

MONOCULUS Copepod Newsletter

The Newsletter of the World Association of Copepodologists

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WAC Homepage

<http://www.copepoda.uconn.edu>
MONOCULUS Homepage

<http://www.copepoda.uconn.edu/newsletter>
MONOCULUS Homepage – University of Oldenburg
<http://www.uni-oldenburg.de/monoculus>

Message from the President

Dear copepodologists:

“Copepods are tiny giants in water.” This expression comes from the title of the book that Kazuya Nagasawa, one of my colleagues, has recently edited and published (see page 4). In aquatic ecosystems, there is a principle that the weight-specific physiological rates tend to be higher for smaller organisms. When we compare between whales and bacteria, for instance, we can easily understand this principle. In this concept, bacteria can be real tiny giants, since they both transport and transform materials at the highest rates among aquatic heterotrophs. However, we cannot see them with the naked eye. For our visual recognition without magnification devices, copepods are among the smallest animals. This is why water fleas (i.e., cladocerans), similar in body size to copepods, are commonly used as specimens for school pupils to observe plankton for the first time. Hence, most of the general public knows water fleas better than copepods.

In regard to “giant,” I must tell you about recent unusual events with the giant zooplankton. The Echizen jellyfish, *Nemopilema nomurai*, has recently bloomed and caused a severe nuisance to fisheries in East Asian coastal waters. Because of its amazing size (umbrella diameter: ca. 2 m, wet weight: >200 kg) and dense aggregations, this jellyfish is catchy for the mass media. Through newspaper articles and TV news, most Japanese now know the name of this jellyfish, and have learned how the ocean environment is changing and how the fish catch is in crisis. However, few people know that our tiny giants (i.e., copepods) are the prime food for them. Eventually, the Japanese government formed a special research budget for the jellyfish. Copepods are at a disadvantage in attracting the public interest compared to the refrigerator-sized jellyfish.

It is the WAC members' duty to keep educating and convincing not only university students but also the general public about the importance of copepods as well as our research on them. We can emphasize the general principle that the weight-specific rate process is size-dependent.

— Shin-ichi Uye, President
Hiroshima University, Japan

WAC Student Support

Several students received partial financial support from the WAC in order to enable them to participate in the Training Course in the Biology and Systematics of Copepods, given in Bizerte on 4-8 July 2005.

From Verónica Fuentes:

I hope it is not too late to thank all the members at WAC, and especially Prof. Schminke, who guided me through the required procedures to apply for this scholarship. Thank you for having made my participation possible in the Pre-Conference Training Course and in the Copepods International Conference held last July in Tunis. This would not have been possible but for the support of my supervisor, Sigrid Schiel.

We enjoyed the warmth and kindness of the organizers both at the conference and during the course. It was really striking and at the same time encouraging seeing Tunisian professors and students working closely together for the events to be successful.

During the course that took place in the beautiful city of Bizerta, we had the opportunity to meet and interact with the researchers all of us had admired when reading their publications and books. I am referring to Thomas Kiørboe, Geoff Boxshall, Rudi Strickler, Carol Eunmi Lee, Jiang-Shiou Hwang, Claude Razouls, Sami Souissi, Mohamed Néjib Daly Yahia and Francois Sçhmidt.

We also enjoyed very good practical classes, lectures and discussions on biology, behaviour, evolutionary genetics and morphology of planktonic copepods. We received a huge amount of information from these experiences; information that will be absorbed, during the course of our professional training, every time we need it, use it or go deeper into it. We are really grateful to all the professors for having shared their knowledge and experience with us not only through the classes, but also through all the extra material they presented us with: videos, books, publications and computer programs, among others.

It was also enriching to share those days with other students from around the world with whom we exchanged ideas, thoughts and aspects of our own culture. In this sense, I am also grateful to Adelaida, Susanna, Guillame, Alexis, Michael, Elisa, Irene, Anna, Benin, Mohammad Ali, Gael, David, Susana, Isari, Samba, Souad, Neila, Anissa and Yosra for the nice days spent in Bizerta (sorry if I forgot to mention somebody).

Once in Hammamet, the conference took place. The conference offered a wide range of talks and posters and, as usual, it was excellent time to meet copepodologists from around the world and to show them what we do from our place in the world!

Thank you very much once again. I hope I can meet you all again some day, somewhere. The word is not that big for the ones who study copepods, is it?

