



MONOCULUS Copepod Newsletter

The Newsletter of the World Association of Copepodologists

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<http://www.monoculus.org>

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Message from the President

We are now well into 2010 and beginning to look forward to the 11th International Copepod Conference in July 2011 in Mexico. The details can be found in the next article from Eduardo Suarez-Morales, Chairperson of the Organizing committee. It looks as if we are going to have a stunning venue and an interesting, relevant programme.

Eduardo and his committee still have much to decide upon. They aspire to publish the proceedings in a single volume but have not yet decided on the vehicle. They are also in the process of obtaining governmental funds, which has been more than complex due to the current economic restrictions, and negotiating with local companies for additional support, evaluating touring services and caterers and tours and options for the mid-conference tour and Maxilliped Lecture. With Rony Huys they are working on the venue and conditions for a pre-Conference Workshop on Copepoda for Latin-American students.

The other achievement you will notice is the revamped web site, thanks to Pedro Martínez Arbizu and Viola Siegler. You will all agree that it is very striking and smart. Of course there are still some glitches which will be gradually removed. We are still working on some of these. Check out the web site at <http://www.monoculus.org/>

— Janet Bradford-Grieve, President
National Institute of Water and Atmospheric
Research, New Zealand



MÉRIDA, MEXICO 2011

The 11th International Conference on Copepoda

First Announcement

In the WAC business meeting held during the 10th Conference in Pattaya, Thailand, The World Association of Copepodologists (WAC) officially selected Mexico as the next venue for the 11th Conference in 2011. After many years, the Conference will again be held in the Americas. The occasion is special because next year the World Association of Copepodologists will be celebrating its XXV Anniversary; our organization was created officially in 1986 as a result of the sustained efforts and interest of distinguished copepodologists (see WAC website: Brief History of the WAC).

As the chairperson of the Organizing Committee, it is a pleasure to post this first announcement through *Monoculus*. The 11th International Conference on Copepoda will be held on July 10–15, 2011, in the Hyatt Regency Hotel, Mérida, Mexico. Mérida is the largest city of the Yucatan Peninsula, in southeast Mexico. It is a colonial and modern city that was selected because of its vivid cultural features and an adequate infrastructure for visitors. It is located some 30 km from the northern coast of the Yucatan Peninsula, and is surrounded by Mayan archaeological sites and many other interesting

places including cenotes (sinkholes) of all kinds, a coast with a rich fauna (including large colonies of flamingoes), and the famous Haciendas remaining from the old regional economy based on the henequén (agave fiber) industry. These Haciendas represent an important period in the history of the peninsula and are now being restored as high-profile hotels. As a commercial and cultural pole in the region, Mérida is very well served by transport facilities. It has an international airport (about 15 km from the city) and is easily reachable from other major cities (3-hour highway trip from Cancún on the Caribbean coast or 1.5 h flight from Mexico City). The Caribbean coast of Mexico from Cancún to Chetumal offers excellent options for post-conference touring, including Cozumel, Tulúm, and Playa del Carmen.

The Hyatt Regency Hotel is conveniently situated in the heart of the city, just one block from Mérida's main urban artery, Paseo Montejo, a wide avenue along which the oldest houses of the wealthiest families and the most active commercial and social life coexist. There are many hotels of different categories located within walking distance from the Hyatt. We are negotiating reduced fees for the participants; more information on the location, rates, and features of these and other hotels in the area will be posted on the website of the 11th ICOC.



It is also a pleasure to present the logo of the Conference; the design of the logo represents a unique opportunity to show both the local cultural values and, of course, our beloved copepods. The logo introduced here was designed to project this mixture, first with the image of four copepods inspired by the general style of old Mayan glyphs carved in stone. You will notice that each of the copepod windows has a symbol: the first one has two dots (representing 2 in the Mayan numbering), followed by a second copepod with an oval symbol (representing zero, a Mayan contribution) and again one dot in each of the two remaining copepods, a “trans-numeral” representation of 2011. The Mayan number for 2011 is quite different as it follows a base-20 sequence. The letter font recalls the 19th century, when the Haciendas activity peaked. The colors used are also meaningful; on one side the light cream tone of the karstic limestone that underlies the entire peninsula. On the other side, the rust-red background represents the usual color of the Haciendas.

We have invited a group of colleagues to take part in the International Scientific Committee that will help us in the organization of the scientific program and to maintain the highest standards of the works submitted/presented during the Conference. The program will include the

regular oral and poster sessions of contributed works. There are now at least three topics that will anchor different Symposia, now being organized: “Copepods and Human Health”, “Copepods in Caves and Anchialine Environments” and “Morphology and Molecules – Why can’t we be friends?” Other topics are yet to be incorporated.

