



# The Ecdysiast

The Newsletter of The Crustacean Society

## Message from the President...

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Dear TCS-colleagues,

We have been organizing, starting this year, several campaigns to strengthen the link between The Crustacean Society and its members.

In June 2022, we designed and produced a TCS t-shirt "C'est Larvae" for members. This campaign was completed successfully last month and a total of 103 t-shirts were ordered by 62 members. We received some encouraging messages, including "The t-shirt is here and I love it! Thanks to all who organised it, it's very cool! I also work in a French-speaking environment so it's doubly fun!" "My t-shirt came yesterday and it looks fabulous!" "I received my shirt today and it is awesome!! Is there a chance I can place another order? Again, the shirt is amazing and thank you so much for the amazing shipping." We have reserved a small number of t-shirts and will sell those in our TCS counter during the upcoming SICB meeting in Austin, Texas, USA in January 2023.

The second campaign, which will start very soon, is the TCS photography competition. This is the first photography competition ever in our society and the winners' photos will be used to create a TCS calendar. We will soon be announcing further details of the competition. Many of the members take very beautiful photographs of their target crustaceans and I hope there will be many entries in the competition. The competition will include categories such as specimens, lab-based photos (e.g. SEM, confocal microscopy), and *in-situ* photos to allow more diverse entries.

We will have an in-person meeting in the ICC10 in Wellington, New Zealand in May 2023, the first in-person meeting for many of us after the Covid pandemic. To support this meeting, the TCS committee has decided to double both the number of student awards (from 5 to 10), and the prize from US \$500 to US \$1,000 per award. We hope this arrangement will motivate more student members to participate in the ICC10 meeting. The deadline for the student travel grant has been changed to the end of January 2023 to allow the awardees time to arrange travel bookings for the meeting.

The number of members is essential for the success of a scientific society. We are always trying to enhance membership benefits and encourage more colleagues to register as TCS members. Here are 10 reasons for becoming and remaining a member:



Please share to your friends  
**Ten reasons to join TCS!**  
 I, II, III, IV, V, VI, VII, VIII, IX, X

Top: Wearing a C'est Larvae t-shirt at work.  
 Bottom: Arranging postage of t shirts to members.



- 1) Student/post-doc travel grants to support travelling to TCS conferences
- 2) TCS Fellowships in Graduate Studies to support graduate student research
- 3) Free page charges (up to 12 pages when at least half of the authors are TCS members) when publishing in *Journal of Crustacean Biology*
- 4) Free downloads of articles
- 5) Annual award for best student publication for student members listed as the first author of an article published in *Journal of Crustacean Biology*
- 6) Discounted registration fees for TCS and SICB meetings
- 7) The Crustacean Excellence Research Award (TCSERA) for senior members
- 8) Best poster/oral presentation competition for student members attending SICB and TCS meetings
- 9) TCS-organised campaigns (e.g. photography competition etc) for members
- 10) Making friends and new colleagues in an influential and productive community of carcinologists!

I hope we can share these ten reasons for being a TCS member with our colleagues, students, and friends and ask them to join TCS to expand the TCS community and its positive impacts.

Benny K.K. Chan  
President, The Crustacean Society





# Thank you to our benefactors

Consider becoming a TCS Patron Member where you support the membership of at least one other member/student. The numbers are still increasing, a **thank you** to you all!



**Crustacean Society Patron  
Members**

Shane Ahyong  
Raymond Bauer  
David K. Camp  
Peter Castro  
Paul Clark  
Neil Cumberlidge  
Rodney Feldmann  
Sarah Gerken  
Sandra Gilchrist  
Jens Thorvald Hoeg  
Vincent Chi Sing Lai  
John Layne  
Jeff Levinton  
Alejandro Maeda-Martinez  
Dean Pasko  
Gary Poore  
Wayne Price  
Stefan Richter  
D. Christopher Rogers  
Bernard Sainte-Marie  
Carrie Schweitzer  
Alan Shanks  
Thomas Shirley  
Brian Tsukimura  
Christopher Tudge  
Les Watling







# The Crustacean Society Board Members, 2021

## President

Benny Chan  
Academia Sinica, Taiwan  
email: [chankk@gate.sinica.edu.tw](mailto:chankk@gate.sinica.edu.tw)

## President-elect

Amanda Windsor  
US Food and Drug Administration, Maryland, USA  
email: [amwindsor@gmail.com](mailto:amwindsor@gmail.com)

## Past-President

Ingo Wehrtmann  
Universidad de Costa Rica, Costa Rica  
email: [ingo.wehrtmann@ucr.ac.cr](mailto:ingo.wehrtmann@ucr.ac.cr)

## Treasurer

Jason Williams  
Hofstra University, New York, USA  
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## Secretary

Sarah Gerken  
University of Alaska, Anchorage, USA  
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## Program Officer

David Hudson  
Remote Ecologist, Inc, USA  
email: [dmhudson@remotecologist.org](mailto:dmhudson@remotecologist.org)

## Executive SICB Liaison Officer

John Zardus  
The Citadel, South Carolina, USA  
email: [john.zardus@citadel.edu](mailto:john.zardus@citadel.edu)

## Europe Governor

Anne Helene Tandberg  
University Museum of Bergen, Norway  
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## Africa Governor

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## Asia Governor

Tadashi Kawai  
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## Indo-Pacific Governor

Rachael Peart  
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email: [Rachael.Peart@niwa.co.nz](mailto:Rachael.Peart@niwa.co.nz)

## Latin America Governor

Laura López-Greco  
Universidad de Buenos Aires, Argentina  
email: [Laura\\_lopez\\_greco@hotmail.com](mailto:Laura_lopez_greco@hotmail.com)

## North America Governor

Heather Bracken-Grissom  
Florida International University  
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The Ecdysiast is published twice yearly in May and November and it is available in electronic form at <http://www.thecrustaceansociety.org/ecdysiast>. All the past issues are also available from the same web site. Submissions for the May newsletter should be received by mid March, while those for the November newsletter should be received by mid September. All types of crustacean-related contributions are encouraged, including announcements of upcoming workshops and meetings, regional updates, meeting summaries (with photos!), new publications and any other crustacean news.

Send all material directly to the Editor:

**Kareen Schnabel**, [kareen.schnabel@niwa.co.nz](mailto:kareen.schnabel@niwa.co.nz)



# The Crustacean Society Liaison Officers, 2021

## **The Chinese Crustacean Society**

**Liaison Officer:** Xinzheng Li  
CAS Institute of Oceanology, China  
email: [lixzh@qdio.ac.cn](mailto:lixzh@qdio.ac.cn)

## **International Association of Astacology**

**Liaison Officer:** Javier Diéguez-Urbeondo  
Spain  
email: [dieguez@rjb.csic.es](mailto:dieguez@rjb.csic.es)

## **The Brazilian Crustacean Society**

**Liaison Officer:** Fernando Mantelatto  
University of São Paulo, Brazil  
email: [flmantel@usp.br](mailto:flmantel@usp.br)

## **The Carcinological Society of Japan**

**Liaison Officer:** Akira Asakura  
Seto Marine Biological Laboratory, Kyoto  
University, Japan  
email: [asakura.akira.6w@kyoto-u.ac.jp](mailto:asakura.akira.6w@kyoto-u.ac.jp)

## **The World Association of Copepodologists**

**Liaison Officer:** Rony J. Huys  
Natural History Museum, London, UK  
email: [r.huys@nhm.ac.uk](mailto:r.huys@nhm.ac.uk)

## **International Research Group on Ostracoda**

**Liaison Officer:** Renate Matzke-Karasch  
University Munich, Germany  
email: [r.matzke@lrz.uni-muenchen.de](mailto:r.matzke@lrz.uni-muenchen.de)

