Volume 31, Number 1 May, 2012



Message from the President...

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The year is progressing rapidly and it is time for my first address to you as President in our exciting newsletter. It has been a tumultuous time for the Society, the Board and all the membership, as we pass through a series of big changes initiated by Past-President Akira Asakura. These positive changes have impacted every aspect of the society, its membership and our flagship journal, Journal of Crustacean Biology (JCB).

The move to our new publisher, Brill, is complete (not without a few hiccups in the on-line and print delivery) and I now hold the first of six issues of the 2012 volume in my hand. It is aptly covered in gold to celebrate this event and is filled with the usual, high-quality, diverse, and internationally authored contributions. JCB's impact factor continues to climb year by year, thanks to your fabulous contributions, cutting edge science, and the tireless efforts of our Editor, Fred Schram, and his unparalleled team of Associate Editors. My hat goes off to all of you.

With the establishment of the new Executive Officer position (Mary Belk) and subsequent new Treasurer (Brian Tsukimura) TCS is also undergoing a financial overhaul. In the light of the trying economic times, worldwide, TCS is endeavoring to make our operation as lean as we can, without compromising the quality and extent of services to our membership. With the expansion of all payment services to on-line, including membership fees, page charges, decorative pins and more, we have established a faster and more accountable system. This will improve our knowledge of our cash flow on a monthly basis and allow for greater flexibility and adaptability to changing times.

Also started by Past-President Akira Asakura, are changes to the TCS Board and associated positions. The Board now has some new positions (Executive Officer), new titles (Executive SICB Liaison Officer), new roles for existing titles (Regional Governors) and even newly established associated carcinological society Liaison Officers. This "new" Board will be able to spread the workload more equitably and effectually, be more accountable, and also offer more opportunities for future member engagement in the governance of TCS.

We will also be implementing a further refurbishment of the current TCS website (recently upgraded and revamped anyway) in the next year or so, and so keep tuned for this and please participate if you can.



We have exciting meeting opportunities on the horizon and into the next three years and so get engaged with one, some, or all of the following scheduled events:

June 2012 - TCS Mid-year meeting with the 10th CCDM, Athens, Greece

January 2013 – Winter meeting with SICB, San Francisco, USA 2013 – Mid-year meeting with ALCARCINUS, Costa Rica

2013 – TCS sponsored symposium on crustacean reproduction at the International Congress on Invertebrate Reproduction and Development (ICIRD), Detroit, USA

January 2014 - Winter meeting with SICB, Austin, USA

2014 – 8th International Crustacean Congress, Frankfurt, Germany

January 2015 - Winter meeting with SICB, West Palm Beach, USA

2015 – Mid-year meeting, Sydney, Australia

I personally look forward to your continued membership, support, engagement, and patience as TCS moves into the next few years and undergoes yet another important transformation. It gives me great pleasure to see you all at meetings around the world and to see just how dynamic we are as a scientific society with a world-class journal. So, be active in your TCS, volunteer for executive roles, engage your students and friends in the society, recruit new members, renew your own commitment, publish in JCB, attend meetings, and bask in the warm folds of your carcinological community. You will reap the rewards!

Sincerely, your President (2012 -2013),

Chris Tudge



The Crustacean Society Graduate Student Fellowships and Scholarships

The Crustacean Society Board is pleased to solicit applications from graduate students for the following monetary fellowships:

The Denton Belk Memorial Scholarship in Graduate Studies (\$1500);

The Crustacean Society Fellowship in Graduate Studies (6 awards of \$1500 each in the areas of (1) crustacean ecology and/or behavior; (2) crustacean population genetics and/or physiology; and (3) crustacean systematics, biogeography, and/or evolution).

All fellowships/scholarships will support the awardee's research program, including, but not limited to: supplies, travel for research, participation in off-campus research experience or training, or a specialized course of study to advance the awardee's knowledge and skills. Selection of the awardee is based on the relevance of the request ("candidate's statement") to the applicant's educational and research goals and a letter of support/recommendation from the applicant's major professor or mentor. Scholarships are awarded annually and may be received only once per awardee. Unsuccessful applicants may re-apply in subsequent years.

Please note: applicants for The Denton Belk Memorial Scholarship in Graduate Studies must be conducting or proposing research that specifically targets large branchiopod crustaceans (e.g., Anostraca, Notostraca, Laevicaudata and Spinicaudata).

Currently enrolled graduate students working on either a MS or PhD degree may apply by completing and sending the appropriate application form (available at http://www.thecrustaceansociety.org under "student information") and required documentation (CV, letter of support, and candidate's statement) to:

Dr. Jeff Sheilds The Crustacean Society Awards Committee Virginia Institute of Marine Science POB 1346, Gloucester Point, VA 23062

For questions: jeff@vims.edu

DEADLINE FOR SUBMISSION: February 15th, 2013

Please note: The applicant and his/her major professor or mentor must both be current members of The Crustacean Society at the time of application.



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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 Newsletter.html. 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:

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The Crustacean Society Board Members, 2012

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CRUST-SOC@VIMS.EDU, the Crustacean Society's Listserver

The Crustacean Society has an email list server that is only open to members of the society. This list server is designed to provide you with timely official society business and important society announcements. CRUST-SOC is moderated and closed and is not a forum for discussion. It is not meant to replace CRUST-L because the latter is open to nonmembers and is for broader discussion on Crustacea. For suggestions, contact jeff@vims.edu, your TCS Secretary, or any member of the board (listed at our website http://www.thecrustaceansociety.org).

You can subscribe to CRUST-SOC by becoming a member of the society. Members who aren't subscribed can send SUBSCRIBE CRUST-SOC YOUR NAME (not your email address) as the message body to LISTPROC@VIMS.EDU. You can unsubscribe by sending UNSUBSCRIBE CRUST-SOC to LISTPROC@VIMS.EDU.

We have taken every effort to ensure that your email address has been correctly entered into CRUST-SOC. However, several members have changed email addresses or have made mistakes in entering email addresses. Thus, if you are a member and are not on the list, please enter your correct email address on the annual subscription form, and please subscribe as detailed above. Remember, CRUST-SOC is the official email list server for society information and not a forum for discussion.

