-meiofauna:

G.A.P.dos Santos et al., 2018. *Eretmochelys imbricata* shells present a dynamic substrate for a facilitative epibiont relationship between macrofauna richness and nematode diversity, structure and function. *Journal of Experimental Marine Biology and Ecology*, 502: 153-163

<https://www.sciencedirect.com/science/article/pii/S0022098117304604>

G. V. V. Corrêa et al., 2017. Diversity and composition of macro- and meiofaunal carapace epibionts of the hawksbill sea turtle (*Eretmochelys imbricata* Linnaeus, 1822) in Atlantic waters. *Marine Biodiversity*, 44(3): 391-401

<https://link.springer.com/article/10.1007/s12526-013-0189-9>

For more information on the project, see #lifeonloggerheads on social media (Twitter, Instagram and Facebook).

The research was partially funded by the Florida Sea Turtle Grant 18-021R and the PADI Foundation.

### **PhD project of Benjamin Wilden (2018-2021):**

*Carried out at the Department of Animal Ecology of the University of Bielefeld (Germany) under the supervision of Prof. Walter Traunspurger*

### **Diversity patterns of benthic organisms in ancient lakes with special reference to free-living nematodes**

Are there universal patterns of species diversity? Answering this question requires studies of isolated habitats with environmental conditions that are similar and have not changed for millions of years. This is the case with ancient lakes, such as Lake Baikal (Russia), Lake Malawi (Malawi-Mozambique-Tanzania), Lake Titicaca (Bolivia-Peru) and Lake Ohrid (Albania-Macedonia), which provide relatively stable habitats for species-rich benthic communities. However, with the exception of Lake Baikal, very little is known about the diversity and ecological patterns of benthic organisms in the profundal zones of these four lakes. We therefore aim to study the profundal sediment communities of Lake Baikal, Lake Malawi, Lake Titicaca and Lake Ohrid through a holistic comparative approach. Samples will be obtained using gravity corers. Abundance and composition of all benthic organisms of Lake Ohrid and lake Malawi have been analysed already, and for nematodes, presumably the most common group of metazoan organisms, species are identified morpho-taxonomically. Composition, abundance of meiofauna and diversity of nematodes will be compared across the four lakes. The evolutionary strategies of the nematodes will be examined by determining their feeding types, sex ratios and reproductive traits. Additionally, molecular techniques will be used to enable analyses of the biogeography of aquatic nematodes and the construction of a database of profundal nematode species that can be used in genetic monitoring.

Further news and contacts may be found in our website:

<http://www.uni-bielefeld.de/biologie/Zoooekologie/>

## John Berkeley James Wells – Obituary

Marine biologist, environmentalist

6 October 1935 – 12 November 2018



John was known internationally as a pre-eminent authority on the biology of harpacticoid copepods. His 215 page “Keys to aid the identification of marine harpacticoids” was and still is a classic reference volume. John also authored over fifty scientific papers in the general areas of marine biology, marine ecology and the taxonomy of harpacticoid copepods. Field work for his research was conducted in Britain, USA, Canada, Bermuda, Sweden, France, Tunisia, Zimbabwe, Mozambique, India, Australia, New Zealand and Fiji. In particular, John was a visitor at the University of South Carolina in 1982 where he collaborated with his close colleague Professor Bruce Coull; their collaboration resulted in five publications.

John’s received his PhD in 1961 at Exeter Univ. UK. He then became an Assistant Lecturer at Birkbeck College, London (1961-1963), then a Lecturer- Senior Lecturer in Zoology at the University of Aberdeen, Scotland (1963-1976). In 1976, John and family moved to New Zealand where he was appointed Professor of Zoology at Victoria University of Wellington (VUW) (1976-2001). During this time, he taught many courses and also supervised honours, masters and doctoral students. In retirement John became a

Trustee & then Chairman of the Pauatahanui Inlet Community (near his home in Porirua, NZ) where, he brought a broad scientific understanding to discussions and decisions on the importance of our estuaries. In 2013 he was awarded the Porirua Civic Award for his outstanding voluntary service to the Porirua (NZ) community, guidance to members, and the wider public.

*Janet Grieve, Geoffrey Hicks, Bruce Coull*

## Recent Literature

### **Distribution of Meiofauna in Bathyal Sediments Influenced by the Oxygen Minimum Zone Off Costa Rica**

Neira C., Ingels J., Mendoza G., Hernandez-Lopez E., Levin L.A. (2018)

Frontiers in Marine Science, 5: 448

Ocean deoxygenation has become a topic of increasing concern because of its potential impacts on marine ecosystems, including oxygen minimum zone (OMZ) expansion and subsequent benthic effects. We investigated the influence of oxygen concentration and organic matter (OM) availability on metazoan meiofauna within and below an OMZ in bathyal sediments off Costa Rica, testing the hypothesis that oxygen and OM levels are reflected in meiofaunal community structures and distribution. Mean total densities in our sampling cores (400–1800 m water depth) were highest with 3688 ind. 10 cm<sup>-2</sup> at the OMZ core at 400 m water depth, decreasing rapidly downslope. Nematodes were overall dominant, with a maximum of 99.9% in the OMZ core, followed by copepods (13%), nauplii (4.8%), and polychaetes (3%). Relative copepod and nauplii abundance increased consistently with depth and in-



creasing bottom water O<sub>2</sub>. Meiofaunal composition was significantly different among sites, with lower taxonomic diversity at OMZ sites relative to deeper, oxygenated sites. Vertical distribution patterns within sediments showed that in strongly oxygen-depleted sites less meiofauna was concentrated in the surface sediment than at deeper slope sites. Highest meiofaunal abundance and lowest diversity occurred under lowest oxygen and highest pigment levels, whereas highest diversity occurred under highest oxygen-concentrations and low pigments, as well as high quality of sedimentary pigment (chl a/phaeo) and organic carbon (C/N). The lower meiofaunal diversity, and lower structural and trophic complexity, at oxygen-depleted sites raises concerns about changes in the structure and function of benthic marine ecosystems in the face of OMZ expansions.

Link to paper:

<https://doi.org/10.3389/fmars.2018.00448>

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### ***Meiobenthic Annelides. Publications of K. Worsaae***

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# INTERNATIONAL ASSOCIATION OF MEIOBENTHOLOGISTS

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The International Association of Meibenthologists is a non-profit scientific society representing meibenthologists in all aquatic disciplines. The Association is dedicated to the dissemination of information by publishing a newsletter and sponsoring a triennial International Conference. The newsletter, *Psammonalia*, is published in June and November-December. 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 first issue of the year joining. Additional contributions to the **Bertil Swedmark Fund**, used to support student attendance at the triennial conferences, is encouraged.

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