The Local Organizing Committee for the 11th International Conference on Copepoda is working in various directions to ensure that all conditions are met to have a pleasant, satisfactory conference amidst the magic of the Mayan culture, Mexican hospitality, and the warmth of the tropical realm. All colleagues interested in any aspect of the study of copepods, members and non-members, are invited to participate in the conference. The 11th ICOC will have its own website, which is now under construction and will be activated in late May, 2010; the address will be posted on the WAC website with a link. Registration of participants and submission of abstracts will be processed through the 11th ICOC website. Further announcements will also be available from the website and in *Monoculus*. We look forward to the pleasure of receiving our copepodologist colleagues and accompanying persons in Mérida in July 2011.

— Eduardo Suárez-Morales
Chairperson, Organizing Committee of the 11th
ICOC
esuarez@ecosur.mx

Call for Proposals to The Edward B. and Phyllis E. Reed Endowment

The Department of Invertebrate Zoology at the National Museum of Natural History is pleased to request proposals for grants to pursue research on freshwater copepods of North America. Funding for the grants is made available from The Edward B. and Phyllis E. Reed Endowment at the Smithsonian Institution.

Grants are for one year duration and are limited to no more than \$6,000. U.S. citizens and foreign nationals are eligible. Funds are disbursed in US dollars. Proposals should include: (1) a statement of proposed research of no more than 3 double-spaced pages; (2) a budget page; (3) CV's of all participants. Proposals from undergraduate and graduate students also must include a letter of support from the primary faculty advisor explaining the student's funding needs and describing the student's academic and research accomplishments.

Proposals may address any aspect of the biology of freshwater copepods of North America, although specimen-based research on taxonomy, poorly surveyed habitats, zoogeography, invasive species, or phylogeny is of particular interest. Proposal should include the names of taxa expected to be studied. Funds cannot be used to attend meetings. Awards for work at the Smithsonian Institution will be made as travel plus stipend; awards for all other research will be made as a reimbursable contract. In either case, grantee will deliver a final report on the results of the research within six months after the completion date. We also ask that reprints (paper or electronic) of publications resulting from the research should be made available to the Charles Branch Wilson Copepod Library, Dept. of Invertebrate Zoology [MRC – 534], Smithsonian Institution, 4210 Silver Hill Rd., Suitland, MD, 20746, USA, and to the Monoculus Library, Deutsches Zentrum fuer Marine Biodiversitaetsforschung, Forschungsinstitut Senckenberg, Suedstrand 44, D-26382 Wilhelmshaven, GERMANY.

Proposals are due by July 1, 2010. Send electronic proposals to ferrarif@si.edu (MS Word, WordPerfect, or PDF) or paper proposals to Dr. Frank D. Ferrari, Dept. of Invertebrate Zoology [MRC – 534], Smithsonian Institution, 4210 Silver Hill Rd., Suitland, MD, 20746, USA. Proposals will be evaluated by a standing committee, Ferrari chairman. All applicants will be notified by the end of August, 2010.

DIVERSIDAD, FAUNÍSTICA, ECOLOGÍA E INDICACIÓN TRÓFICA DE LOS COPÉPODOS CONTINENTALES Y MARINOS DE COLOMBIA (Diversity, faunistics, ecology and trophic indication of the continental and marine copepods of Colombia)

Lecturers:

Santiago Gaviria, Ph.D. (University of Vienna, Austria)

Nelson Aranguren, Ph.D. candidate (Universidad Pedagógica y Tecnológica de Colombia, Tunja, Colombia)

John Dorado, Biologist (Universidad de Bogotá Jorge Tadeo Lozano, Bogotá, Colombia)

Jenny Alexandra León, M.Sc. cand. (Universidad Nacional de Colombia, Santa Marta, Colombia)

Place: Universidad de Bogotá Jorge Tadeo Lozano, Bogotá, Colombia.

Date: 22 - 25 June 2010, full time (32 hours).

Language of the course: Spanish.

Oral lectures, laboratory work on taxonomy, case studies.

Registration and information:

Fee: 300 Colombian pesos (approx. US \$150)

Deadline to register: 31 May 2010

Prof. Guillermo Rueda Delgado,

limnologia@utadeo.edu.co

http://www.utadeo.edu.co/dependencias/limnologia/pdf/curso_taller_copepodos_tropicales_boletin2.pdf

FIRST INTERNATIONAL WORKSHOP ON SYMBIOTIC COPEPODA

Dear WAC Members,

Juli Kalman, Kazuya Nagasawa and I are organizing the **First International Workshop on Symbiotic Copepoda to be held from 4–8 December, 2010, at Cabrillo Marine Aquarium (CMA), San Pedro, California, U.S.A.** (for further information about CMA, please visit <http://www.cabrillomarineaquarium.org/>). San Pedro is a pleasant seaport city located about 25 minutes by automobile from the Los Angeles International Airport (for further information about this city, please visit

<http://www.sanpedro.com/>). We believe this workshop is timely as some of our colleagues specializing in the symbiotic groups have recently retired or will be retiring shortly, and as such, there is a declining trend of training and recruitment of young scientists in this field.