## **Latin American Carcinologist Association**

**Liaison Officer:** Michel Hendrickx  
Unidad Academica Mazatlan, Mazatlan, Mexico  
email: [michel@ola.icmyl.unam.mx](mailto:michel@ola.icmyl.unam.mx)

## **Colloquium Crustacea Decapoda Mediterranea Group**

**Liaison Officer:** Enrique Macpherson  
Centro de Estudios Avanzados de Blanes, Spain  
email: [macpherson@ceab.csic.es](mailto:macpherson@ceab.csic.es)

## **Terrestrial Isopod Biologists Group**

**Liaison Officer:** Jasna Strus  
University of Ljubljana, Slovenia  
email: [jasna.strus@bf.uni-lj.si](mailto:jasna.strus@bf.uni-lj.si)

## **Large Branchiopod Working Group**

**Liaison Officer:** D. Christopher Rogers  
University of Kansas, Kansas  
email: [branchiopod@gmail.com](mailto:branchiopod@gmail.com)

## **Amphipod Group**

**Liaison Officer:** Wim Vader  
Tromsø Museum, Norway  
email: [wim.vader@uit.no](mailto:wim.vader@uit.no)

## **German Carcinologists**

**Group Liaison Officer:** Sebastian Klaus  
Goethe Universität, Frankfurt am Main, Germany  
email: [klaus@bio.uni-frankfurt.de](mailto:klaus@bio.uni-frankfurt.de)

## Follow The Crustacean Society on social media



@TheCrustaceanSociety



@CrustaceanSoci



@ thecrustaceansociety



## Treasurer's Report for November 2022

As of October 2022, TCS had 304 renewed members for 2022 (230 regular members, 26 patron members, and 48 student members). In 2021 we had a total of 331 members, so we have been holding relatively steady in terms of membership, but it would be wonderful to get those student numbers up!

The Executive Committee of TCS (President Benny Chan, President-Elect Amanda Windsor, Treasurer Jason Williams, Secretary Sarah Gerken, and Program Officer David Hudson) approved expanding the funding of student travel to 10 Student Travel Awards in order to increase support for travel to the ICC10 meeting in New Zealand. We are anticipating that two students will be chosen from each of the regions represented by TCS governors. Please tell your students about this opportunity. Also note that TCS awards up to three Early-Career/Post-PhD Travel Awards.

TCS has been working with Nonprofits Insurance Alliance (NIA) to continue our General Liability Insurance and get quotes on two additional types of insurance (Director and Officer Insurance plus Error and Omission Insurance). In total, the insurance is estimated at ~\$2200; as soon as the final quotes come in the Executive Committee will review the details and vote on the purchase (likely in November). The insurance coverage is important for potential liability (for our officers and affiliates such as the social media coordinator) against alleged harassment, mismanagement and other issues.

The Executive Committee voted to keep the membership dues at the present levels for 2023 (\$35 for student members, \$100 for regular members and \$195 for patron members). The 2023 proposed budget (see below) is based on conservative estimates of membership and includes the new charges (increased number of travel awards, insurance), so we are presently projecting a budget that will have a deficit (~\$5K). As has happened worldwide, TCS investments have unfortunately come down, but our Schwab accounts still total approximately \$630K. Our MainStreet Bank checking account is at approximately \$30K.

Reminder, that the link to join or renew memberships is: <https://scienceserv.com/tcs/membership/membership.php> (or [go to](#) form at the end of this issue) and you can contact ([mrobinson@burkinc.com](mailto:mrobinson@burkinc.com)) directly if you have any issues with payments. A copy of the membership form is provided at the end of this issue of the *Ecdysiast*. Please encourage your students and colleagues to join! Consider becoming a patron member and helping to support TCS students.

Respectfully submitted,  
Jason Williams



## The Crustacean Society - Proposed Budget

Year January 1, 2023 through December 31, 2023

Proposed Budget 2023

### REVENUE

Membership Dues (4090)		
	Member Online	24,000
	Patron Online (Online Journal and subsidize at least one (student) member)	3,900
	Student Online Member	1,750
	<b>Total Membership Dues</b>	<b>\$29,650</b>
JCB	OUP Profit Sharing	34,275
	<b>Total JCB</b>	<b>\$34,275</b>
Contributions:	General	4,500
	<b>Total contributions</b>	<b>\$4,500</b>
<b>TOTAL REVENUE</b>		<b>\$68,425</b>

### EXPENSES

Meetings:	Summer Meeting Expense	Travel - Other officers including SICB Liason	2,000
		<b>Total Meeting Expense</b>	<b>\$2,000</b>
	SICB	SICB Booth	600
		SICB General Expenses	1,600
		<b>Total SICB Expenses</b>	<b>\$2,200</b>
		<b>Total Meeting Expenses</b>	<b>\$4,200</b>
JCB:	Editor's Office	Support to JCB Editors Membership	1800
		<b>Total Editor's Office</b>	<b>\$1,800</b>
	JCB Printing & Distribution:	Member Subscriptions	7,750
		<b>Total JCB Printing &amp; Distribution</b>	<b>\$7,750</b>
Awards & Scholarships		<b>Total Awards &amp; Scholarships</b>	<b>\$20,400</b>
Administrative		Bank Service Charges/Investment Fee (6210)	1,730
		Management Fee - BAI	33,000
		Website	1,000
		Social Media Coordinator	1,000
		Miscellaneous/ TCSERA Award Plaque	150
		Insurance	2,200
		<b>Total Administrative</b>	<b>\$39,205</b>
<b>TOTAL EXPENSES</b>			<b>\$73,355</b>
<b>CHANGE IN NET ASSETS</b>			<b>-\$4,930</b>



## 2022 PROGRESS REPORT

The 2022 publication of articles has so far shown a marked decrease in contrast to the same period in 2021.

Subjects	2021 (to 29 October)	2022 (to 27 October)
Phylogeny/Taxonomy	19	14
Ecology	17	15
Research Notes	11	3
Reproductive Biology	7	5
Functional Morphology	6	0
Genetics/Genomics	5	4
Behavior	4	5
Physiology	4	5
Aquaculture	3	0
Review articles	2	1
Paleobiology	1	3
Historical Memorial	1	0
Special Section	0	6
Embryology	0	1
<b>TOTAL PUBLISHED</b>	<b>80</b>	<b>62 (-22.5%)</b>
<b>IN PRESS</b>	<b>0</b>	<b>1</b>
<b>APPROVED BUT WAITING FOR AUTHORS' REVISIONS</b>	<b>21</b>	<b>9 (-57.1%)</b>
<b>IN PEER REVIEW</b>	<b>18</b>	<b>12 (-33.3%)</b>



Consider publishing in the JCB, remember that page charges (for the first 12 pages of the typeset article) are waived for TCS members.

We are implementing a more aggressive campaign to increase the number of submissions. Such efforts include the publication of short review articles, a new category, and encouraging the number of special-issue articles resulting from presentations in symposia, meetings, as well as the grouping of articles on particular subjects. Also part of our efforts is stimulating the publication of articles written by students, which will compete for a new annual award.

The last issue of the year 2022 will be published as Volume 42, Issue 4 in December 2021 (<https://academic.oup.com/jcb/issue/42/4>). Take a look at the interesting range of carcinological research on display.

