Message from the DCPB Chair

Kim Hammond, University of California Riverside (Chair.DCPB@sicb.org)

Spring greetings to everyone! As I write this (in February) in Riverside California, there is increased activity in my backyard as brightly colored warblers and hummingbirds begin courting and nesting. Our Annual meeting in San Francisco was a great success with 2,497 attendees and 1,833 presentations; this is a new record for attendees!

Of the total registered attendees, 1,105 were students, including 727 grad students, 375 undergrads, and 3 high school students! As usual, the Division of Comparative Physiology and Biochemistry (DCPB) showed up in force at SICB 2018 including:

- 104 oral presentations in 15 sessions, covering a diversity of physiology topics such as energetics and metabolism, thermal physiology, water and ion homeostasis, and digestive, stress, respiratory, and reproductive physiology.
- 90 posters in physiologically-themed poster sessions
- There were 14 Oral Sessions devoted to physiological topics — from muscle physiology, to the complexities of measuring metabolic rates and environmental omics.
- Of all the Oral Presentations, 44 abstracts (42%) were submitted by graduate student members
- 58 entries for Best Student presentation in DCPB, including 30 posters and 28 talks in the DCPB Best Student oral presentation competition. I would like to extend my sincerest thanks to the DCPB members who did the hard work of selecting abstracts for the presentations.
- DCPB also sponsored four symposia at the San Francisco meeting, including “Understanding the Evolution of Endocrine System Variation through Large-scale Comparative Analyses” by Maren Vitousek and Michele Johnson, “Inside the Black Box: The Mitochondrial Basis of Life-history Variation and Animal Performance” by Karine Salin and Wendy Hood, “Behavioral and Physiological Adaptation to Urban Environments” by Jenny Ouyang and Davide Dominoni and “Measuring Biodiversity and Extinction: Present and Past” by Julia Sigwart.

I want to extend my gratitude to Wes Dowd, the DCPB program officer, and the entire SICB Program Committee for an excellent program at this year’s
meeting. People were particularly charmed with the very creative titles for the contributed paper sessions. If you have never been on the program committee, you may not understand how hard these people work to make our overall program compelling and successful. Thank you Wes!

Our symposia were very well attended, and we all look forward to seeing the symposium papers published in *Integrative and Comparative Biology* (ICB). Whether or not you attended these symposia, all of us benefit by the wide diversity of topics that are covered in depth in the symposium format. I encourage all DCPB members to consider developing more special symposia for the upcoming meetings. In addition to the platform for focused discussions, the symposia provide a good venue to network with colleagues who share your interests. Finally, consider that the symposia papers are the staple of the ICB, which in turn is a major source of income for the SICB, helping us to keep the annual meetings’ costs as low. If you have an idea for a symposium for the 2020 or later meetings, please contact Wes Dowd or me to discuss further details.

The long-standing tradition of excellence of the plenary George Bartholomew Award lectures sponsored by DCPB was continued in 2018 by this year’s winner: Caroline Williams, Assistant Professor at University of California Berkeley. Caroline’s talk entitled “Cold truths: Evolutionary impacts of winter on terrestrial ectotherms” was a packed event. Caroline’s research focuses on the evolution of metabolic physiology in ectotherms, using insects as models. Her laboratory is interested in the mechanisms and consequences of metabolic responses to emerging winter environments and her work is supported by the National Science Foundation.

Dr. Williams was selected from a highly competitive pool of nominees by the selection committee, composed of Adam Summers (Chair), Bob Cox, Lynn Martin, Stacy Combs, Manny Azizi, and Vince Caraeu. Thank you to the committee! We also extend sincere thanks to John Lighton and Robin Turner of Sable Systems International for their continued generous support of the George Bartholomew Award. Complete nomination packages for the next award will be due August 24, 2018. More information can be found at www.sicb.org/membership/awards.php3#bart.