CRUST-L@VIMS.EDU,

the Discussion List for Crustacea

CRUST-L@VIMS.EDU is the email list server for those interested in Crustacea. It is an informal scientific forum for discussion on all aspect of the Crustacea. CRUST-L is a moderated, open list, but you have to be a member to post messages to it. You can subscribe to the list by sending SUBSCRIBE CRUST-L YOUR NAME (not your email address) as the message body to LISTPROC@VIMS. EDU. You can unsubscribe by sending UNSUBSCRIBE CRUST-L to LISTPROC@VIMS.EDU. Use LISTPROC@VIMS.EDU to post administrative commands such as SUBSCRIBE, INFO, HELP. Use CRUST-L@VIMS.EDU to post messages to CRUST-L. The listproc software includes several features such as searchable archives, and a digest mode for intermittent mailings.



JCB Editorial Report for volume 31 (2011)

Here is the report for the *JCB* publication year just concluded: volume 31 (2011), the purple volume.

Submission # 3452 in AT (AllenTrack) arrived with the New Year 2011, and the last AT submission # 3548 came at the end of August. The new EM (Editorial Manager) system with Brill went live in September with our first submission. #1000, and as of this writing we logged in on 20 December # 1065. Our Impact Factor went back up to 1.115; last year it was 0.974, in 2009 it was 1.109. I can't tell you what our cost per page was; the screw-up with Allen Press billing and charges this past year were simply too opaque for me to follow. The total number of pages published were 751, down from 803 in 2010, but up from 619 in 2009, and about par with the 764 in 2008.

While we had 161 nominal submissions between the two systems in 2011, this does not account for the usual number of aborted and duplicate submissions we grew accustomed to in AT. In addition, some of the EM submissions were duplicates from AT; as we made the transition, I began to tell people who were revising in light of reviews to not go back into AT but to submit to EM. I have noticed that there are virtually no aborted or duplicate submissions in EM. I think this is because EM is a more efficient system for authors to use; people do not appear to become as frustrated with getting the system to work as they did with AT. Because of the confusion in the transition I cannot put an exact figure on rejection rate – but it probably was around 35%.

The subject spread of the 84 published pieces (about the same as last year) in volume 31 was:

	2010	2011
Two Special Sections		5
Anatomy & Func. Morph.	4	10
Behavior	1	6
Ecology	18	24
Genomics	8	5
Larvae & Development	7	7
Paleobiology	5	3
Physiology	6	1
Systematics, Evol. & Biog.	6	10
α-Taxonomy	13	5
Conservation	3	0
Short Communications	7	5
Book Reviews	2	3

Interestingly, of these 84 pieces, most were multi-authored; only 10 were single authored. The days of the lone worker in biology seems to be on the wane. Given that we had some 238 authorships spread amongst the 84 papers, it would seem multi-multi-authorships are on the increase. This bothers me; are some of these authorships courtesy ascriptions? Everyone appears to desire a paper in JCB. I have to give it some thought as to how this might be evaluated.

As you will recall, in 30(4) we had a Special Section on JCB history by Bernard Sainte-Marie and myself. I was quite pleased to discover that Bernard's bibliometric analysis was in-

cluded amongst the top 10 most frequently accessed articles in 2011

When we look at the number of times various countries are represented amongst the authorships of these 2011 published articles, we saw in 2011 an increase in the total number of names attached to articles, if in the international spread.

	2010	2011
Argentina	4	8
Australia	3	6
Austria	1	
Belgium	2	3
Bolivia		1
Brazil	15	13
Canada	5	11
Chile		12
Costa Rica	1	2
Denmark		1
Egypt	2	
France	2	4
Germany	3	10
Iceland	1	2
India	5	3
Indonesia		1
Iran	2	
Ireland	1	
Israel	1	
Italy	3	
Japan	14	31
Korea	2	3
Malaysia	1	
Mexico	6	5
New Zealand	1	2
Norway	1	1
Pakistan	1	1
PR China	13	14
R China	6	10
Poland	1	
Puerto Rico	1	
Singapore	2	4
Slovenia		1
South Africa		1
Spain	4	6
Sweden	1	
Thailand	2	3
UK	3	8
USA	46	70
Venezuela	1	

The New Year brings in a new color – a light-brown.

The shift to early-access, on-line availability took longer than I expected through late 2010, but we eventually got the Allen Press silo site up and running in January. Unfortunately, the disintegrating relationship with AP resulted in our having to walk away from that site in the New Year 20112 in favor of what we fervently



JCB Editorial Report for volume 31 (2011)

hope will be a newer and better operation with Brill. We are shifting to 6 issues a year; issue #1 has finally made it through page proof, proofs for #2 are rolling in, and issue #3 is about 2/3 full at this writing. These two extra issues are making more work for me, but I think the bi-monthly pattern will benefit our authors in that things will appear in print somewhat faster than under the old quarterly schedule. The shakedown period for using EM has been a bit rough at times; but, as the editorial staff gets familiar with it, things appear to be shifting into a smoother operation.

Again, I must thank my Associate Editors: Shane Ahyong, Antonio Baeza, Ray Bauer, Mike Clancy, Keith Crandall, Francesca Gherardi, Mark Grygier, Won Kim, Rafa Lemaitre, Christopher Rogers, Bernard Sainte-Marie, Gerhard Scholtz, Tom Simon, Brad Stevens, and Martin Thiel. Their efforts are critical towards maintaining content quality.

Respectfully submitted,

Frederick R. Schram General Editor, *JCB*

JCB language service

Before you submit a manuscript to JCB, and if you are not fully fluent or a native speaker of English, we recommend the following. American Journal Experts (AJE) provides professional language editing services to authors around the globe who wish to publish in scientific, technical, medical, and humanities journals. We urge authors who are not well versed in the English language to use this service to improve a paper's English and, therefore, its overall quality. Seeking this assistance is suggested before an article is submitted to JCB for peer review and certainly before it is finally accepted for publication.