Warm regards,

— Verónica Fuentes
Alfred Wegener Institute, Bremerhaven, Germany
University of Buenos Aires, Argentina
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Discussion Lists on Copepods and Other Crustaceans

Announcements regarding *MONOCULUS* are now being made on these lists. If you are aware of other appropriate lists, please let me know. Thanks to Marco Uttieri, whose question prompted me to summarize this information.

— Jan Reid

Copepoda List:

This list is sponsored by the World Association of Copepodologists, hosted by the Instituto Oceanográfico of the University of São Paulo, and moderated by our Webmaster Rubens Lopes (rmlopes@usp.br). It is one of the online tools developed by the WAC to foster communication among all persons interested in any aspect of copepods.

The list is open to anyone, whether a member of the WAC or not. Send messages to the List at: list@copepoda.oceanografia.org

Copepods Group at Yahoo:

This is an unmoderated list. It is used mainly by people who are just learning about copepods, and may have a practical interest in them, such as food for aquarium fish etc.

The address is <http://groups.yahoo.com/group/copepods>
Send messages to: copepods@yahoogroups.com

Crust-L:

This very active, members-only list is sponsored by The Crustacean Society, hosted by the Virginia Institute of Marine Science, and administered by Jeffrey Shields at VIMS. The list is an informal forum for those interested in Crustacea, including their biology, ecology, systematics, taxonomy, physiology, cell biology, culture, etc. [Archived discussions](#) and a [FAQ](#) are available.

For information see: <http://www.vims.edu/~jeff/crust-1.html>

Crustacea List:

This list is sponsored by ALCA, the Asociación Latinoamericana de Carcinología. It is administered by

Michel Hendrickx (michel@ola.icmyl.unam.mx), and is devoted to Crustacea of Latin America. The main languages are Spanish and Portuguese. You can subscribe to it by sending a subscription request in the following format:
INSCRIPCION CRUSTACEA
SUDIRECCION@DE.CORREOELECTRONICO (which means "subscribe Crustacea your address@domain") to MAJORDOMO@SERVIDOR.DGSCA.UNAM.MX, or else request information directly at gramirez@ola.icmyl.unam.mx.

Plankton Net at Yahoo:

This very active list, moderated by Sasi Nayar and colleagues, is an excellent source of information about positions and scholarships, publications on plankton, and contacts for questions about any aspect of research on phytoplankton and zooplankton.

To subscribe, send an empty e-mail to: planktonnet-subscribe@yahoogroups.com

Or, visit <http://groups.yahoo.com/group/planktonnet/> and click on "Join this group"

Genetic Key to Copepods of the Northeastern USA in Development

I thought it might be of interest to *Monoculus* readers that my lab at the University of New Hampshire is currently working on a genetic barcoding project aimed at developing a genetic key to the copepods that would become a part of our Image-based Key to the Zooplankton of the Northeast (USA), available online at <http://cfb.unh.edu/>. All stages of copepods will be included in the project. If anyone is interested in learning more about the project or contributing samples of cyclopoid and calanoid copepods, live or preserved in 95+% ETOH, please contact Jim Haney, Department of Zoology, University of New Hampshire, Durham, NH or Jim.Haney@unh.edu.

This research is supported by the US EPA as part of the EPA REMAP project currently underway in the New England Region to test indicators, develop new monitoring tools, and comprehensively assess current ecological conditions of lake and pond resources in the six New England states (CT, RI, MA, VT, NH, ME).

Best wishes,
Jim

— James F. Haney
Professor and Chair
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Special Group of Papers Honoring Gus Paffenhöfer in the Journal of Plankton Research

A special meeting session and dedicated group of articles honored former WAC President Gus Paffenhöfer. The Journal of Plankton Research Volume 27 Number 10 emphasized "The role of zooplankton predator-prey interactions in structuring plankton communities." From Roger Harris' introduction: "This group of papers derives from a session held to recognize the fundamental contributions made by Gustav-Adolf Paffenhöfer to the field of zooplankton behavioural ecology. The session was organized by his colleagues, Maria Grazia Mazzocchi, Marie Bundy and Done Deibel, at the American Society of Limnology and Oceanography Aquatic Sciences meeting in Salt Lake City, 20-25 February 2005."

Schnetzer, A. & D.A. Caron. 2005. Copepod grazing impact on the trophic structure of the microbial assemblage of the San Pedro Channel, California. *Journal of Plankton Research* 27(10):959-971.