This workshop is co-sponsored by CMA and FRIENDS of CMA, and will provide improved methods for collecting symbiotic copepods and include, among others, computer software methods for organizing illustrations into plates more easily and eco-friendly. Further, participants will have opportunities to discuss their work with local university & high school science students and aquarium staff during the welcome reception, present their past and/or current research findings from their countries during the oral and poster presentation session, contribute to a 'roundtable' discussion regarding ways in which we can further promote our field to current & future young scientists as well as the general public, obtain assistance with identification of their material, develop long-term collaborations with interested participants and, most importantly, submit a paper for publication in the international journal *Zoosymposia* (which is the sister journal of *Zootaxa*). We are also pleased to announce that Ju-Shey Ho, Geoff Boxshall and Rodrigo Johnsson will assist as tutors during this workshop.

The workshop program is summarized at this juncture as follows:

4 December, 2010 (Sat.): Registration and welcome reception dinner

5 December, 2010 (Sun.): Research presentations (oral and poster) and discussion

6 December, 2010 (Mon.): Copepods associated with invertebrates lab

7 December, 2010 (Tues.): Copepods associated with fishes lab

8 December, 2010 (Wed.): Local tour

Please bear in mind that a registration fee of US\$100.00 is required from all participants. Part of the registration fee will be used to cover costs associated with the welcome reception dinner, morning & afternoon tea, and lunch services.

We are currently developing a website for this workshop, and plan to have it up and running in due course. This website will have information about abstract submission, registration, directions to the venue, accommodation options and more. Credit card payment for the registration fee (US\$100.00) will be made available directly through this website as well.

We have already received expressions of interest for this workshop from copepod and parasite enthusiasts in Korea, Taiwan, U.S.A., Australia, Japan, Brazil, Portugal, Thailand, Mexico and Germany. We can accommodate about 10 more participants, so if you are interested in attending please notify me, Juli Kalman (Julianne.Kalman@lacity.org) or Kazuya Nagasawa (ornatus@hiroshima-u.ac.jp) as soon as possible.

Best regards,



— Danny Tang
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Calanoid copepods (zooplankton). Stereomicroscopy with UV-b bulb placed next to stage. 50x.

Photo by Matthew Cook, Manchester Research Station, University of Idaho, Port Orchard, Washington, United States. Nikon "Small World" Honorable Mention, 2008. Reproduced by permission from Matthew Cook and Nicole Mudloff on behalf of Nikon.

New Books of Interest

Zooplankton of the Open Baltic Sea: Extended Atlas

By Irena Telesh, Lutz Postel, Reinhard Heerkloss, Ekaterina Mironova, & Sergey Skarlato

2009. BMB Publication No. 20, Meereswissenschaftliche Berichte (Marine Science Reports), Warnemünde 73:1-251. http://www.io-warnemuende.de/tl_files/forschung/meereswissenschaftliche-berichte/mebe76_2009-zooplankton-extended-atlas.pdf

A Pictorial Guide to Some Marine Harpacticoid Copepod of Malaysia

By Zaleha binti Kassim

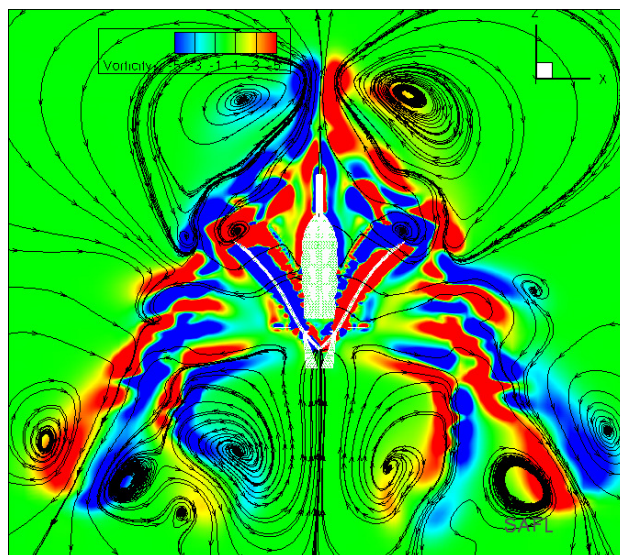
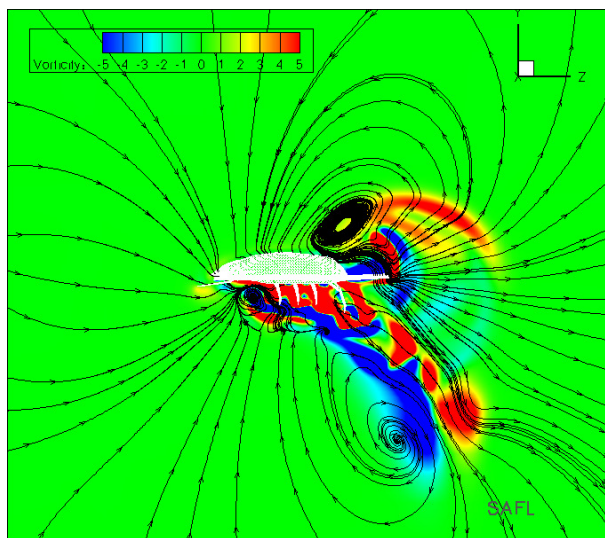
2008. Universiti Malaysia Terengganu, Kuala Terengganu. 122 pp. ISBN 978-983-2888-66-6.