AJE has over 500 editors from Harvard, Stanford, MIT, Berkeley, and Duke; these editors are native English speakers and subject-matter experts in a wide variety of fields. They will check your manuscripts not only for terminology and language specific to your field but also for proper English usage, grammar, punctuation, spelling, verb tense, and phrasing. In addition, AJE's professional editors will make sure the text reads naturally and the sentences are well constructed. The cost for this service is very reasonable. Visit AJE's website for more information, or to submit a document for their scientific proofreading service use this link: www.JournalExperts.com?rcode=JCB1.

When you are secure about your text, manuscripts then can be submitted on line through the new link: www.editorialmanager.com/jcb.

TOP 10 MOST ACCESSED ARTICLES IN JCB DURING 2011

We are pleased to list again the top accessed articles in JCB for this past year. Some items are becoming familiar, with an enduring ability to draw attention. However, a number of newly published papers are attracting readers' interest. One is not surprised to see recent papers with a high number of hits, but it is interesting that in the entire report, from which this list here is digested, amongst the top 100 accessed articles were a couple of items that went back to 2002 – signs of enduring value. Whatever the reasons, the editorial staff is pleased our latest Impact Factor, 1.115, has once more climbed higher. Surely that reflects the quality of the papers submitted to us and published. Once again, we wish to thank both our authors for submitting their research to JCB, and our readers for their continued support. Most of all, the General Editor must acknowledge with pleasure the sterling efforts of my Associate Editors, without whose service the quality of our journal could not remain so high.

- 1 Ma, H., C. Ma, L. Ma, and H. Cui. 2010. Novel polymorphic microsatellite markers in *Scylla paramamosain* and cross-species amplification in related crab species. Journal of Crustacean Biology 30(3): 441-444.
- 2 Buhay, J. E. 2009. "COI-like" sequences are becoming problematic in molecular systematic and DNA barcoding studies. Journal of Crustacean Biology 29(1): 96-110.
- Rogers, D. C., D. L. Quinney, J. Weaver, and J. Olesen. 2006. A new giant species of predatory fairy shrimp from Idaho, USA (Branchiopoda: Anostraca). Journal of Crustacean Biology 26(1): 1-12.
- 4 Jenner, R. A. 2011. Use of morphology in criticizing molecular trees. Journal of Crustacean Biology 31(2): 373-377.
- 5 Milatovic, M., R. Kostanjsek, and J. Strus. 2010. Ontogenetic development of *Porcellio scaber*: staging based on microscopic anatomy. Journal of Crustacean Biology 30(2): 225-235.
- 6 Sforza, R., R. C. Nalesso, and J-C. Joyeux. 2010. Distribution and population structure of *Callinectes danae* (Decapoda: Portunidae) in a tropical Brazilian estuary. Journal of Crustacean Biology 30(4): 597-606.
- Morin, J. G., and A. C. Cohen. 2010. It's all about sex: bioluminescent courtship displays, morphological variation, and sexual selection in two new genera of Caribbean ostracodes. Journal of Crustacean Biology 30(1): 56-67.
- 8 McLain, D. K., and A. E. Pratt. 2011. Body and claw size at autotomy affect the morphology of regenerated claws of the sand fiddler crab, *Uca pugilator*. Journal of Crustacean Biology 31(1): 1-8.
- 9 Lieb, D. A., R. W. Bouchard, and R. F. Carline. 2011. Crayfish fauna of southeastern Pennsylvania: distributions, ecology, and changes over the last century. Journal of Crustacean Biology 31(1): 166-178.
- 10 Sainte-Marie, B. 2010. The first 30 years of the Journal of Crustacean Biology a bibliometric study. Journal of Crustacean Biology 30(4): 541-549.



Treasurer's Report for The Crustacean Society for 2011

TCS, at mid-year, changes publishers from Allen Press to Brill. This move was a result of the few services provided by Allen Press, as well as a lack of cooperation on the Allen Press' management. Allen Press refused to change money collection practices to provide an online credit card collection mechanism. Other procedural issues are addressed in the Editor's report. Expenses at Allen Press also appeared to be out of control. TCS attempts to address changes and needs of the society were not addressed by Allen Press. We moved one three month CD in Wells Fargo to checking in Wells Fargo in order to make sure we meet all needs for the midyear meeting and JCB volume 31(3). In December, three CD's were moved from Douglas County Bank to Wells Fargo checking to pay year end bills. Also money needed to be stockpiled for the Brill transfer and upgrading of the Editor's computer.

TCS is in a recovery year as far as the stock market is concerned. All of the indications are the economy is getting better not worse however housing is going to take a second dip in parts of the country.

By adding the Executive Director TCS is focusing on adding membership and advancing the Society. The ED will run the business office since we fired Allen Marketing & Management.

After reaching a low in 2010, our membership has started a slow increase. 2011 income from BioOne (\$45,228) surpassed the 2010 income (\$38,566). JSTOR income (\$5,042.91) also increased from 2010 levels. The investment accounts with Schwab have been put under Schwab management and are producing modest increases. Our Schwab accounts are higher than in the worst year 2008 but still are not as high as last year. Our overall portfolio (Assets) is balanced but our Schwab funds are aggressive. The TCS financial outlook is 50 to 100 years, not 2-3 years out. In 2011, TCS has a loss for the year, which can be explained by increased cost of operations, slight increase in JCB cost, appointing Mary Belk as Executive Director with commensurate increase in her stipend, and by the loss created by the Hawaii meeting. The Executive Director has started collecting back due page charges and even some payments for page charges into 2012. Our membership cost is up and our membership is up. This has helped but not done away with the loss.