Peter (Pedro) Castro  
Editor-in-Chief, *Journal of Crustacean Biology*





## The Social Media Corner

Hey Crustacean Society members, have you followed our social media accounts yet? Here are some cool stats and fun facts about our socials: We currently have **327** followers on Twitter 🐦, **284** followers on Instagram 📷 and **380** likes on Facebook 📘. Our Instagram page in particular have featured over 30 different crustacean species 🦀🦎🦑, some contributed by our members! Please message us on Instagram if you have any photos of crustaceans you would like to feature on our social media posts

Our 🌟 **top tweet** 🌟 so far is an advert on behalf of the Florida Southern College, inviting applications for a full-time, tenure-track Assistant Professor of Marine Biology position (posted on 13 September 2022), with 70 people clicking the link. As such, we have invited members to send in potential job opportunities, taking advantage of our widespread social media accounts to disseminate opportunities to potential applicants. If you have an opportunity (faculty, post-doc, PhD/MSc.) you'd like to share with a wider audience, please email us at [thecrustaceansociety@gmail.com](mailto:thecrustaceansociety@gmail.com)! We will respond to your query as soon as possible.

@TheCrustaceanSociety on Facebook

@CrustaceanSoci on Twitter

@thecrustaceansociety on Instagram

— Elysia Toh, TCS Social Media Coordinator

## TCS student awards

The Crustacean Society provides a wide range of grants and scholarships for students and postdoctoral researchers. The various options are presented below. Please make sure to apply before the deadlines. If you have any questions please contact the [TCS Program Officer](#).

The Crustacean Society (TCS) is pleased to announce the winners of the Best Student Paper and Poster Competition held during TCS Summer Meeting held between 6–9 June in Santos, Brazil.

The best student Oral Presentation Award was presented to **Boyang Shi** (Nanjing Normal University) on their talk titled '*Multilocus phylogeny of the endemic Chinese freshwater crabs genus Tenuipotamon sensu lato reveals a distinct species division and pronounce effect of sky islands.*'

The best student Poster Presentation was presented to **Valéria Fonseca Vale** (Universidade Federal do Rio Grande do Norte) for their poster titled '*Bergmann-Rensch continuum under shell: gender-specific trend in response to latitudinal gradient.*'

Each award consists of a certificate, US \$100 cash, and a one-year membership in The Crustacean Society, including subscription to The Journal of Crustacean Biology.

On behalf of TCS, I congratulate the winners.

—TCS Program Officer: Dr. David Hudson



## TCS Fellowship in Graduate Studies

TCS annually awards up to six US\$1,000 Fellowships in Graduate Studies in any research concerned with the biology of crustaceans. The fellowship is to support the research objectives and career goals of the graduate student. This award requires a letter of support from their faculty sponsor/mentor. Both the student and their faculty sponsor/mentor must be a TCS member at the time of application. Further details and requirements are in the application and can be downloaded [here](#).

DEADLINE FOR APPLICATION: 31 March annually.

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## TCS Early-career, post-Ph.D. Travel Awards

TCS annually awards up to three (3) US\$1,500 travel awards for early-career researchers with a Ph.D. awarded within five years of the application deadline. Extension of up to eight years post- Ph.D. will be considered at the discretion of the Program Officer for applicants having taken a career break for family reasons. The grants shall cover travel to present, preferably in an oral session, results of their research in any field of study involving crustaceans at a TCS meeting (mid-year or SCIB meeting). Preference will be given to applications that will result in a manuscript suitable for publication in *Journal of Crustacean Biology*. Deadlines: 15 March and 15 September annually. The application can be downloaded [here](#).

DEADLINE FOR APPLICATION: 15 March and 15 September annually.

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## TCS Student Travel Awards

**In preparation for [ICC10](#) in Wellington, New Zealand, in May 2023, TCS is increasing the number of awards to a maximum of ten (10) US\$1000 awards, in acknowledgment of the long-distance travel for most applicants.** The TCS Student Travel Awards are granted twice a year to support student attendance at TCS meetings (TCS mid-year/ICC and SICB). Applicants must be enrolled in an undergraduate or graduate degree program, be the presenter of an oral or poster presentation at the TCS/ICC/SICB meeting they attend, and demonstrate financial need for TCS support of travel to the meeting. Both the student and their faculty sponsor/mentor must be a TCS member at the time of the application. The application can be downloaded [here](#).

**THE NEXT DEADLINE FOR APPLICATION: end of January 2023 .**

# Obituary

We remember our colleagues who we lost recently with gratitude for their contributions to crustacean research and to our community.

## Enrique Boschi (1928 – 2022)

Eminent Argentinian carcinologist and an important supporter and promoter of carcinology research in Latin America.

Obtained his doctorate in biological sciences at the University of Buenos Aires, Argentina, Professor at the Facultad de Ciencias Exactas y Naturales, University of Buenos Aires and researcher at the Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET, Argentina). Founding member in 1960 of the Institute of Marine Biology (IBM) of Mar del Plata, Argentina and until 2019 he worked at the National Institute of Fisheries Research and Development (INIDEP) also in Mar del Plata, of which he was also director. He became President of the Natural History Association of Argentina and of the Latin American Association of Carcinology, and in 2003 was awarded the Konex award in animal biology.

Dr. Boschi was author or co-author of more than 175 scientific publications in the fields of fishery biology, biological oceanography, and biology and biogeography of decapod crustaceans throughout the Western Hemisphere.

He organized, as a member of the INIDEP editorial committee, the edition of valuable publications such as *El mar argentino y sus recursos pesqueros* and *La vida entre mareas*, and the *Revista de Investigación y Desarrollo Pesquero*, now *Marine and Fishery Sciences (MAFIS)*.

Don Enrique was an important mentor of numerous research students not only in Argentina but in Latin America. He very much influenced the development of modern carcinology throughout Latin America.



— Pedro Castro & Laura Lopez-Greco

## Alexander (“Sandy”) James Bruce (25 February 1929 – 27 July 2022)

*The following is an excerpt of a full obituary due to be published in Crustaceana:*

Alexander James Bruce, known to all as Sandy, the Scottish diminutive of his first name, was born in North Harrow, part of the greater London area. He was the only son of Alexander James Horsburgh Bruce and Hilda Vera Bruce. There is little doubt that Sandy’s father had ambitions for his son, and pushed him to medical training, but from an early age it was evident that Sandy was more interested in and fascinated by natural history. After qualifying in medicine, he completed two years of national service in Glasgow, as an army doctor. It seems that the appointment of Fisheries Officer with EAMFRO (East African Marine Fisheries Organization), researching prawn fisheries in Zanzibar, under the colonial Overseas Development Administration set a path for Sandy from an interest in cool and cold climate regions to a love of the tropics, and tropical and marine Crustacea, and coral-reef Palaemonidae in particular.

During his professional career, he was twice based in East Africa, as Fisheries Biologist with EAMFRO, first

1959–62 in Zanzibar, and for a second time from 1969–1974 in Zanzibar and then Mombasa. In the interim, he worked on commercial prawn fisheries as Fisheries Biologist at the Fisheries Research Station in Aberdeen, Hong Kong (1963–1966) where he began to focus primarily on the subfamily Pontoniinae. It was in this period that Sandy took part in the Ninth Cruise of the RV *Anton Bruun* in 1964, part of an international Indian Ocean expedition funded by the USA National Science Foundation. Before he returned to East Africa, Sandy spent two years as Director, CSIRO Fisheries, in Deception Bay, Queensland (1967–1969) during which time he first visited Heron Island (with all the family) in 1968 to collect coral reef shrimps.

He returned to the Heron Island Research Station as the Director after some time in the UK (1974–1980), providing the unique opportunity to live and to work on a coral reef. This period saw a real consolidation of his reef experience and shrimp knowledge and the number of publications stemming from this period attest to that. He then moved northward, as Curator of Crustacea, then as Head of Natural Sciences, MAGNT, Darwin (1980–1993). The marine invertebrate collections grew hugely in that period, and there is no question that Sandy left a lasting legacy of a large Australian and Indo-Pacific crustacean collection. Sandy worked there until his retirement, his longest held position, and a period of uninterrupted stability that allowed him also to work internationally, most notably on the collections of the Muséum national d'Histoire naturelle in Paris with his long-time friend and colleague Alain Croisnier. He remained active until about 2017 after which he enjoyed a well-earner retirement, dedicating time to his family and his euphorbia collection up to the time of his death.