Fonda-Umani, S., V. Tirelli, A. Beran & B. Guardiani. 2005. Relationships between microzooplankton and mesozooplankton: competition vs. predation on natural assemblages of the Gulf of Trieste (northern Adriatic Sea). *Journal of Plankton Research* 27(10):973-986.

Leising, A.W., J.J. Pierson, S. Cary & B.W. Frost. 2005. Copepod foraging and predation risk within the surface layer during nighttime feeding forays. *Journal of Plankton Research* 27(10):987-1001.

Jiang, H. & J.R. Strickler. 2005. Mass density contrast in relation to the feeding currents in calanoid copepods. *Journal of Plankton Research* 27(10):1003-1012.

Wiggert, J.D., A.G.E. Haskell, G.-A. Paffenhöfer, E.E. Hofmann & J.M. Klinck. 2005. The role of feeding behavior in sustaining copepod populations in the tropical ocean. *Journal of Plankton Research* 27(10):1013-1031.

New Books and Websites

Marine Parasitology edited by Klaus Rohde

CSIRO Publishing, Collingwood, Victoria, Australia.
Hardback. 592 pp. ISBN: 0643090258. AU \$135.00

I would like to draw your (and other copepodologists) attention to a new book called "Marine Parasitology" (ed. Klaus Rohde, CSIRO Publishing, Collingwood, VIC., Australia). More details at WWW.publish.csiro.au There are several chapters relevant to copepods (as both hosts and parasites), authored by Geoff Boxshall, one by me on salmon lice and salmon in Norway (see below), and some on parasites in finfish and mollusc culture in general. It is a beautiful book, which also includes more general chapters on the the parasitic life style and ecology as well as a survey of all the other parasitic groups of the oceans.

— Peter Heuch
National Veterinary Institute
Oslo, Norway

Heuch, P.A. 2005. Effects of salmon lice on Atlantic salmon. Pp. 374-378 In: Rohde, K. (ed.) *Marine Parasites*. CSIRO Publishing, Collingwood, Victoria, Australia.



Introduction to Copepodology – World of Tiny Giants in Water edited by Kazuya Nagasawa.

**Tokai University Press, Hadano, Japan. 2005. 326
pp. (In Japanese). 3,200 Japanese Yen
(approximately equivalent to US\$ 27.00).
ISBN 4-486-01673-4.**

In Japan, much information on Copepoda has been published as scientific papers, which has highly promoted the progress of copepodology. But contrary to such situations, there are few books on copepods for the public. If the people get interested in and want to know copepods, that are one of the most abundant and play an important role in aquatic ecosystems, they cannot easily find information on these animals. Thus, this book, *Introduction to Copepodology – World of Tiny Giants in Water*, is intended to introduce various aspects of the biology of copepods found in Japanese waters to the people, especially school students and those who are interested in aquatic animals. A total of 21 authors (20 from Japan and one from the U.S.A.)

were selected by the editor from among the active scientists working in Japan on different research subjects for copepods. Exceptionally three authors describe their work done outside Japan, i.e., in the Antarctic Sea and Brazilian coastal waters.

The text is divided into five parts and 21 chapters. As the introduction of the book, the first part consists of three chapters which deal with the basic knowledge of planktonic copepods (S. Ohtsuka), parasitic copepods (K. Nagasawa), and benthic (harpacticoid) copepods (H. Kikuchi and K. Nagasawa), respectively. The second part is the largest (containing seven chapters) and describes various aspects of the biology of marine planktonic copepods: food relationship between copepods and phytoplankton (S. Uye), life histories of calanoids in the western North Pacific (T. Ikeda), growth and production of copepods (S. Uye), long-term changes in abundance of pelagic copepods related to climate changes (K. Nakata), prey-predator relationship between marine fish larvae and copepods (T. Takatsu), calanoids as food of baleen whales (A. Kawamura), and ecology of copepods in the Antarctic Sea (A. Tanimura). The third part is composed of five chapters, dealing with freshwater or brackish-water planktonic copepods: the fauna of freshwater cyclopoids and harpacticoids in Japan (T. Ishida), survival strategy of freshwater copepods with diapause eggs in their life cycles (S. Ban), ecology of copepods in Lake Biwa (K. Kawabata), copepods inhabiting the muddy estuaries in the Ariake Sea (H. Ueda), and productivity of copepods in Brazilian estuaries (K. Ara). There are three chapters in the fourth part, focusing on copepods as benthos: distributional patterns of harpacticoids on the coastal sea bottom (N. Iwasaki), various harpacticoids found in different environments (Y. Kikuchi), and reproductive biology of harpacticoids (M. Shimanaga). The fifth, final part consists of three chapters, dealing with copepods as parasites or as hosts: harpacticoids infecting brown algae (T. Shimono and H. Kawai), parasitic copepods of blue mussels in Japan (J.-s. Ho), and apostome ciliates parasitic on calanoids (M. Hora). Within each chapter, three to nine (mostly five or six) figures including illustrations and pictures are shown.