Ekologi Meiobentos dan Harpacticoida di Hutan Paya Laut, Semenanjung Malaysia [Ecology of Meiobenthos and Harpacticoida in the Mangrove Forests of Peninsular Malaysia]

By Zaleha binti Kassim

2009. Penerbit Universiti Malaysia Terengganu. A Monograph. 41 pp. ISBN 978-967-5366-08-6. [In Malay.]

Copepod Flow Patterns



Copepod flow patterns. Copyright 2007, Iman Borazjani and Fotis Sotiropoulos, St. Anthony Falls Laboratory, University of Minnesota. <http://home.safl.umn.edu/iborazjani/research.htm>

We have carried out high-resolution simulations of a tethered copepod performing an escape maneuver on high-performance supercomputers. We have constructed a realistic copepod-like body, which includes most important parts of the animals anatomy: the antennules, legs, and tail. The kinematics of the individual body appendages during an escape maneuver are prescribed based on data obtained using cinematic digital holography.

The computed flowfields were compared with experimental results and analyzed to elucidate the structure and dynamics of the coherent wake vortices and quantify the specific contribution of each appendage on the production of propulsive thrust. See Borazjani (2008) for more details.

Reference:

Borazjani, I. 2008. Numerical simulations of fluid-structure interaction problems in biological flows. PhD. Thesis, University of Minnesota, Twin Cities.

— Iman Borazjani
St. Anthony Falls Laboratory
University of Minnesota, U.S.A.

Median or medial: which one is best?

Dear WAC members,

A comment provided by a competent reviewer for our manuscript containing a redescription of a cecropid species raises an interesting issue regarding the terms “median” and “medial”. The reviewer stated, “why “anteromedian” – when elsewhere you use medial, distomedial and proximomedial?” In our case, we used “anteromedian” to describe the location of a particular structure along the anterior midline of the body and “...medial” to describe, as is often the case in many descriptive copepod papers, the position of other structures along the inner margin of an appendage. We soon discovered, however, that the definition of “median” and “medial” have one or more meanings depending on the dictionary (or reference) used. Furthermore, the definitions of “median” and “medial” tend to overlap each other.

Definitions of “median”:

Maggenti *et al.* (2005): in the middle; along the midline of the body.

Martin (2010): on or near the plane dividing a shrimp into two mirror image parts; at, near, or directed toward the middle or midline.

Merriam-Webster’s Online Dictionary: being in the middle or in an intermediate position; lying in the plane dividing a bilateral animal into right and left halves.

Definitions of “medial”:

Brusca & Brusca (2003): a structure in the middle, or on, near, or toward the midsagittal plane, or along the inner margin.

Maggenti *et al.* (2005): the middle structure.

Merriam-Webster’s Online Dictionary: being or occurring in the middle; extending toward the middle; lying or extending toward the median axis of the body.

We now recognize the value of the reviewer’s comment, as using “median” and “medial” in a paper may be rather confusing especially when these terms are defined similarly as noted above. Additional confusion may arise when a similar structure is located on two different “medial” positions on the same appendage segment. For example, how would we best describe the position of the spinules for the swimming leg depicted in Figure 1? Stating “proximal and middle exopodal segments with distomedial spinule” is not unambiguous as “distomedial” can be interpreted as being located in the apical region of the middle AND inner margins based on the definitions given above. This ambiguity would be further problematic if, let’s say, the spinules depicted in Figure 1 were used as phylogenetic characters. To describe the presence/absence of the spinules as character states on the proximal exopodal segment, for example, using simply “distomedial spinule: present = 0; absent = 1” would not suffice as it is not clear which spinule, the one located in the middle of the apical margin or the other on the inner margin, this statement is referring to. Including a figure would not remedy this problem.