In a career spanning 51 years, Sandy published 377 scientific papers and popular articles, the vast majority of which he solo-authored. Although throughout his career, he published on a variety of crustacean taxa, the majority of his output was on a single shrimp family, Palaemonidae, specifically the then accepted subfamily Pontoniinae of which he became the undisputed master. Sandy described (or very rarely co-described) an astonishing 72 genera of Decapoda, and a total of 329 species, the majority of course within Palaemonidae (62 genera, 286 species). Additionally, he described or co-described a further 7 genera and 14 species of Isopoda and 3 species of Mysidacea. It is evident that Sandy was held in great esteem by his carcinological colleagues as up to now, 39 decapod taxa, as well as 4 mysids, 3 isopods, 2 amphipods and one barnacle were named for him.

— Niel Bruce & Sammy De Grave

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### Ng Ngan Kee (1966 – 2022 )

Dr Ng Ngan Kee passed away peacefully on 5 July 2022 at the age of 56. She was born in Singapore on 14 April 1966, the eldest of three siblings. Ngan Kee graduated from the Department of Biological Sciences (DBS), National University of Singapore (NUS) with a Bachelor of Science in 1988. She was awarded a Graduate Research Scholarship by DBS, and in 2007, was conferred her Doctor of Philosophy. She began her career in education first as a Graduate Teaching Assistant, becoming a Full Time Teaching Assistant in 2001, then Instructor in 2008, and eventually was made a Lecturer in 2016. She was a dedicated university educator, well-liked by all her students and colleagues. She has also been a Research Associate at the Lee Kong Chian Natural History Museum (LKCNHM) since 2008, and a Research Affiliate at the Tropical Marine Science Institute (TMSI) since 2010. From 2020 to 2022, she was appointed the editor for the journal ZOOTAXA. Ngan Kee's entry into the global carcinological circle started during her Ph.D.; she has since become well known for her impactful work on the taxonomy and ecology of a broad diversity of decapods, ranging from caridean shrimps to grapsoid crabs. She published 67 research papers over the years, and described two new families, six new genera and 18 new species of brachyuran crabs and atyid shrimps. Her papers on the economically important genus *Eri-*





ocheir De Haan, 1835, remain some of her most cited works. Another series of high-profile papers by her was on the shallow water hydrothermal crabs of the genus *Xenograpsus* Takeda & Kurata, 1977; she described the second known species (from Taiwan) and in a landmark paper in *NATURE*, showed that they feed on “marine snow” resulting from the thermal discharges. She was also the lead researcher who recognized that these remarkable crabs belong to their own family, Xenograpsidae.

Her kind temperament and collaborative nature resulted in many cross-disciplinary and multi-national publications with scientists and students from both regionally and internationally. Our community suffers a significant loss with the passing of Dr Ng Ngan Kee. She was a respected scientist,

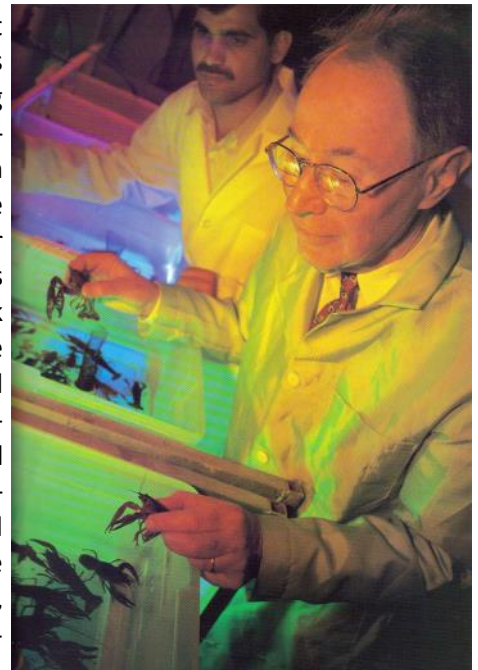
dedicated educator, generous colleague, and steadfast friend. For these reasons, Ngan Kee lives fondly in our memories. May she rest in peace.

— Lee Bee Yan

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### Milt Fingerman (1928 – 2022)

Milton Fingerman, age 94, of New Orleans, LA, professor emeritus of biology at Tulane University, passed away on Wednesday, August 31, 2022. Milton was born in Boston, Massachusetts on May 21, 1928, to the late Rose and Irving Fingerman. He was an undergraduate at Boston College and went on to Northwestern University for his PhD. Milt joined the faculty at Tulane University in 1954 and retired from its Department of Ecology and Evolutionary Biology in 2000, after having served as chair of the department for 13 years. He spent many summers conducting research at the Marine Biological Laboratory in Woods Hole, Mass. He also served as the Managing Editor of the *American Zoologist* for 15 years and was an editorial board member or associate editor of numerous other journals. Milt's career was enormously productive. He published more than 325 papers or book chapters, 2 books, and over 120 abstracts. His contributions to the field of crustacean endocrinology were broad and covered nearly all areas of crustacean biology and physiology, color changes, reproduction molting eye pigment movements, regeneration, toxicology and pharmacology. Milt made lasting friendships with many of his international doctoral students. He was an avid Tulane and Boston Red Sox fan and enjoyed his time serving as faculty representative to the Tulane Athletic Department. Milt is predeceased by his first wife, Joyce Sue Whitsell Fingerman, son David Clay Fingerman and his parents. He is survived by his loving wife Maria Esperanza Espinosa Fingerman, his son Stephen (Daphne) Fingerman and grandchildren Katherine (Matthew) Blagburn and Jonathan Fingerman. He is also survived by his sister Bernice (Edward) Soltysik. A memorial service was held on Sunday, September 18, 2022, in New Orleans



Milt's legacy lives on in the many grad students and postdocs who worked with him at Tulane Univ during his expansive 46 year tenure there. Also his many years of service and leadership to the Crustacean Society, *American Zoologist*, and then Society of Integrative and Comparative Biologists will be forever remembered.

— Shea Tuberty



## Upcoming meetings



**3–7 January 2023:** SICB annual meeting, Austin, TX, USA



**22–23 May 2023:** 10th International Crustacean Congress, National Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand. [www.icc10.org](http://www.icc10.org) (see more details below)



**2–6 January 2024:** SICB annual meeting, Seattle, WA, USA



**July 2024:** TCS mid-year meeting

Muséum national d'Histoire naturelle, Paris, France





Join us In May 2023 for the ICC10, the [10th International Crustacean Congress](#), at the [National Museum of New Zealand Te Papa Tongarewa](#) in Wellington. The hosts invite you to New Zealand in this [video](#). Keep up-to-date with our newsletters [here](#).

### Abstract submission is open!

Abstract submissions are accepted before December 9th, follow link [here](#).

### Confirmed Symposia

- A Confusion of Crustaceans: Peracarida
  - Crustacean Evolutionary Physiology
  - Crustacean Genomics
  - Crustacean Larval Diversity and Ecology
  - Crustaceans as Symbionts, Natural History and Theory
  - Frontiers in Crustacean Biology: Asian Perspectives: Part III
  - Marine Chelicerates
  - Sexual Plasticity in Crustaceans
  - Science informs fisheries management of lobster in challenging times
  - Shared Issues in Crustacean Reproduction
  - Sharing the Data: reflections on building and maintaining a global alliance of data information systems
  - UN Decade of Ocean Science for Sustainable Development : crustaceans helping us work together
- + a wide range of general sessions!

More details [here](#).