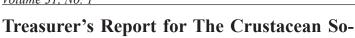
Financial Standing Oct. 31, 201	0 for The Crustace	an Society
ASSETS	2011	2010
Charles Schwab Accounts Total	329,778.85	358,732.07
US Bank	1,279.32	31,582.99
Wells Fargo Checking	62,681.01	14,673.34
Wells Fargo 2 CD (1 CD in 2011)	31,470.93	59,908.15
Douglas County BK CD's	36,546.22	70,741.29
Douglas County BK Checking	0	666.50
PayPal tcs1921@hotmail.com	305.11	0
PayPal tcsmoney@hotmail.com	3571.48	0
Editor's office prepaid expenses Treasurer's office prepaid expenses	941.70	1,000.00 0.00
Total TCS Assets	\$466,574.62	\$537,304.34
JCB Expenses	2011	2010
Editor's Stipend	15.000.00	15,000.00
BioOne Access	0.00	0.00
Allen Track	1,906.25	3,259.61
PDF files purchased	10.00	1,044.63
Printing, Distribution	69,321.95	75,213.75
Shipping Charges	2,680.00	
Silo Site	7,566.93	
Total	\$96,475.13	\$94,517.99
Expenses paid	2011	2010
Other officer ravel expenses	8,778.59	3,563.81
Business Office, Advertising, Website	31,680.40	15,076.39
JCB	96,475.13	94,517.99
Editor's Office Expenses	6,058.30	4,011.65
Treasurer's Office	27,692.23	11,805.83
Newsletter	0.00	0.00
SICB Contribution	2,931.04	6,063.98
Awards	9,802.03	6,250.00
Summer Meeting (exp. & advances)	19,359.83	2,025.77
Banking Fees	2,414.51	1,832.98
Tax Preparation	2,200.00	2,060.00
Miscellaneous	1,227.50	

Total Expenses

\$147,208.40

\$208,619.56





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Income For 2011 2010 Money from Meetings 4,985.00 6,000.00 Contributions 1,795.16 3,695.00 General Fund 1,245.15 2,665.00 0 25.00 Endowment Fund 0 JCB Endowment Fund 0.00 1005.00 D Belk M Sch Fund 550.00 **JCB** 69,522.67 91,159.25 **JSTOR** 5,042,91 3,160.78 45,228.00 BioOne 38,566.00 Color Plates 1,391.28 3,359.08 Figures 67.00 0.00 Page Charges 34,130.00 21,634.66 Revisions 3,295.00 2,667.50 75.00 Single Issue Sales 835.00 Submission fees 1,165.06 0.00 Shipping 5.00 59.65 10,320.00 20,805.01 Library Subscriptions Membership Dues 54,476.48 43,290.00 0.00 0.00 Membership Label Sales Unrealized Loses on Invest. 0.00 28,682.73 Bank and CD interest 1,120.15 1551.65 959.00 315.44 Refunds & Sales **Total Income** \$164,171.48 \$174,506.06 208,619.56 147,208.40 Minus expenses Difference \$-44,448.08 \$27,297.66 Withouth Investment gain \$-1,385.07

Respectfully Submitted Mary Schug Belk, Executive Director and Brian Tsukimura, Treasurer, The Crustacean Society January 4, 2012



SICB student winners

The Crustacean Society (TCS) is pleased to announce the winners of the Best Student Paper and Poster Competition held during the annual meeting of the Society for Integrative and Comparative Biology, January 3-7, 2012, in Charleston, SC. There were 27 high quality competitors. The Best Student Oral Presentation Awards were presented to Michael Bok (University of Maryland, Baltimore County) for his talk entitled, "Ultraviolet vision in mantis shrimp " (with co-authors M. L. Porter & T. W. Cronin) and David Murphy (Georgia Institute of Technology) for his talk entitled "Copepod escape jumps: Tomo-PIV measurements of the eliciting hydromechanical signal and subsequent flow disturbance" (with co-authors D. R. Webster & J. Yen). The Best Student Poster Award was presented to Kate Feller (University of Maryland, Baltimore County) for her poster entitled "The Spectral Sensitivity of Stomatopod Larvae" (with co-author T. W. Cronin). 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. TCS thanks those members who served as judges and all student participants.

Christopher B. Boyko Program Officer

Ultraviolet vision in mantis shrimp

Bok, M. J., M. L. Porter & T. W. Cronin (University of Maryland, Baltimore County, USA) mikebok@gmail.com

Stomatopod crustaceans, or mantis shrimp, possess some of the most notable visual systems known to biology. Their visual ecology has been characterized in great detail, showing that many species of this order are capable of advanced color and polarization discrimination. The photoreceptors of stomatopod compound eyes are maximally sensitive to at least ten separate wavelengths of light in the human visible range, from 400 to 700 nm. Stomatopod photoreceptors have also been shown to be maximally sensitive to at least five discrete wavelengths of ultraviolet (UV) light, between 310 and 380 nm, as well as orthogonal polarization angles of UV light. Little is known about the visual pigments or spectral tuning mechanisms at work in these UV-sensitive photoreceptors. Here we report on preliminary molecular investigations of short wavelength-sensitive opsin transcripts in the retina, and spectroscopic measurements from the optical components of the eye. These findings suggest that multiple UV-absorbing visual pigments and novel optical filters are responsible for the surprising diversity of spectral sensitivities observed in stomatopod UV photoreceptors. Furthermore, comparative analysis of these tuning mechanisms alongside preliminary behavioral experiments may indicate a variety of UV spectral tuning mechanisms, and UV visual capabilities, across different species of stomatopods.



SICB student winners

Copepod escape jumps: Tomo-PIV measurements of the eliciting hydromechanical signal and subsequent flow disturbance

Murphy, D. W., D. R. Webster & J. Yen (Georgia Institute of Technology, USA) dwmurphy@gatech.edu

We present time-resolved tomographic particle image velocimetry (Tomo-PIV) measurements of marine (Calanus) copepod escape sequences initiated by an impulsive siphon flow that mimics the aquatic suction feeding of a piscine predator. Copepods perform dramatic escape jumps reaching speeds up to 500 body lengths per second in response to hydromechanical signals that are perceived as threats. Copepods sense the flow disturbance via their long, highly enervated, setae-bearing antennules, and the behavior response is believed to result from the structure of the velocity gradient field. Volumetric velocity measurements around the copepod allow determination of both the magnitude and orientation of the hydromechanical disturbance threshold along the antennules to which the animal responds. Further, the flow field resulting from a copepod escape jump, which may carry sensory information to a predator, consists of a wake vortex and a body vortex. These two counter-rotating viscous vortex rings of similar intensity can be modeled as an impulsive stresslet for comparison.