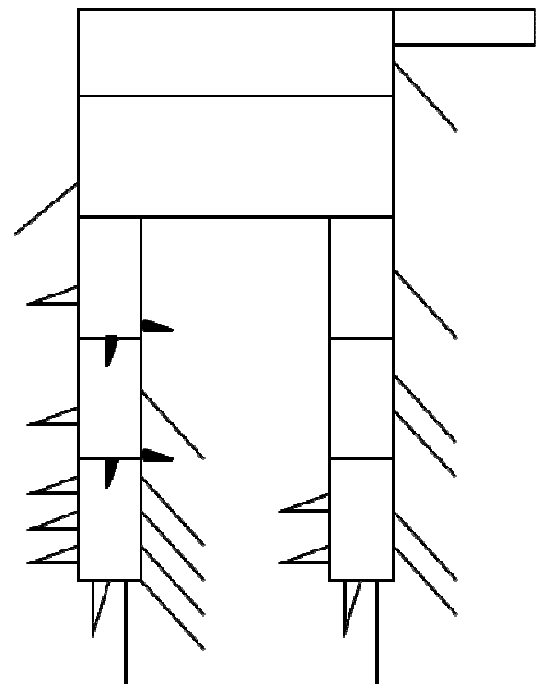


Figure 1. Schematic diagram of a copepod leg (open triangles = spines; closed triangles = spinules).

What are the solutions to these terminological issues?

Do we as a scientific society:

- a) agree unanimously to continue using “median” and “medial”, especially when it comes to using both terms in the same paper?
- b) if (a) above, should we always provide a definition of “median” and “medial” in the Materials & Methods section to avoid confusion?
- c) refrain from using “median”, and use “midline” instead?
- d) refrain from using “medial”, and use “central” or “middle” instead to describe a structure located truly in the middle (or median plane) of an appendage (for the spinule positioned in the middle of the apical margin in Figure 1 above, “apical central or apico-central” or “middle apical or mid-apical” would be appropriate) and “inner” or “internal” to describe a structure located along the inner margin of an appendage (for the spinule positioned distally on the inner margin in Figure 1 above, “inner apical” or “internal apical” seems straightforward enough)?
- e) develop one or more new terms to eliminate ambiguity?

We prefer to continue using “median” to describe the position of a structure along the midline of the body and implement (d) above. We are most interested to find out whether anyone else has experienced these issues and to hear your viewpoint(s) on this matter. Perhaps it would be useful for us to post feedback we receive in the next newsletter.

Best wishes,

Danny Tang and Kazuya Nagasawa
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Dannys' email: copepods@gmail.com
Kazuya's email: ornatus@hiroshima-u.ac.jp

References:

Brusca, R.C. & Brusca, G. J. 2003. *Invertebrates* (2nd Edition). Sinauer Associates, Inc., Sunderland.

Maggenti, A.R., Maggenti, M.A. & Gardner, S.L. 2005. *Online Dictionary of Invertebrate Zoology: Completed Work*. Posted at DigitalCommons@University of Nebraska – Lincoln at <http://digitalcommons.unl.edu/onlinedictinvertebratezoology/2>
Martin, J.W. 2010. Crustacea Glossary. Available at <http://crustacea.nhm.org/glossary/>
Merriam-Webster's Online Dictionary. Available at <http://www.merriam-webster.com/>

News from or about Members

Hello Janet,

I thought you might like to know that although I have been retired for 3 years I am still conducting research. I enclose some recent work.

With good wishes to all my copepod friends.

Chris Corkett
chriscorkett@eastlink.ca

Chris enclosed pdfs of: Corkett, C. 2009. Letter to the Editor: Karl Popper's definition of science. Fisheries Research 96:323, and a poster presented at the International Council for the Exploration of the Sea (ICES), 2008, Halifax, N.S. on “Scientific parameterization and its validation: comparing the universal models of fisheries economics with the invalid modeling of stock assessment.”

Hi Janet,

I am Giuseppe ALFONSO from Di.S.Te.B.A.
Department, University of Lecce – ITALY.

I became a WAC member in Pattaya during the last ICOC (July, 2008) and I subscribed my membership to the WAC for three years. As W. Chad requested in a recent mail to all WAC members, I write you for informing you on my activities. I became PhD Doctor at the end of July 2008, disserting the PhD thesis "Composition and structure of lacustrine zooplankton in the Southern Apennines - Italy"

I've recently published the following papers:

Alfonso, G. & G. Belmonte. 2008. Expanding distribution of *Boeckella triarticulata* (Thomson, 1883) (Copepoda: Calanoida: Centropagidae) in Southern Italy. *Aquatic Invasions* 3(2): 247-251.

Alfonso, G. & G. Belmonte. 2010. *Neoergasilus japonicus* (Harada, 1930): a new non indigenous species for the Italian Fauna. *Italian Journal of Zoology*. (DOI 10.1080/11250001003591783).

Another paper was just accepted for *Hydrobiologia*.

I've recently obtained a grant for the studying the zooplankton assemblages of Mediterranean temporary ponds in Apulia (South East Italy). I recently started also a research in lakes of Albania (Dumre District) and pond of Sharr Mountains in the Republic of Macedonia. I also took part in the project "Limnological characterization of lakes in the territory of San Ignacio de Huinay (X Region de los Lagos - Chile)".