[www.icc10.org](http://www.icc10.org)  
[icc10@confer.co.nz](mailto:icc10@confer.co.nz)  
[#icc10](#)



Naturally, we will have a **Ray & Lilly Manning Memorial Crustacean Bazaar** with a silent auction. All proceeds will fund TCS student scholarships. So start dusting off those small "objet d'arthropod" and make space in your luggage!



## Reminiscing of past meetings

### THE 23<sup>RD</sup> BIENNIAL SYMPOSIUM OF THE INTERNATIONAL ASSOCIATION OF ASTACOLOGY

Astacologists from 28 countries gathered in the South Bohemia town of Hluboká nad Vltavou (in the Czech Republic) for the IAA's 23rd Biennial International Symposium on Freshwater Crayfish. The symposium ran from June 20-25th and was held in the magnificent Aleš South Bohemian Gallery of the State Chateau (i.e. Castle) of Hluboká nad Vltavou. More than 130 delegates, plus some 15 accompanying persons, attended IAA23 making it the largest gathering of astacologists at an IAA meeting for many years. After a two year COVID-related delay (and 4 years since IAA22) it was excellent to see so many astacologists gather and present a series of high quality presentations, and reconnect in-person with friends and colleagues. 2022 marks 50 years since the IAA was founded with the first IAA Symposium in Hinterthal (Austria, 1972) and IAA23 was a fine venue to celebrate the 50th Birthday of our Association.

IAA23 was a highly successful and truly memorable symposium, with a large number of high quality talks and posters, and a series of well-organized and highly enjoyable social events. Many thanks are due to the organizer Pavel Kozák and his team from the Faculty of Fisheries and Protection of Waters, plus the Scientific Committee. After the delays of coronavirus IAA23 was a perfect place to reconnect with old friends and colleagues and to meet new ones.

IAA23 Reporters: **Christopher Taylor, Japo Jussila, Lennart Edsman, James Furse**



(Reproduced from  
[Crayfish News :  
volume 44 issue 2 -  
July 2022  
\(\[astacology.org\]\(http://astacology.org\)\)](#)

**Figure 1.** The IAA23 delegates in front of the State Chateau of Hluboká nad Vltavou, Czech Republic. Photo: Vit Kukulja



## CONGRESSO BRASILEIRO SOBRE CRUSTÁCEOS (CBC) THE CRUSTACEAN SOCIETY (TCS) - SUMMER MEETING

**Theme:** Tradition and innovation: Integrative approaches to crustacean studies

The last Crustacean Society - Summer Meeting was held together with the XI Brazilian Crustacean Congress at Santos, Brazil with the Organising Committee chaired by Rogério Costa & Marcelo Pinheiro. Due to the COVID pandemic, it was not possible to be held in person and both societies involved (SBC and TCS) and the Organization Committee decided to conduct the meeting as a virtual event, prioritising the safety and well-being of all participants.

The CBC.TCS.2022 was held over four days from June 6th–9th, 2022, with four general sessions, 10 special symposia, and a total of 76 speakers, two video poster sessions, with 75 works each, and seven workshops carried out post-congress. Symposia and oral presentations covered seven thematic areas: 1) Taxonomy and Phylogeny; 2) Ecology and Biodiversity; 3) Genetics and Conservation; 4) Reproduction and Development; 5) Aquaculture and Fishing; 6) Physiology and Toxicology; 7) Environmental Education.

The total amount of people enrolled was 243, of which 81 were senior professionals, 33 were recent-graduated doctors and the remaining 50% were undergraduate and graduate students developing their scientific initiation, master's and doctoral studies. Undergraduate and graduate students accounted for a significant portion of this Congress, which highlights the importance of scientific events such as this one as complementary to academic training and the acquisition of better professional levels. We are also pleased to report that we had speakers from 30 countries across all continents.

We were delighted to confer two Brazilian Crustacean Society Awards for Excellence in Research to Dras. [Fosca Pedini Pereira Leite](#) and [Danièle Guinot](#). CBC.TCS.2022 was a successful event and we thank all who contributed to the running of the congress and who presented (*closing video*).

— Rogério Caetano Costa & Marcelo Antonio Amaro Pinheiro





# Book Review

## Evolution and Phylogeny of Pancrustacea

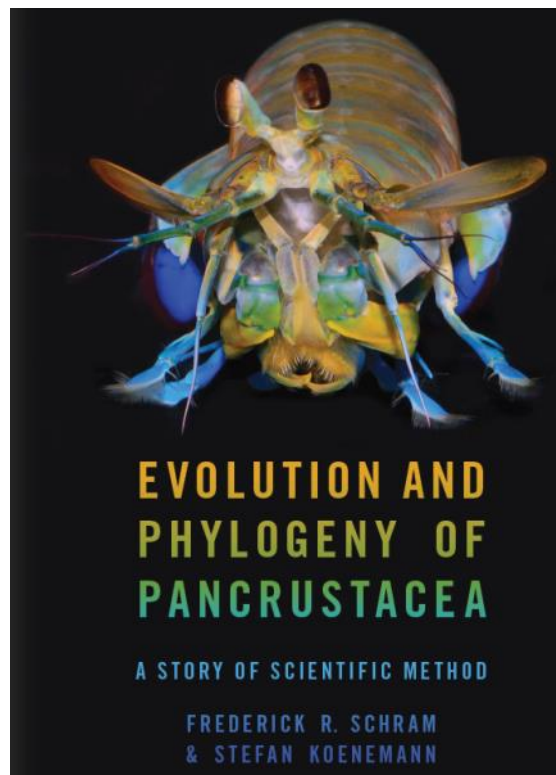
Frederick Schram & Stefan Koenemann 2021.

<https://doi.org/10.1093/oso/9780195365764.001.0001> Online ISBN: 9780197521854 Print ISBN: 9780195365764 Publisher: Oxford University Press 827 pp., £97.00 (hardback)

Now, available in hard cover as well as an E-book from either [OUP](#), or [Amazon.com](#)

**Reviewed by Heather Bracken-Grissom**, Florida International University-Biscayne Bay Campus, USA

In “Evolution and Phylogeny of Pancrustacea: A Scientific Method”, Drs. Frederick Schram and Stefan Koenemann introduce us to the wonderful world of crustaceans and insects by discussing body plans, segmentation, development, phylogeny and classification. In the beginning the name “crustaceomorph” is introduced to describe the non-monophyletic “crustaceans” and is best defined by giving examples like lobsters, crabs and shrimp. The book then proceeds to take a deep dive into each of the major classes of Subphylum Pancrustacea with a long list of taxonomic and phylogenetic experts acknowledged throughout the text. Across each of the major groups the classification, diagnosis, morphology (external and internal), natural history, development, distributional range, and fossil record is provided (when known). Sections end with a detailed summary of phylogeny and evolution, reviewing all major phylogenetic hypotheses (morphological and molecular). Many beautifully illustrated figures and drawings allow readers to visualize relatedness, defining characteristics and distributional ranges.



This book is truly the most comprehensive review of Pancrustacea to date and should be a staple for all retired, practicing, and aspiring zoologists for decades to come.