The spectral sensitivity of stomatopod larvae

K. D. Feller & T. W. Cronin (University of Maryland, Baltimore County, USA) kfeller1@umbc.edu

Adult stomatopods possess exceedingly complex visual systems with unique structural adaptations, intrarhabdomal spectral filters,

and a myriad of expressed visual pigments. Larval visual systems of these marine crustaceans, by comparison, are much simpler in both their structure and visual pigment expression (See Fig. 3 for scale comparison). Previous research suggests that stomatopod larvae possess compound eyes typical of many pelagic zoea, with transparent apposition optics and a single, spectrally distinct visual pigment class. The physiological function of stomatopod larval eyes and their transition into the complex structures seen in adults, however, are largely unknown. It also remains unclear as to whether larval and adult stomatopods express separate suites of visual pigments, or if larval pigments are retained through adulthood. Preliminary research on the larval and adult stages of the gonodactyloid species, Gonodactylaceus mutatus, supports the presence of a larval visual pigment that retains its expression in the adult eye. In lysiosquilloid and squilloid species, however, data suggest unique suites of visual pigments for each life phase. Despite these conflicting results, we hypothesize that separate sets of visual pigments are expressed during the larval and adult stages. This hypothesis would account for both these preliminary results and the unique developmental process observed in stomatopod eyes. During the final, metamorphic molt of stomatopod larvae the larval retinas degenerate while the adult retinas form as separate structures medially adjacent to the preexisting larval material, resulting in two retinas within a single eye for a brief period. Here we report new data regarding visual pigment absorption in single receptors of stomatopod larvae measured by microspectrophotometry. These data deepen our understanding of larval visual ecology and suggest further approaches for investigating the peculiar development of stomatopod eyes.

The Denton Belk Fund

The Crustacean Society would like to remind our readers that it is soliciting contributions to an endowed fund to honor the memory of Denton Belk, a founding member and past treasurer of TCS. The endowment will be used to fund scholarships for students performing large branchiopod research, a field in which Denton excelled and made significant contributions. Students will be able to use funds to support research costs and/or travel (either to scientific meetings or for research purposes).

Denton was exceptionally generous in his lifetime to students in need who expressed an interest and passion for large branchiopods. We feel it is a fitting tribute to our colleague and friend to continue this tradition in his passing. We encourage and appreciate your contribution!

Please note that you do not need to become a member of TCS to make a donation!

Personal checks (in U.S. Dollars) may be made out to "TCS – The Denton Belk Fund". Alternatively, contributions using Visa or Master Card can be made by printing out a copy of the membership application from the Society's website (http://www.thecrustaceansociety.org), indicating the amount (in U.S. Dollars) that you are willing to contribute on the appropriate line, and mailing the form to the Business Office at the address below.

Please send contributions to: Business Office, The Crustacean Society P.O. Box 1897, Lawrence, Kansas 66044-8897 U.S.A.

For additional inquiries, please contact Mary Belk (TCS Executive Director) by email: (marybelk@att.net)

Upcoming Meetings...

International Association of Astacology (IAA)

19th Symposium August 26 – 31, 2012 Innsbruck, Austria



On behalf of the *International Association of Astacology* (IAA, http://iz.carnegiemnh.org/crayfish/IAA/) and the *forum flusskrebse* (http://www.forum-flusskrebse.org/), the conveners, local organizing and the scientific committee invite you with great pleasure to participate in the IAA 19 Symposium. The Symposium will be held August 26 - 31, 2012 in Innsbruck, Austria.

The IAA19 symposium will be held in Austria, where 40 years ago, the first symposium of the IAA was held 1972 in Hinterthal, and also the IAA was founded. So let us take the opportunity, and join us to celebrate the 40th anniversary of the IAA! The idea for the first European symposium on crayfish was that of Sture Abrahamsson of Sweden in the early 1970s, who also suggested forming an association of astacologists and having a newsletter, although the first was not published until 1977. The first symposium in Hinterthal, Austria, in 1972 in fact became an international one as a number of American astacologists also attended. James Avault Jr. from the USA suggested a second meeting in Louisiana, and the International Association of Astacology took off from there. Ten of our current members have been made Charter Members of the IAA as they were at Hinterthal when the International Association of Astacology was formed and still retain an interest in the Association's affairs.

The IAA19 symposium will take place in the historic center of Innsbruck, which is the capital city of the federal state of Tyrol in western Austria. It is located in the Inn Valley at the junction with the Wipptal (Sill River), which provides access to the Brenner Pass, some 30 km (18.64 mi) south of Innsbruck. Located in the broad valley between high mountains, the Nordkette (Hafelekar, 2334 m (7657 ft) in the north, Patscherkofel (2246 m (7369 ft)) and Serles (2718 m (8917 ft)) in the south, it is an internationally renowned winter sports centre, and hosted the 1964 and 1976

Winter Olympics and the 1984 and 1988 Winter Paralympics. It is to host the 1st Winter Youth Olympics in January 2012. The word "bruck" comes from the German word Brücke meaning "bridge" which leads to "the bridge over the Inn".

The conference will consist of a five-day scientific program, with presenters welcome to submit papers on all aspects of freshwater crayfish. We will focus on conservation, biogeography, genetics and diseases, as they are hot topics in Europe at the moment, but will also encourage delegates to consider presenting papers on all relevant crayfish topics including physiology, behaviour, ecology and all other interesting matters discussed and appreciated at IAA symposiums.

Prior to the symposium, on Sunday, August 26, 2012, workshops will be organised. As Tyrol is bordered by Germany in the North and Italy in the South, an excursion is planned for the weekend September 1-2, where delegates can enjoy catching the three native crayfish species, *Astacus astacus*, *Austropotamobius torrentium* and *Austropotamobius pallipes*. Hope to see you in summer 2012 in Innsbruck!