And that's all.

Please use my new mail address:
giuseppe.alfonso@unisalento.it

Regards
Giuseppe Alfonso

Giuseppe ALFONSO, PhD doctor
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e-mail: giuseppe_alfonso@yahoo.it
Skype username: giuseppealfonso

New Members

Adly Alansari from Bahrain (Aquaculture)

Alexandra Temnykh from Ukraine (no field of interest specified)

Rakhesh Madhusoodanan from India (Estuarine and marine zooplankton, marine genomics)

Li-Lew Chew from Malaysia (Marine ecology with emphasis on Copepoda)



Stanley Ivan Dodson

26 July 1944 – 23 August 2009

Stanley Ivan Dodson passed away on 23 August, 2009, from injuries sustained in a bicycling accident at the Colorado National Monument. Stanley was born in Lincoln, Illinois, U.S.A. on 26 July 1944; his family later moved to western Colorado, where he graduated from Grand Junction High School in 1962. He received the B.A. in Science from Yale in 1966, and in 1970 the Doctorate in Zoology from the University of Washington, where he was mentored by Tommy Edmondson. Stanley passed his entire professional career as Professor of Zoology at the University of Wisconsin, from 1970 until his retirement in 2008.

His contributions to the knowledge of zooplankton and specifically to copepod studies were marked by an originality of approach. As an ecologist, Stanley contributed landmark studies such as the early classic work by Brooks and Dodson (1965) on the role of planktivorous fish in regulating the zooplankton community structure. This theme of community-regulation mechanisms continued with his work on the role of cyclomorphosis and pheromones in cladoceran populations, and later on the relationship between zooplankton community richness and the area and productivity of water bodies. This led in its turn to studies of the effects of land use and chemical contaminants on plankton assemblages. Similar originality and careful evaluation informed his studies on cladoceran and copepod taxonomy. He employed multivariate statistics to attempt to resolve knotty problems in the *Acanthocyclops vernalis-robustus*

group (Dodson, 1994; Dodson et al., 2003), and was recently revising the species of *Eurytemora* and Diaptomidae in North America. Two species of copepods are named in his honor: *Leptodiaptomus dodsoni* Elías-Gutiérrez, Suárez-Morales & Romano-Márquez, 1999, and *Acanthocyclops dodsoni* Mercado & Suárez-Morales, 2006.

Stanley will be profoundly missed by everyone with whom he came in contact. His friends and students use many words to describe what he meant to them; respect, generous, open, loyal, kind and helpful, enthusiastic. A versatile person of wide interests, especially related to the natural world, Stanley loved bicycling, tai chi, running, fencing, gardening, bird watching, music, and travel, among other activities. An incomplete list of memoriam articles is provided below. Stanley had recently become a member of the WAC, and hoped to contribute actively to the Association. We join his wife, Virginia E. Dodson, and his family and friends in mourning his loss, but also in celebrating the life of this extraordinary naturalist and planktologist.

References:

Complete lists of Stanley's publications were provided by John Havel (2009) and Barbara Peckarsky (2010). Those involving copepods can be found on the Smithsonian "World of Copepods" Bibliographic Database at <http://invertebrates.si.edu/copepod/>

- Brooks, J.L. & S.I. Dodson. 1965. Predation, body size, and composition of plankton. *Science* 150(3692):28-35.
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— Jan Reid, Editor

What's New With Membership

Update Information

The World Association of Copepodologists (WAC) has received support in terms of membership dues from 83 individuals so far for 2010. Since we started using the new PayPal electronic dues payment website, 85 individuals have used this service, and we would like to encourage the continued use of it. When someone uses PayPal, two emails are sent automatically, one to you the donor providing you with a receipt of payment, and the second to the Treasurer that a payment was made by you. Currently, 19 members have requested waivers for dues payment for 2010. As of this date, three members have generously become lifetime sponsors, Ju-shey Ho, Janet W. Reid, and Shin-ichi Uye; and there is one annual sponsor, Chad Walter. Chad and Susumu Ohtsuka were annual sponsors last year. As of April 30, 2010, the WAC has US \$39,143.36 in our accounts. We have advanced the host-country organizer an initial \$2,000 to help offset arrangement costs for the next conference in Mérida, Mexico in 2011.

WAC 2009 Finances (US dollars)

	Savings	Checking	PayPal	Totals
01/1/2009	25,000.00	6,010.42	0.0	31,010.42
Deposits	4,584.84 ¹	1,340.05	5,056.43	6,396.48
Interest	23.91	0.0	0.0	23.91
Withdrawal	0.0	(2,025.00) ²	4,584.84 ³	(2,025.00)
12/31/2009	29,608.75	5,325.47	471.59	34,405.81

¹ transfer from PayPal

² payment to Mexico, \$25 service charge

³ transfer to savings

PayPal – how to use it


Although the Treasurer can continue to accept checks and payment in person at the Conferences, paying dues through the electronic payment service PayPal is fast, easy, and safe. Several members have indicated that they did not know how to use PayPal online. Here is a brief primer for those of you who are new to electronic payments. First, go to the WAC homepage <http://www.monoculus.org> and then click on the membership page; in the right-hand column you will see the "Donate" icon. Click on this; you can either use your current PayPal account if you have one, or if you do not have an account, you can use your credit card or bank account by clicking on "Continue".