### Extract from the Preface:

*“As a young and impetuous graduate student, I thought that sorting out the phylogeny of crustaceans would simply take but a little time and concerted effort to eventually reveal the truth. Everyone could then agree, and further research would proceed apace. How naïve I was. First, I had never heard of Kurt Gödel’s incompleteness theorems and hence the impossibility of achieving such an end. But even so, what progress we might have made turned out to take longer than anyone could have imagined, and the effort would be immense, involving many people and a number of laboratories—and that task still continues. What no one could foresee in the 1960s was that the focus of everyone’s attentions would completely transform. Traditional pure anatomy would be augmented with more sophisticated developmental genetic work. Concurrent with that effort, molecular sequencing would become a remarkably effective tool. And with these new sources of data, the concept of “crustaceans” would yield to a new construct—Pancrustacea—within which the arthropods that we referred to by the name of “Crustacea” became a series of monophyletic smaller groups that mark a paraphyletic transition from a mandibulate ancestor all the way up to a crown group that few in the 1960s expected—Hexapoda emerged within the pancrustaceans.”*



# Hot off the press & Online resources

## Ancestors in Evolutionary Biology

### Linear Thinking about Branching Trees

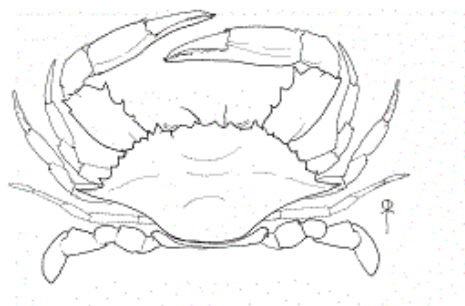
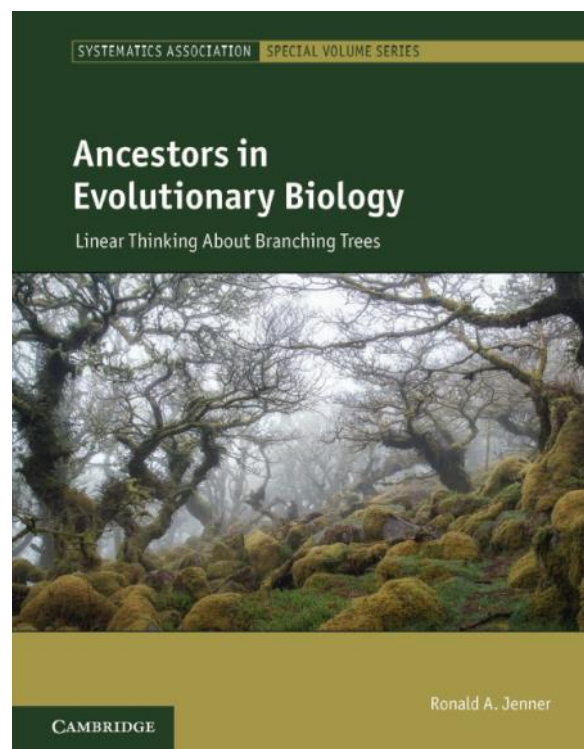
**Ronald A. Jenner**, Natural History Museum, London  
450 pp., Cambridge University Press, 2022

For more information, and to order, visit: [www.cambridge.org/9781107105935](http://www.cambridge.org/9781107105935)  
and enter the code JENNER22 at the checkout for a 20% discount for a price of \$55.99 (expires June 2023)

Phylogenetics emerged in the second half of the nineteenth century as a speculative storytelling discipline dedicated to providing narrative explanations for the evolution of taxa and their traits. It coincided with lineage thinking, a process that mentally traces character evolution along lineages of hypothetical ancestors. *Ancestors in Evolutionary Biology* traces the history of narrative phylogenetics and lineage thinking to the present day, drawing on perspectives from the history of science, philosophy of science, and contemporary scientific debates. It shows how the power of

phylogenetic hypotheses to explain evolution resides in the precursor traits of hypothetical ancestors. This book provides a comprehensive exploration of the topic of ancestors, which is central to modern biology, and is therefore of interest to graduate students, researchers, and academics in evolutionary biology, palaeontology, philosophy of science, and the history of science.

1. A history of narrative phylogenetics; 2. From archetypes to ancestors; 3. The emergence of lineage thinking; 4. Ernst Haeckel's evolutionary storytelling; 5. The epistemic rise of hypothetical ancestors; 6. Intuiting evolution; 7. Telling straight stories with fossils; 8. Seeing animal ancestors in embryos; 9. Ancestral attractions and phylogenetic folklore; 10. Narrative shortcuts and phylogenetic faux pas; 11. Taxic distortions of lineage thinking; 12. Making sense with stories.



## CRUST-L@VIMS.EDU, the Discussion List for Crustacea

CRUST-L@VIMS.EDU is the email listserver for those interested in Crustacea. CRUST-L is an unmoderated open list, but you have to be a member to post messages to it. It has around 850 members! You can subscribe or unsubscribe to the list by following the links below. Use CRUST-L@VIMS.EDU to post messages to CRUST-L. The sympla software includes several features such as searchable archives, and a digest mode for intermittent mailings. If you have trouble with your subscription or settings, send a help request to [jeff@vims.edu](mailto:jeff@vims.edu).

How to subscribe to list: <https://lists.vims.edu/www/help/user#subscribe>

How to unsubscribe from list: <https://lists.vims.edu/www/help/user#unsubscribe>



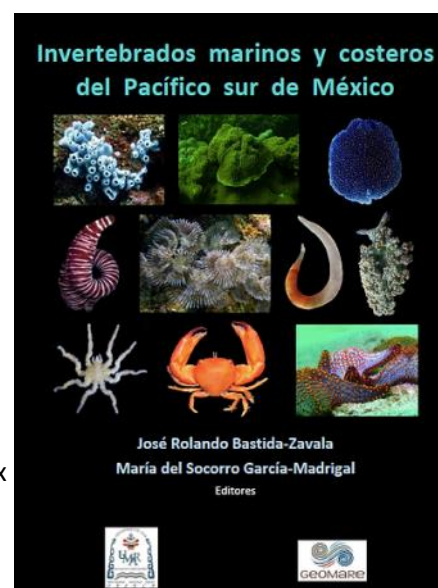
## GEOMARE LIBROS

By courtesy of GEOMARE, a series of books is now available free of charge at the following link. <https://geomare.wixsite.com/website>

All papers published in GEOMARE ZOOLOGICA (vols. 1, 2, 3 y 4–1 & 2) are also now available free of charge using the following link: (<https://geomarerevista.wixsite.com/geomare>)

Look for vol 4 (2) and link Decapod crustaceans in deep-water traps in the southern Gulf of California, Mexico.

— Michel E. Hendrickx



## Nautilus Live Science & Engineering Internship Program

**Deadline 31 December 2022**

The *Nautilus* Science and Engineering Internship Program (SEIP) is now accepting applications for Ocean Science, ROV Engineering, and Video Engineering Internships for the 2023 Expedition Season. This program aims to train and provide real-world experience for community college, undergraduate, and graduate students. All interns spend their time on *Nautilus* working with a wide array of scientists, engineers, students, and educators, and all gain experience in communications and leadership. Internships include a paid stipend for participation along with travel to/from the expedition funded and arranged by Ocean Exploration Trust. Don't forget to apply before the end of 2022!

[Learn more and apply >>](#)





## Travel Grants for Deep-Sea Experts: Applications Open

Available through 31 December 2022

If you are interested in the deep sea, please note that the Deep-Ocean Stewardship Initiative (DOSI) is partnering with the High-Seas Alliance to offer grants for deep-sea experts to attend key meetings, conferences, workshops and events. Funding is open to all scientists and social scientists who are members of the DOSI network. Applications by members of all underrepresented groups are encouraged. Please contact Travis Aten at [travisgaten@gmail.com](mailto:travisgaten@gmail.com) with any questions. [Apply now >>](#)

Image source: NOAA OER

## Special Issue: Call for Paper



Announcing a Special Issue titled "**Taxonomy, Systematics and Diversity of Deep-Sea Benthic Isopods.**" Guest editors Drs Stefanie Kaiser, Patricia Esquete, and Brenda Doti are seeking contributions that will deepen knowledge and understanding of deep-sea isopod crustacean biodiversity. In addition to taxonomic examination of isopods, they also welcome further phylogenetic work elucidating isopod origins in the deep sea and analyses of biodiversity patterns to achieve a more comprehensive picture of the general drivers of deep-sea benthic biodiversity. The editors are particularly interested in new approaches and methodologies that advance diversity research in this taxon, and look forward to receiving studies from poorly known regions and habitats that help to fill biogeographical gaps. **The submission deadline for this Special Issue is 20 April 2023.**

[Learn more about this Special Issue >>](#)

USGS and NOAA have partnered through the Ocean Biodiversity Information System-USA and National Centers for Environmental Information to streamline ocean data collection and make sure it's available for decades to come. [Read in browser »](#)

By OBIS USA on 14 Sep 2022





## Research Papers

Please continue to share your recently published research papers (other than in JCB) that have relevance to crustacean research. If possible, include a link where the paper can be downloaded.