In addition to scientific program we will cater a lively but not too exhausting social program. As the conference will take place in the historic center of Innsbruck, there will be several opportunities for accompanying persons as well as for delegates sneaking out of the lecture rooms to experience summer in Tyrol.

REGISTRATION is already open for early birds since JANU-ARY 15th, 2012 (http://www.uibk.ac.at/ecology/events/iaa19/)

You can register for IAA 19 by using the registration tool. After filling and sending the form, the registration is completed by paying the registration fee as indicated below. The registration and payment of the registration fee are thus separate actions.

Registration fees are shown below. The delegate's registration fee includes the scientific program, lunch and coffee breaks from Monday to Friday (for details check the program section). The accompanying person's fee includes the social program and the inofficial program delivered by hosts and hostesses on a daily basis.

The registration fees $(\mbox{\ensuremath{\mathfrak{e}}})$ for delegates and accompanying persons depend on the individual registration dates and IAA membership status, as shown below.

Early Bird - January 15 - April 22, 2012

	IAA member	nonmember
Delegate	250	280
Student	150	180
Accomp.Pers.	150	150

Late Bird - April 23 – June 30, 2012

IAA member	nonmember
280	300
180	200
170	170
	280 180



Upcoming Meetings...

Almost missed Bird - after June 30, 2012

IAA member nonmember
Delegate 350.-- 380.-Student 200.-- 230.-Accomp.Pers. 190.-- 190.--

For registration, go to the IAA19 webpage (http://www.uibk.ac.at/ecology/events/iaa19/).

The registration fee includes all meals and expenses during the scientific program. For the symposium dinner an additional EUR 31.-- per person will be requested. Special events, like the Mountain Summer Night or the visit to the Swarovski Crystal Worlds will be payable at the symposium. Information about the excursion will be available in due course.

Meanwhile, keep your eyes on these webpages, all you need IAA-19wise is going to be here.

On behalf of the organizing committee, we welcome you to Innsbruck in August 2012!

Leopold Füreder

IAA19 Conference Scientific Organising Committee:

Leopold Füreder (Chair; IAA President-Elect), University of Innsbruck, Austria; James W. Fetzner Jr. (IAA President), Carnegie Museum of Natural History, Pittsburgh, USA; Reinhard Lackner, Scientific focus, University of Innsbruck, Austria; Catherine Souty-Grosset (IAA Past-President), University of Poitiers, France; Julia Seeber, University of Innsbruck, Austria; Thomas Stucki (President Forum Flusskrebse), Kanton Aargau, Switzerland; Martin Weinländer, University of Innsbruck, Austria; Daniela Sint, University of Innsbruck, Austria



13th International Deep-Sea Biology Symposium

http://www.confer.co.nz/dsbs2012

Host institute: National Institute of Water & Atmospheric Re-

search

Venue: The Symposium will take place at the Museum of New

Zealand, Te Papa Tongarewa Where: Wellington, New Zealand When: 3 - 7th December 2012

Co-conveners: Ashley Rowden & Mireille Consalvey

Deadline for abstracts is 1st July.

Since 1977 the International Deep-Sea Biology Symposium has typically been held every three years. Following the four year gap between the conference in Southampton, UK (2006) and Reykjavik, Iceland (2010), the next International Deep-Sea Biology Symposium will re-establish an overall three year interval by being held in 2012. The Symposium will provide the opportunity for members of the international deep-sea science community to discuss and present their latest research results. The International Deep-Sea Biology Symposium will be held for the first time in the southern hemisphere. The Symposium has been scheduled to take advantage of the southern hemisphere summer and the trans-hemisphere academic break.





http://www.cssm2012.gr/

First Joint Congress on Evolutionary Biology

(American Society of Naturalists (ASN), the Canadian Society for Ecology and Evolution (CSEE) the European Society for Evolutionary Biology (ESEB), the Society for the Study of Evolution (SSE), and the Society of Systematic Biologists (SSB))

The Ottawa Convention Centre Ottawa, Ontario, Canada July 6-10, 2012 http://www.confersense.ca/Evolution2012/index.htm





Upcoming Meetings...

6th National Conference on Coastal and Estuarine Habitat Restoration

October 20-24, 2012 Tampa Convention Center, Tampa, Florida http://www.estuaries.org/conference/

97th Ecological Society of America ANNUAL MEETING 2012

August 5 – Friday, August 10, 2012 Oregon Convention Center Portland, Oregon http://www.esa.org/portland/

The 87th Annual Meeting of the American Society of Parasitologists

Omni Richmond Hotel Richmond, VA July 13-16, 2012 http://asp.unl.edu/

51st Annual Meeting of the Canadian Society of Zoologists

May 7–11, 2012 Mount Allison University in Sackville, New Brunswick http://csz2012.com/en/

American Society of Limnology & Oceanography Aquatic Sciences Meeting 2013 02/17/2013 to 02/22/2013

New Orleans, LA United States http://www.aslo.org/meetings/aslomeetings.html

New Publications...

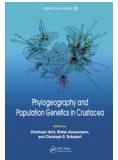
Phylogeography and Population Genetics in Crustacea

Series: Crustacean Issues

Published: December 13, 2011 by CRC

Press - 400 Pages

Editor(s): Christoph Held, Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany; Stefan Koenemann, University of Siegen, Germany; Christoph D. Schubart, Universitat Regensburg, Germany



Presents a state-of-the-art synopsis of current knowledge on population genetics and analysis of phylogeography in crustacean biology. Combines methodology chapters with chapters on organism life histories and reproductive strategies. Contains case studies from a variety of regions and crustacean taxa. Guides readers in selecting methods of analysis of intraspecific genetic variation and in interpreting results. Outlines shortcomings of widely used techniques and suggests alternative or complementary approaches. Provides guidance on experimental design for studies in phylogeography and population genetics of non-model species. Includes black-and-white illustrations and a 12-page color insert

http://www.crcpress.com/product/isbn/9781439840733 Use Promo Code ALL22 at checkout to receive 20% off and FREE shipping

Summary

Recently, technological progress and the rise of DNA barcoding efforts have led to a significant increase in the availability of molecular datasets on intraspecific variability. Carcinologists and other organismal biologists, who want to use molecular tools to investigate patterns on the scale of populations, face a bewildering variety of genetic markers, analytical methods, and computer programs from which to choose. A modern overview of population genetic and phylogeographic studies, Phylogeography and Population Genetics in Crustacea offers insights to guide research on intraspecific genetic variation in crustaceans.