World Association of Copepodologists

Please enter your donation amount and click **Update Total**.

Purpose	Donation amount	Total
World Association of Copepodologist	\$ <input type="text"/>	\$ <input type="text"/>

\$ USD **Update Total**





Donate quickly with PayPal  **Secure Payments**

PayPal securely processes donations for World Association of Copepodologists. You can complete your payment with just a few clicks.

Why use PayPal?

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LOG IN TO PAYPAL

Email:

Password:

Log In

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If you use the “Continue” option, you will need to fill out all the fields. All information entered here is safe. The WAC will not sell, distribute, or give away any of the information that you enter. First, you type in the amount of the dues that you are paying and click on “Update Total”. The screen will refresh, and then you just fill out the rest of the form and click “Review Donation and Continue”.

World Association of Copepodologists

Please enter your donation amount and click **Update Total**.

Purpose	Donation amount	Total
World Association of Copepodologist	\$ <input type="text"/>	\$ <input type="text"/>

\$ USD **Update Total**





Pay with Credit Card or Log In  **Secure Payments**

Country:

First Name:

Last Name:

Credit Card Number:

Payment Type:     [What's this?](#)

Expiration Date:

Billing Address Line 1:

Billing Address Line 2 (optional):

City:

State:

ZIP Code:

Home Telephone:

Email:

ALREADY HAVE A PAYPAL ACCOUNT?

Email:

Password:

Log In

[Forgot email address or password?](#)

Review Donation and Continue

The next screen that appears will have a link for “Comments”. Click on this and type in the year the donation is for, and if you are paying multiple years indicate that also, or you can write any message that you want to the Treasurer. Then just click on FINISH and you are done. Your dues are important for WAC to continue to offer financial help to the host country

for the tri-annual conferences, and allow us to help support students to attend these conferences.

WAC has a new website

A new website has been developed for the copepod community. Currently, we have 530 researchers in the database, although not all are members. You can search for them via their names, institution, or country to find their email addresses. As per the direction of the WAC Executive Council, the Webmaster Pedro Martínez Arbizu has contracted a team to create a new look for our webpage. This new website is more streamlined and offers much new information for copepod researchers.

One of the new features for members, and for the Treasurer, is a new membership database. Members will now be able to keep their information current online by updating affiliation, emails, and interests. The Treasurer will use this database to keep track of dues paid by members.

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Username:

Password:

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World Association of Copepodologists

Welcome to the website of the World Association of Copepodologists !

Copepods are among the most abundant metazoans on Earth and can be found almost everywhere there is water - from high-altitude lakes in mountain ranges, down to the depths of the ocean trenches. Copepods dominate the zooplankton, they are super-abundant in sediments, and they are parasitic on virtually every phylum of animals from sponges to chordates (including reptiles and mammals).

This website will help you find out more about this fascinating group of crustaceans.

The World Association of Copepodologists (WAC) is a nonprofit international organization whose purpose is to promote research on Copepoda by facilitating communication among interested specialists.

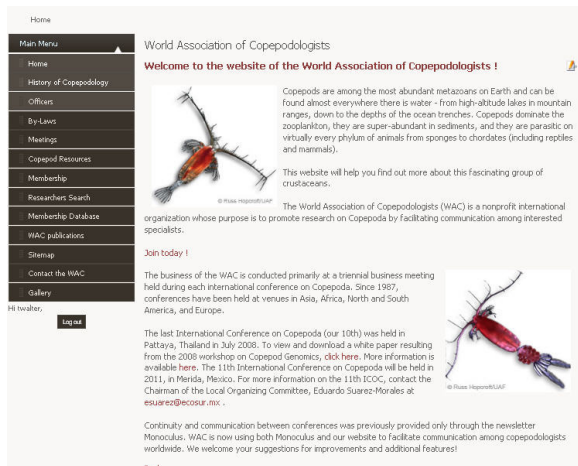
The business of the WAC is conducted primarily at a triennial business meeting held during each international conference on Copepoda. Since 1987, conferences have been held at venues in Asia, Africa, North and South America, and Europe.

The last International Conference on Copepoda (our 10th) was held in Pattaya, Thailand in July 2008. To view and download a white paper resulting from the 2008 workshop on Copepod Genomics, click here. More information is available here. The 11th International Conference on Copepoda will be held in 2011, in Merida, Mexico. For more information on the 11th ICOC, contact the Chairman of the Local Organizing Committee, Eduardo Suarez-Morales at esuar@ecosur.mx.