In addition to these chapters, there are three columns which report each on the terminology of copepod life stages (copepodid and copepodite, larva and juvenile)(K. Nagasawa), various activities of the World Association of Copepologists (S. Uye), and behavior of harpacticoids accelerating fish predation (M. Nakagami). References are grouped at the end of the book, with up to 10 papers being listed for each chapter.

The book is unusual in that the authors of individual chapters describe their own experiences (such as discovery, gladness, failure, difficulty, etc.)

during the course of their research. This description of authors' true experiences is expected to give the good motivation and opportunity to young readers, in particular high-school or university students, to understand the science and scientists and to think about the copepods that have evolved in various ways and adapted to different aquatic environments. As the editor, I will be delighted if some of the young readers get interested in copepods and join us in Japan as copepodologists in the academic field of copepodology in the future.

Kazuya Nagasawa
Department of Bioresource Science and Technology,
Graduate of Biosphere Science, Hiroshima University,
Higashi-Hiroshima 739-8528, Japan



**Coastal Plankton:
Photo Guide for European Seas
By Otto Larink & Wilfried Westheide
2006. Pfeil, Munich. 143 pp., illustrated. Paperback.
ISBN 3-89937-062-7. Euro 30.00**

From the publisher's website:

"This book, with more than 600 micro- and 40 macrophotographs on 60 colour plates, is an introduction to the most important and most common taxa present in the plankton, and it allows the identification even of numerous common species. 117 micrographs demonstrate characteristic forms of the phytoplankton, 70 of protozoans, more than 300 show larvae and other developmental stages, and about 90 show holoplanktonic adults of the zooplankton. The comprehensively annotated pictures are taken from living organisms, during marine excursions, mainly from the North Sea coastal area but also from other European coastlines, including the western Mediterranean. The book, therefore, is excellently suited to be used in such university courses for students of zoology and marine biology as well as for their teachers, but it is certainly also a comprehensible guide for any amateur microscopist and interested layperson."



New Members

Several of our members who have recently joined the WAC introduce themselves here.

Meriem Khelifi-Touhami

Scientific Visitor: Laboratoire Océanologique de
Villefranche-sur-Mer, France

Native of Algiers, Algeria, born 28/04/1969

khelifi_meriem@yahoo.fr

Master of sciences in Marine Ecology, University of
Annaba, Algeria, 1998

Ecology of coastal zooplankton, Marine Copepods as
environmental indicators, Zooplankton biodiversity,
Zooplankton in food web

Zooplankton Publications:

Ounissi, M., H. Frehi & M. Khelifi-Touhami. 1998.
Composition et abondance du zooplancton en situation
d'eutrophisation dans un secteur côtier du golfe
d'Annaba (Algérie). Annales de l'Institut
Océanographique, Paris 73(1):53-67.

Ounissi, M. & M. Khelifi-Touhami. 1999. Le zooplancton
du plateau continental d'El Kala. Composition et
abondance en mai 1996. Journal de Recherche
Océanographique, Paris 24(1):5-11.

Ounissi, M. & M. Khelifi-Touhami. 2003. Hydrologie et
transport d'été du plancton entre treize étales successives
de marée entre la lagune Melah et le littoral adjacent
(Méditerranée sud-occidentale). Journal de Recherche
Océanographique, Paris 28(1-2):89-93.

Prof. Makhoul Ounissi

Scientific Visitor, Centre d'Océanologie, Arcachon, France

Native of Guelma, Algeria, born 01/01/1960.

Doctorate in Marine population and ecosystems biology,
University of Bordeaux I, France, 1991

Ecology of coastal environment, Marine zooplankton,
Copepod ecology, Mediterranean plankton, zooplankton
brackish water

Zooplankton Publications :

Ounissi, M., H. Frehi & M. Khelifi-Touhami. 1998.
Composition et abondance du zooplancton en situation
d'eutrophisation dans un secteur côtier du golfe
d'Annaba (Algérie). Annales de l'Institut
Océanographique, Paris 73(1):53-67.