— Kareen Schnabel (Editor *The Ecdysiast*)

Buhl-Mortensen, L.; Neuhaus, J.; Williams, J.D. (2022). *Gorgonophilus canadensis* (Copepoda: Lamippidae) a parasite in the octocoral *Paragorgia arborea* – relation to host, reproduction, and morphology. *Symbiosis*. <<http://dx.doi.org/10.1007/s13199-022-00866-9>>

Cruz, M.; Le Bris, N.; Colaço, A. (2022). Reproductive Traits of the Vent Crab *Segonzacia mesatlantica* (Guinot, 1989) From the Mid-Atlantic Ridge. *Frontiers in Marine Science* 9. <<http://dx.doi.org/10.3389/fmars.2022.900990>>

Cruz-Rivera, E.; Sherif, M.-E.-D.; El-Sahhar, S.; Lombardi, T. (2022). Spatial Variability in a Symbiont-Diverse Marine Host and the Use of Observational Data to Assess Ecological Interactions. *Diversity* 14(3): 197. <<http://dx.doi.org/10.3390/d14030197>>

Frutos, I.; Kaiser, S.; Pułaski, Ł.; Studzian, M.; Błażewicz, M. (2022). Challenges and Advances in the Taxonomy of Deep-Sea Peracarida: From Traditional to Modern Methods. *Frontiers in Marine Science* 9. <<http://dx.doi.org/10.3389/fmars.2022.799191>>

Gan, Z.; Jones, D.S.; Liu, X.; Sui, J.; Dong, D.; Li, X. (2022). Phylogeny and adaptive evolution to chemosynthetic habitat in barnacle (Cirripedia: Thoracica) revealed by mitogenomes. *Frontiers in Marine Science* 9. <<http://dx.doi.org/10.3389/fmars.2022.964114>>

Gonsalves, M.-J.; Tiwari, S.; Padate, V.P.; Trivedi, J.N.; Samuel, V.D.; Viswanathan, C. (2022). First Record of Galatheid Squat Lobster, *Shinkaia crosnieri* Baba & Williams, 1998 (Decapoda: Galatheaidea) From Cold-seep Environment of the Indian Ocean. *Thalassas: An International Journal of Marine Sciences*. <<http://dx.doi.org/10.1007/s41208-022-00467-9>>

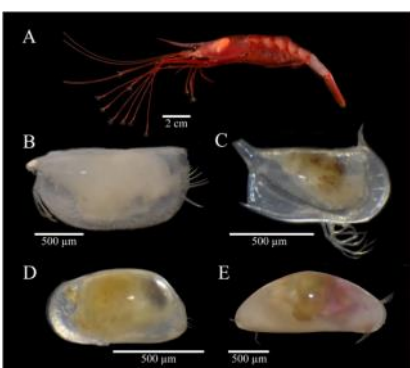
Green, S.; Bachvaroff, T.; Sook Chung, J. (2023). Eyestalk neuropeptide identification in the female red deep-sea crab, *Chaceon quinque-dens*. *General and Comparative Endocrinology* 330: 114128. <<http://dx.doi.org/https://doi.org/10.1016/j.ygcen.2022.114128>>

Guy-Haim, T.; Stern, N.; Sisma-Ventura, G. (2022). Trophic Ecology of Deep-Sea Megafauna in the Ultra-Oligotrophic Southeastern Mediterranean Sea. *Frontiers in Marine Science* 9. <<http://dx.doi.org/10.3389/fmars.2022.857179>>

Hyžný, M.; Campos, I.B.; Carretero, J.C. (2020). A new species of *Bathynomus* A. Milne-Edwards, 1879 (Malacostraca: Peracarida: Isopoda: Cirolanidae) from the upper Miocene of the Guadalquivir Basin (Spain). *Zootaxa* 4819(1): zootaxa.4819.4811.4818. <<http://dx.doi.org/10.11646/zootaxa.4819.1.8>>

Knauber, H.; Silberberg, J.R.; Brandt, A.; Riehl, T. (2022). Evolution and biogeography of the *Haploniscus belyaevi* species complex (Isopoda: Haploniscidae) revealed by means of integrative taxonomy. *Systematics and Biodiversity* 20(1): 2099477. <<http://dx.doi.org/10.1080/14772000.2022.2099477>>

Machordom, A.; Ah Yong, S.T.; Andreakis, N.; Baba, K.; Buckley, D.; García-Jiménez, R.; McCallum, A.W.; Rodríguez-Flores, P.C.; Macpherson, E. (2022). Deconstructing the crustacean squat lobster genus *Munida* to reconstruct the evolutionary history and systematics of the family Munididae (Decapoda, Anomura, Galatheaidea). *Invertebrate Systematics* 36(10): 926-970. <<http://dx.doi.org/https://doi.org/10.1071/IS22013>>



Ogawa, A.; Jimi, N.; Hiruta, S.F.; Chen, C.; Kobayashi, I.; Pratama, G.A.; Tanaka, H.; Okanishi, M.; Komatsu, H.; Ikehara, M. (2022). Taxonomy and distribution of deep benthos collected in and around the Southern Ocean during the 30th Anniversary expeditions of R/V Hakuho Maru: Annelida, Mollusca, Ostracoda, Decapoda, and Echinodermata. *Polar Science* 32: 100846. <<http://dx.doi.org/https://doi.org/10.1016/j.polar.2022.100846>>

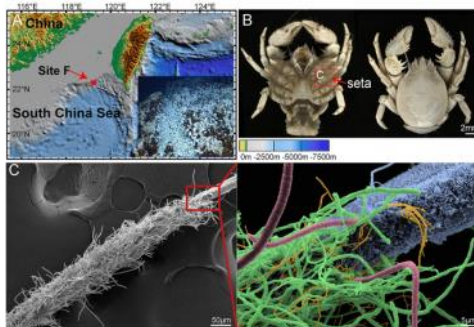
Poore, G.C.B.; Dworschak, P.C.; Schnabel, K. (2022). Articullichirus, a new genus of ghost shrimp (Crustacea: Axiidea: Callichiridae) with two new species. *Memoirs of Museum Victoria* 81: 123–133. <<http://dx.doi.org/10.24199/j.mmv.2022.81.05>>

Rohlf, E.K.; Scheer, S.L.; Bergmann, M.; Sweetman, A.K.; Hoving, H.J.T. (2022). Contrasting residence time and scavenging communities of experimental invertebrate food falls in the Arctic deep sea. *Deep Sea Research Part I*:



*Oceanographic Research Papers* 189: 103832. <<http://dx.doi.org/https://doi.org/10.1016/j.dsr.2022.103832>>