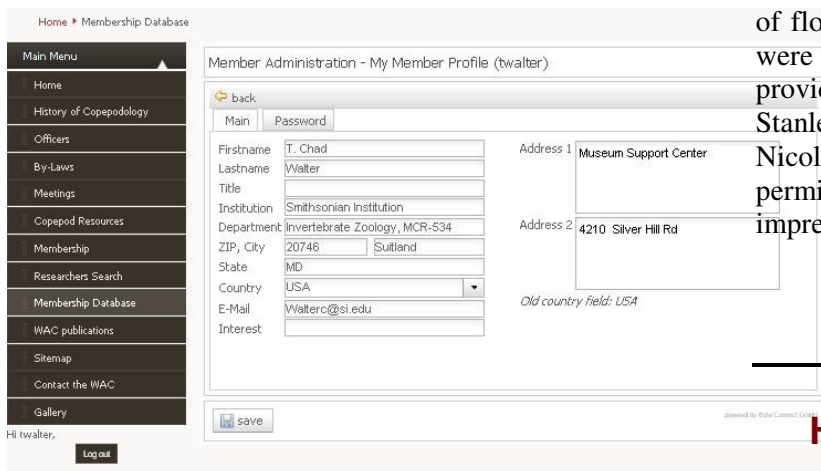
Continuity and communication between conferences was previously provided only through the newsletter Monoculus. WAC is now using both Monoculus and our website to facilitate communication among copepodologists worldwide. We welcome your suggestions for improvements and additional features!

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In a few weeks I will be sending out an email to all researchers with logins and passwords. Then, just log into the website <http://www.monoculus.org>. At the lower left corner you will need to type in your username/password. On the next screen you should see a “Hi John Doe” where you just typed in your login, and when you see this you will know that you are logged in.



Click on the membership database and you will see your information that you can update on the Main page. You can then also click on the “password” tab and create your own new password. Just click “save” when you are finished, fast and easy. If you have a problem logging in, please contact me at walterc@si.edu and I will help you to access your profile.



Go ahead and check out the website. If you have any problems or suggestions please feel free to contact us.

Copepod Corrections in *Science*

Science, June 2000; 288: 2133. "Guinea worm banished from India" (17 Mar., p. 1917). The organism that nurtures Guinea worm eggs, *Cyclops*, is a crustacean (subclass Copepoda), not an aquatic insect.

Science, December 2000; 290: 2075. ... NetWatch: "Krill stuff" [24 Nov. vol. 290(5496):1459]. The Antarctic krill *Euphausia superba* was erroneously described as a copepod.

Since then, *Science* seems to have figured out what a copepod is. But copepods may get no “respect” in other quarters:

“Scientists may call for careful tracking of lackluster organisms such as ratfish, nematodes, or copepods.” -- deReynier, Y.L., P.S. Levin & N.L. Shoji. 2010. Bringing stakeholders, scientists, and managers together through an integrated ecosystem assessment process. *Marine Policy* 34(3):534-540.

Editor's Notes

Thanks to Giuseppe Alfonso, Chris Corkett, Frank Ferrari, Santiago Gaviria-Melo, Kazuya Nagasawa, Eduardo Suárez Morales, Danny Tang, and Chad Walter for their contributions to this number. Thanks to Iman Borazjani for permission to reproduce the images of flow patterns, and for the information on how they were generated. I am grateful to John Havel for kindly providing a prepublication copy of his article on Stanley Dodson. Thanks also to Matthew Cook and Nicole Mudloff on behalf of Nikon, for their permission to reproduce the fine and rather impressionistic photo on page 5.

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

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Membership in the WAC: Any person interested in any aspect of the study of Copepoda is eligible for membership in the WAC. Contact the General Secretary for an application form and other information.

Dues: Dues of US \$20.00 per annum are payable by students & researchers from less-developed countries; \$35 for Standard Members; \$200 for Sponsors; and \$1000 for Life Members. Members who have difficulty paying dues may apply to the President and the Executive Council for a waiver or reduction. Dues may be paid in advance. Contributions to the WAC are tax-deductible in the U.S.A. WAC accepts personal checks issued in local currencies, made payable to WAC. Checks should be sent by mail to the Treasurer of the WAC. Dues may also be paid in person at WAC conferences. Members who are more than two years in arrears will automatically have their membership terminated.

Newsletter: All members receive the newsletter *MONOCULUS*, which appears at least once a year, in electronic or printed versions.

Copepod Libraries: Monoculus-Library: C/o Prof. Dr. Pedro Martínez Arbizu, Forschungsinstitut Senckenberg, DZMB-Forschungsinstitut Senckenberg, Monoculus-Library, Suedstrand 44, D-26382 Wilhelmshaven, Germany.

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