Ounissi, M. & M. Khelifi-Touhami. 1999. Le zooplancton
du plateau continental d'El Kala. Composition et
abondance en mai 1996. Journal de Recherche
Océanographique, Paris 24(1):5-11.

- Ounissi, M., A. Haridi & A. Retima. 2002. Variabilité du zooplancton de la lagune Melah (Algérie) selon l'advection tidale en hiver et au printemps 1996-1997. *Journal de Recherche Océanographique*, Paris 27(1):1-13.
- Ounissi, M. & M. Khelifi-Touhami. 2003. Hydrologie et transport d'été du plancton entre treize étales successives de marée entre la lagune Melah et le littoral adjacent (Méditerranée sud-occidentale). *Journal de Recherche Océanographique*, Paris 28(1-2):89-93.
- Ounissi *et al.*, 2004. Échangestidaux entre la lagune Melah et le littoral adjacent (Méditerranée). Transport d'été du zooplancton entre treize étales successives de marée. *Journal de Recherche Océanographique*, Paris.

Frank Sommer

Danish Institute for Fisheries Research
 Department of Marine Ecology & Aquaculture
 Kavalergaarden 6
 DK-2920 Charlottenlund, Denmark
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My research interest can be broadly described as plankton ecology. In particular, I am interested in pelagic food web dynamics, element cycling through plankton and the use of stable isotopes in tracking such processes.

My interest for planktonic organisms stems from a field course in the Northern Adriatic Sea during my studies of zoology at the University of Vienna, Austria. I was then strongly impressed by the taxonomic phylla present in zooplankton, their weird body forms, motility and transparency. In my diploma thesis, I investigated the grazing niche of bivalve veliger larvae in comparison to copepods and appendicularians.

During my PhD thesis (2000-2003) at the Institute of Marine Research in Kiel, Germany, I studied the comparative impact of copepods and cladocerans on phytoplankton in mesocosm experiments. The aim of the project was to find general patterns of top-down impacts on planktonic food webs across freshwater and marine boundaries, and in particular, to test, whether marine zooplankton may produce phytoplankton nutrient limitation as freshwater *Daphnia* do. The measurement of stable isotope signatures in single zooplankton species proved challenging in evaluating trophic levels, but also in tracking the flow of diazotrophic nitrogen.

Currently, I am investigating the production and esterification of the carotenoid pigment astaxanthin in marine copepods under different light regimes.

Recent publications:

- Sommer, F., C. Agurto, P. Henriksen & T. Kiørboe. 2006. Astaxanthin in the calanoid copepod *Calanus helgolandicus*: Dynamics of esterification and vertical

- distribution in the German Bight, North Sea. *Mar. Ecol. Prog. Ser.* (in press).
- Sommer, U. & F. Sommer. 2006. Cladocerans versus copepods: the cause of contrasting top-down controls on freshwater and marine phytoplankton. *Oecologia* 147(2):183-194.
- Sommer, F., A. Saage, B. Santer, T. Hansen & U. Sommer. 2005. Linking foraging strategies of marine calanoid copepods to patterns of nitrogen stable isotope signatures in a mesocosm study. *Mar. Ecol. Prog. Ser.* 286: 99-106.
- Sommer, F. & U. Sommer. 2004. $\delta^{15}\text{N}$ signatures of marine mesozooplankton and seston size fractions in Kiel Fjord, Baltic Sea. *J. Plankton Res.* 26: 495-500.
- Sommer, F., T. Hansen, H. Feuchtmayr, B. Santer, N. Tokle & U. Sommer. 2003. Do calanoid copepods suppress appendicularians in the coastal ocean? *J. Plankton. Res.* 25: 869-871.
- Sommer, F., B. Santer, C. Jamieson, T. Hansen & U. Sommer. 2003. *Daphnia* population growth but not moulting is a substantial phosphorus drain for phytoplankton. *Freshwater Biol.* 48: 67-74.

Ko Tomikawa

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My interest is the taxonomy of freshwater cyclopoid copepods.