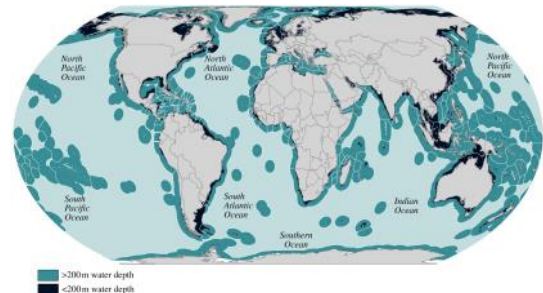
- Suter, P.J.; Mynott, J.H.; Crump, M. (2022). New species of *Paratya* (Decapoda: Atyidae) from Australian inland waters – linking morphological characters with molecular lineages. *Memoirs of Museum Victoria* 81: 55–122. <<http://dx.doi.org/410.24199/j.mmv.2022.81.04>>
- Sutton, T.T.; Milligan, R.J.; Daly, K.; Boswell, K.M.; Cook, A.B.; et al. (2022). The Open-Ocean Gulf of Mexico After Deep-water Horizon: Synthesis of a Decade of Research. *Frontiers in Marine Science* 9. <<http://dx.doi.org/10.3389/fmars.2022.753391>>
- Takeda, M.; Ahyong, S.T.; Ohtsuchi, N.; Komatsu, H. (2022). Crabs (Crustacea, Decapoda) from the Seas of East and Southeast Asia Collected by the RV *Hakuho Maru* (KH-72-1 Cruise) 3. Sahul Shelf. *Bulletin of the National Museum of Nature and Science. Series A, Zoology* 48(2): 35–83. <[http://dx.doi.org/10.50826/bnmnszool.48.2\\_35](http://dx.doi.org/10.50826/bnmnszool.48.2_35)>
- Uhlir, C.; Schwentner, M.; Meland, K.; Kongsrud, J.A.; Glenner, H.; Brandt, A.; Thiel, R.; Svavarsson, J.; Lörz, A.N.; Brix, S. (2021). Adding pieces to the puzzle: insights into diversity and distribution patterns of Cumacea (Crustacea: Peracarida) from the deep North Atlantic to the Arctic Ocean. *PeerJ* 9: e12379. <<http://dx.doi.org/10.7717/peerj.12379>>
- Wittmann, K.J. (2022). The Petalophthalmidae (Crustacea: Mysida) of the ANDEEP I–III expeditions to the Antarctic deep sea, with description of a new species and first record of photophores in mysids. *Crustacean Research* 51: 55–89. <[http://dx.doi.org/10.18353/crustacea.51.0\\_55](http://dx.doi.org/10.18353/crustacea.51.0_55)>



Xu, Z.; Wang, M.; Zhang, H.; He, W.; Cao, L.; Lian, C.; Zhong, Z.; Wang, H.; Fu, L.; Zhang, X.; Li, C. (2022). Metabolism Interactions Promote the Overall Functioning of the Episymbiotic Chemosynthetic Community of *Shinkaia crosnieri* of Cold Seeps. *mSystems* 7(4): e00320–00322. <<http://dx.doi.org/doi:10.1128/msystems.00320-22>>

On a different note...

Amon, D.J.; Rotjan, R.D.; Kennedy, B.R.C.; Alleng, G.; Anta, R.; Aram, E.; Edwards, T.; Creary-Ford, M.; Gjerde, K.M.; et al. (2022). My Deep Sea, My Backyard: a pilot study to build capacity for global deep-ocean exploration and research. *Philosophical Transactions of the Royal Society B: Biological Sciences* 377(1854): 20210121. <<http://dx.doi.org/doi:10.1098/rstb.2021.0121>>



<p><b>STRENGTHS</b></p> <p><b>DNA barcoding:</b></p> <ul style="list-style-type: none"> <li>enables quick species identification</li> <li>increases the discovery rate of new species</li> <li>adds data to solve taxonomic uncertainty</li> <li>allows species identification with limited amounts of DNA</li> <li>increases cost and time efficiency compared to traditional identification methods</li> <li>objectively identifies species with scalable protocols</li> <li>produces references for matching DNA of unknown origin such as metagenomics and eDNA</li> </ul>	<p><b>WEAKNESSES</b></p> <p><b>DNA barcoding:</b></p> <ul style="list-style-type: none"> <li>requires better quality control of reference libraries</li> <li>occasionally co-amplifies non-target organisms with non-specific primers</li> <li>does not provide species resolution in all groups</li> <li>sometimes requires use of multiple markers</li> <li>needs mutual agreement on marker choice</li> <li>standardization is difficult across organism groups</li> <li>demand resources (equipment, labs, funding)</li> <li>requires curated open access databases</li> </ul>
<p><b>THREATS</b></p> <p><b>DNA barcoding:</b></p> <ul style="list-style-type: none"> <li>risks being surpassed by novel technologies</li> <li>needs a standardized international legal framework to prevent deepening the inequality gap</li> <li>may lead to misinterpretation of data without sufficient knowledge of taxonomic or genetic variation</li> <li>needs stable infrastructure and economic resources</li> <li>is vulnerable to instability of digital preservation and cybersecurity</li> <li>may create resource competition between barcoding and morphological approaches</li> </ul>	<p><b>OPPORTUNITIES</b></p> <p><b>DNA barcoding:</b></p> <ul style="list-style-type: none"> <li>can evolve with new technology</li> <li>assists in revealing global biodiversity</li> <li>may automate biomonitoring</li> <li>provides molecular context to historic specimens</li> <li>can stimulate public engagement with genetic tools</li> <li>increases international access to DNA resources</li> <li>contributes to a reliable library of life</li> <li>can estimate species diversity from complex and environmental samples</li> </ul>

Grant, D.M.; Brodnicke, O.B.; Evankow, A.M.; Ferreira, A.O.; Fontes, J.T.; Hansen, A.K.; Jensen, M.R.; Kalayci, T.E.; et al. (2021). The Future of DNA Barcoding: Reflections from Early Career Researchers. *Diversity* 13(7): 313. <<http://dx.doi.org/10.3390/d13070313>>





# Join/Renew

## The Crustacean Society!

Membership ID # \_\_\_\_\_

Name (First, Last) \_\_\_\_\_

Affiliation \_\_\_\_\_

Mailing address for Society communications (Please condense to no more than 3 lines, 40 characters per line, maximum)

\_\_\_\_\_

\_\_\_\_\_

Phone: (include area code) \_\_\_\_\_ FAX: (include area code) \_\_\_\_\_

E-mail address: \_\_\_\_\_

### Type of membership and annual dues for 2021

Membership year is January 1 – December 31

- ☐ Student Member\* ..... \$ 35
- ☐ Member (Online Journal) ..... \$ 100
- ☐ Patron Member (Online Journal and subsidize at least one [student] member) ..... \$ 195
- ☐ Denton Belk Memorial Endowed Fund Contribution ..... \$ \_\_\_\_\_
- ☐ Student Scholarship Awards Contribution ..... \$ \_\_\_\_\_
- ☐ Voluntary assessment to support TCS activities ..... \$ \_\_\_\_\_

\* Individuals claiming student rates are asked to provide your mentor's name. Mentor does not have to be a member.

Mentor Name \_\_\_\_\_

Mentor Email \_\_\_\_\_

### Payment Info

☐ Personal check

☐ Visa ☐ MasterCard ☐ American Express ☐ Discover

Card # \_\_\_\_\_

Exp. Date: \_\_\_\_\_ CV2# \_\_\_\_\_

Cardholder Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Cardholder Billing Address: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_ Zip: \_\_\_\_\_

Cardholder Phone: \_\_\_\_\_

Email (for receipt): \_\_\_\_\_

Send completed application form and payment in U.S. dollars to:

950 Herndon Parkway, Suite 450  
Herndon, VA 20170

Phone: 703-790-1745; Fax: 703-790-2672  
TCS@burkinc.com

For questions regarding membership contact [MRobinson@burkinc.com](mailto:MRobinson@burkinc.com)

Federal Tax ID: 52-1173036

Or register online at <http://thecrustaceansociety.org/>  
[here.](#)