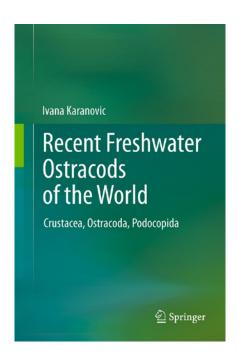
Combining theory and case studies of current best practices, the book helps researchers select methods of analysis and interpret their results. The theoretical chapters discuss the potential of currently used and upcoming molecular markers in the context of marine non-model species. They also gather practical tips and address the effect of seldom-discussed sources of error, such as spatial and temporal variation, stochasticity, and choice of statistical parameters. Case studies of marine and limnic crustaceans from around the world highlight the importance and diversity of sources of population structure in intraspecific variation.

Written by an international team of 46 leading experts, the book showcases the use and analysis of molecular markers, including mitochondrial and nuclear DNA sequence data, coding and non-coding sequences, microsatellites, and cytogenetics. It gives researchers and students a valuable summary of current knowledge on the processes that shape genetic variability and geographic distribution patterns in space and time.



New Publications...

Recent Freshwater Ostracods of the World



Karanovic, Ivana 2012, 2012, XIII, 608 p. 312 illus., 9 in color.

http://www.springer.com/life+sciences/animal+sciences/book/978-3-642-21809-5

A comprehensive review Richtly illustrated

Answers the question: Where do I start to study freshwater ostracods?

Their story began 500 million years ago, but we only started to get to know them in 1746, when Linné described the first ostracod species. Vividly portraying the freshwater ostracods, this comprehensive reference work gathers the knowledge gained during some 250 years, but which to date has remained scattered throughout the literature. It starts with an introduction to the class Ostracoda with a special focus on freshwater ostracods and highlights practical methods in their study. The systematic part includes an introduction to all families; identification keys for all subfamilies, genera and species; diagnoses for each subfamily and genus; and lists of synonyms and distribution of species. The text is richly illustrated with distribution maps, line drawings of key generic characteristics, and numerous SEM photographs. Serving as an excellent starting point for all further research on freshwater ostracods, it can be widely used not only by ostracodologists, but also by crustaceologists, evolutionists and ecologists.

News from Liaison Officers...

Dear All,

As the Liaison Officer for the International Association of Astacology (the IAA) and the Crustacean Society, I am pleased to announce that registration for the 19th Symposium of the IAA is now open and accepting early bird registrations and abstracts for the scientific program.

The symposium's website is available at the following URL: http://www.uibk.ac.at/ecology/events/iaa19/index.html.en

The symposium will be held in Innsbruck, Austria from 26-31 August 2012, and is particularly notable as it marks the 40th Birthday of the IAA, and is being held in Austria, the birthplace of the IAA. The IAA meets every 2 years, and as always this will be another IAA event to remember.

As always, a discounted registration fee is available for active IAA members, and if you wish to join the IAA, the Association's website has the current membership application form, and information on our new membership categories and fees. http://iz.carnegiemnh.org/crayfish/IAA/membership.htm

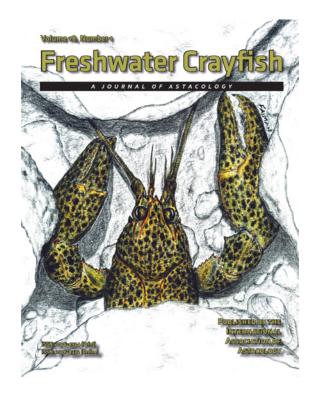
I am also pleased to announce the publication of volume 18 of the IAA's journal, *Freshwater Crayfish*. In addition, *Freshwater Crayfish* is now being published on an annual basis and any authors interested in submitting manuscripts for consideration should visit the *Freshwater Crayfish* manuscript submission and tracking website for details: http://iz.carnegiemnh.org/FCEditor/

Best Regards

James M. Furse

Environmental Futures Centre, Gold Coast campus, Griffith University, Queensland 4222, Australia.

E-Mail: j.furse@griffith.edu.au





Minutes of The Crustacean Society...



Minutes of the Crustacean Society Board Meeting

Held at the 2012 Society of Integrative and Comparative Biology Annual Meeting in Charleston, South Carolina. 4 January 2012

Present: Mary Belk, Christopher Boyko, Sherry Tamone, Brian Tsukimura, Christopher Tudge, and Jason Williams.

President Chris Tudge brought the meeting to order at 6:42 pm with use of the newly re-established official TCS presidential gavel.

President Tudge welcomed all to the meeting and extended thanks to past president Akira Asakura for his excellent service to the society over the past two years. President Tudge then listed some of the significant changes to TCS under Past-President Asakura's watch:

- 1. TCS moved from Allen Press, Inc. (U.S.A.), to Brill (The Netherlands) for our printing services as well as our official web-site management, TCS Official web-site, and JCB SILO site.
- 2. Journal of Crustacean Biology is publishing six issues per year.
- 3. In JCB, the "article by article on line" publication started for rapid publication.
- 4. New membership categories and fees were decided: Student online member \$35, Member online \$95, Member online and print \$125, Patron member online and print \$150.
- 5. Positions of Liaison Officers were established and the officers were appointed: Jianhai Xiang (Chinese Crustacean Society), James M. Furse (International Association of Astacology), Fernando Mantelatto (Brazilian Crustacean Society), Shinji Tsuchida (Carcinological Society of Japan), Rony J. Huys (The World Association of Copepodologists), Renate Matzke-Karasz (President, International Research Group on Ostracoda), Michel Hendrickx (President, Associacion Latinoamericana de Carcinologia), Enrique Macpherson (Colloquium Crustacea Decapoda Mediterranea), Jasna Strus (Terrestrial Isopod Group), Christopher Rogers (Large Branchiopod Working Group), Wim Vader (Amphipod Group), Steffen Harzsch (German Carcinologist Group).
- 6. An Executive Director was established (Mary Belk) and Brian Tsukimura was appointed as a new interim Treasurer.
- 7. The membership poll was conducted in 2010: most respondents were academic scientists, who mostly attend the midyear meeting; most prefer one TCS-sponsored meeting per year, a summer meeting, and were equally divided between small (<100) or large (>300) meetings.
- 8. Seed money policy was decided: \$2000 for a TCS meeting, up to \$6000 for an ICC. The seed monies are considered a loan and TCS would "be highly appreciative" of surplus sharing. The prize money for best student presentations at sister society conferences are considered "promotional costs" for TCS and are thus not to be repaid.

The 2012 election results were reported:

New TCS Officers 2012-2013: President-Elect – Shane Ahyong Program Officer – Chris Boyko SICB Liaison Officer – Sherry Tamone Asian Governor – Shirley Lim Latin American Governor – Ingo Wehrtmann

It was noted that the online voting should be fixed in the future so that those voting know before they begin that they can only open and complete the form once. In addition, it was suggested that a list of potential TCS officers be generated for future elections. Anyone interested in running in the future should contact President Tudge.

President Tudge covered the details of the Editors Report submitted by Fred Schram for the JCB publication year 2011. Based on Fred's note of the rise in multi-authored papers, discussion was raised about whether JCB had the mechanism to ensure all authors on papers have agreed they contributed to submitted papers. Other journals require such verification (or at least automatically contact all authors) when submitting online. It was also noted that more female presence on the future board of JCB would be desirable and beneficial.

President Tudge discussed some changes in the organizational structure of TCS, established under past president Asakura. These changes included Mary Belk stepping down as Treasurer and beginning work as the Executive Director of TCS, focusing on running the TCS Business Office and increasing membership. Subsequently, Brian Tsukimura was appointed as interim Treasurer. Together, Mary Belk and Brian Tsukimura have worked to modernize the financial books of TCS during the changes in publishers and the transition to a new website with online payments. Mary Belk and Brian Tsukimura discussed the assets and expenses for 2011, comparing them with data from 2008-2011. Mary Belk noted that TCS posts an overall loss for 2011, mostly due to losses from the TCS meeting in Hawaii in June, costs of officer travel, costs of associated with the new Executive Director position, and decreased income from interest on assets.

Some discussion was raised on capping the budget for travel by officers to TCS meetings; however, this was tabled until the financial situation could be more fully assessed following the move from Allen Press to Brill and determination of membership numbers.

Following up on a previous question from a TCS member, President Tudge questioned whether new membership categories should be established for retired TCS members and those interested in TCS membership only (without online or hard JCB subscriptions). It was decided that no changes would be made at this time; however, data will be accumulated to determine demand for such categories.

A discussion followed on the remaining Allen Press inventory. It was decided that copies of JCB journals beginning from



Minutes of The Crustacean Society...

the initiation of the color issues would be kept for distribution and promotion of TCS at future meetings. The rest would be pulped.

The Program Officer Report was presented by President Tudge and Chris Boyko. This included a listing of all upcoming meetings through 2015:

2012 - Mid-year meeting, Athens, Greece, with 10th CCDM

2013 - Winter meeting with SICB, San Francisco (TCS sponsored Conservation of Crayfish Session)

2013 - Mid-year meeting, Costa Rica? (to be confirmed)

2013 – International Congress on Invertebrate Reproduction and Development Detroit, USA (possible TCS sponsored symposium on crustacean reproduction)

2014 - Winter meeting with SICB, Austin, TX (TCS has no plan for a symposium at this moment)

2014 - 8th International Crustacean Congress (ICC-8), Frankfurt, Germany

2015 - Winter meeting with SICB, West Palm Beach, FL (TCS has no plan for a symposium at this moment)

2015 - Mid-year meeting, Australia (Shane Ahyong)

For those interested in organizing symposia for future joint SICB/TCS meetings, it was noted that these must be in place the summer preceding the annual meeting. Thus, for those interested in proposing a symposium for 2014, they need to have materials together by mid-August 2012. Brian Tsukimura noted that those proposing symposia need to think of NSF fundable themes. Sherry Tamone and Brian Tsukimura can field questions for those interested.

President Tudge presented reports submitted to him from TCS Governors and Liaison officers. This led to a discussion of the role of TCS Governors and Liaison officers and coordination of their efforts in TCS. It was decided that the current and future Governors would coordinate with specific crustacean societies (see be-

low) and include their reports along with their own for submission to the Ecdysiast and communication to the TCS community.

North American Governor - Large Branchiopod Working Group, International Research Group on Ostracoda, The World Association of Copepodologists

Latin American Governor - Brazilian Crustacean Society, Associación Latinoamericana de Carcinología

European Governor - Colloquium Crustacea Decapoda Mediterranea, Terrestrial Isopod Group, German Carcinologist Group Asian Governor - Chinese Crustacean Society, Carcinological Society of Japan,

Indo-Pacific Governor - International Association of Astacology, Amphipod Group

To distinguish the important role of the SICB Liaison Officer from crustacean society Liaison Officers, the title of this position has been raised to Executive SICB Liaison Officer (filled currently by Sherry Tamone). The appropriate ByLaws will have to be amended and voted upon.

The final item of business was the presentation of ideas on creating a more streamlined and interactive TCS website, as outlined in a series of powerpoint slides created by Kareen Schnabel and Zen Faulkes. The board members present agreed this was an excellent idea and President Tudge would contact Kareen Schnabel to look further into this, including determining costs for hiring someone to make these changes.

The meeting was adjourned at 10:15 pm.

Respectfully submitted, Jason Williams Acting Secretary