Recent publications:

- Ko Tomikawa, Teruo Ishida and Shunsuke F. Mawatari. 2005. *Alloccyclops (Alloccyclops) austronipponicus*, a new species of cyclopoid copepod (Crustacea: Cyclopoida: Cyclopidae) from Okinawa Island, Japan. *Species Diversity* 10:19-26.
- Ko Tomikawa, Tomiko Ito, Noboru Minakawa and Shunsuke F. Mawatari. 2005. Two new species of *Ochridacyclops* (Kiefer, 1937) (Copepoda, Cyclopoida) from Kenya and Nepal. *Zoological Science* 22:477-487.

Marco Uttieri

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My primary field of investigation is zooplankton behaviour. Given my physical-biological coupling background, part of my research has been focused on the development of new metrics by which characterising zooplankton swimming trajectories. In addition, I am also interested in how the environmental conditions (e.g., light field, presence of prey, etc) may affect zooplankton swimming behaviour.

Recent publications:

- Uttieri, M. 2005. Swimming behaviour and prey capture in the calanoid copepod *Clausocalanus furcatus*. Open University of London; sponsoring establishment, Stazione Zoologica "Anton Dohrn" of Naples. 163 pp.
- Uttieri, M., M.G. Mazzocchi, A. Nihongi, M. Ribera d'Alcalà, J.R. Strickler & E. Zambianchi. 2004. Lagrangian description of zooplankton swimming trajectories. *J. Plankton Res.* 26(1):99-105.
- Uttieri, M., E. Zambianchi, J.R. Strickler & M.G. Mazzocchi. 2005. Fractal characterization of three-dimensional zooplankton swimming trajectories. *Ecol. Model.* 185(1):51-63.

Gritta Veit-Köhler

DZMB - Deutsches Zentrum für Marine
Biodiversitätsforschung -German Center for Marine
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The German Centre for Marine Biodiversity Research (DZMB) is a recently founded department of the Senckenberg Research Institute. Although located at the Jade Bay in the North Sea, our present focus is mainly on deep-sea meiofauna.

Personally, I am working with the taxonomy, biogeography and diversity of harpacticoid copepods, which started with my PhD thesis under the supervision of Prof. H. K. Schminke at the University of Oldenburg. Besides the deep-sea projects my studies mainly focus on harpacticoid copepods in polar regions, but parasitic copepods, food-web structures and modelling are topics I want to focus on in the future.

Agata Weydmann

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I'm a PhD student at the Institute of Oceanology of the Polish Academy of Sciences (Marine Ecology Department). My main interests are: genetics and phylogeny of the Arctic copepods and the Arctic food web.

So far I've got one publication:

Cohen, B.L. & A. Weydmann. 2005. Molecular evidence that phoronids are a subtaxon of brachiopods (Brachiopoda: Phoronata) and that genetic divergence of metazoan phyla began long before the Early Cambrian. *Organisms, Diversity and Evolution* 5:253-273.

But I hope to print another one soon: *Calanus* populations in Hornsund (Spitsbergen) – species diversity and distribution in a glaciated fjord.



New Candidate-Member

Christian Neumann

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Dr. Neumann is interested in associated copepods.

News from or about Members

New Addresses

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Süphan Karaytuğ has moved to Mersin University:

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New email: skaraytug@mersin.edu.tr

Süphan will also be using his previous email for some time.

Hiroshi Ueda has moved to:

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Center of Orsten Research & Exploration C.O.R.E.:
<http://www.CORE-Orsten-Research.de>
MOLMORPH Marie Curie Early Stage Training Network in
Evolutionary & Developmental Biology
Copenhagen-Barcelona-Berlin-Ulm-Vienna:
<http://www.molmorph.net>

In his note to colleagues, Shin mentioned the recent bloom of the giant jellyfish *Nemopilema* and its severe interference with fisheries in the western Pacific. This problem has even found its way into our national media.

Large numbers of fishermen in the southeastern U.S.A. have recently heard of copepods. This is because of the infestation of important sport fishes, especially the striped bass and other basses, in several reservoirs by a species of *Achtheres*. (A good article on this copepod, with a fine collection of photos, can be found at:

<http://www.tnfish.org/Achtheres/Achtheres.htm#top.>)

In recent years there have been spectacularly heavy infestations, some of which have coincided with mass mortalities of striped bass, especially in Smith Mountain Lake, Virginia. Therefore, many of my neighbors now know a bit about copepods -- although in a very negative context.

— Jan Reid, Editor
Martinsville, U.S.A.

Editor's Notes

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