This year’s recipient of the Division’s Bartholomew Award, Caroline Williams of the University of California, Berkeley, shared her passion for integrative biology of insects and for student training in her lecture: “Cold truths: Evolutionary impacts of winter on terrestrial ectotherms.” Nominations for the 2019 Bartholomew Award are due on August 24th, but it is never too early to think about nominating someone for this prestigious early-career honor (www.sicb.org/membership/awards.php3#bart).

Student members, stay tuned over the summer months for new guidelines and requirements for competing for the Division’s Best Student Presentation awards. Thanks to Valentina Di Santo for coordinating the BSP judging once again in 2018.

Finally, a big thank you to everyone who chaired a session or scored best student presentation entrants in San Francisco. The Division will continue to call on all of you to keep making our corner of the SICB meeting a success.
Mark your calendars now for the January 3-7, 2019, meeting in Tampa. The trend of record-setting SICB attendance and abstract numbers is likely to continue. More information will be distributed later in the summer regarding hotel reservations and abstract submission. There will be 12 symposia at SICB 2019, of which the DCPB has co-sponsored four that should be of interest to our membership:

- Adaptation and evolution of biological materials (Organizers: Robert Campbell and Mason Dean)
- The world is not flat: Accounting for the dynamic nature of the environment as we move beyond static experimental manipulations (Organizers: Tim Greives and Rachel Bowden)
- Beyond the powerhouse: Integrating mitonuclear evolution, physiology, and theory in comparative biology (Organizers: Justin Havird and Geoffrey Hill)
- Stress phenotype: Linking molecular, cellular, and physiological stress responses to fitness (Organizers: Haruka Wada and Britt Heidinger)

Please feel free to contact the relevant organizers if you are interested in presenting in the complementary session to a symposium.

**Austin 2020 — Submit a Symposium!**

The Division is looking for your outstanding ideas for symposium proposals for the 2020 annual meeting in Austin, Texas. Let’s keep the streak of strong DCPB symposia alive. The website for symposium submissions is already open at sicb.org/meetings/2020/callsymp.php. Symposia that look to define emerging concepts or major advances in a field, are integrative across disciplines, and include a diversity of speakers (in terms of speaker gender, background, and academic rank) are more likely to gain broad support within SICB and with funding agencies such as NSF. Feel free to contact me at the email address above with ideas for symposia or with questions. Society Program Officer Susan Williams (programofficer@sicb.org) can also be very helpful in formulating ideas and discussing the process. Student and postdoc members are also encouraged to take part in organizing a symposium; it is a great way to increase the visibility of your research and to network.

One of the criteria for submitting a symposium proposal to SICB is that you agree to seek external funding to help support the attendance of your speakers. Society-wide conversations are ongoing regarding how to facilitate this process — for example, by sharing past examples of successful NSF symposium proposals.

**Message from the DCPB Secretary**

Marshall McCue, Secretary.DCPB@SICB.org

I am honored to serve as DCPB Secretary, and grateful for the transitional assistance I received from our outgoing Secretary, Robin Warne. I also welcome Andrea Rummel, our newly appointed DCPB Representative on the Student and Postdoctoral Affairs Committee.

Minutes of the DCPB Business Meeting from January 4th, 2018 are posted online at SICB: www.sicb.org/divisions/DCPB/minutes.php.

Please also be aware that we have our own Divisional Facebook Group: www.facebook.com/groups/Div.Comp.Phys.Biochem. Facebook is a great way to communicate informally with other group members (e.g., share information about events, open positions, or ask questions of interest to DCPB members). Just click to ‘Join Group’ and I will approve your request.

Currently we have only six scientists who are featured on the DCPB Researchers Database www.sicb.org/divisions/DCPB/researchers.php and only one of these is an early-career scientist. As such, I welcome each of you to send me (via SICB email) a research-related photo of you, your organisms, or your research team, along with a ~200-word summary of your research projects/findings (written in the 3rd person). We can also accept a graphical abstract if you are photo-shy. We can add links to up to three videos or online reprints (e.g. through the publishers’ websites, Researchgate.com, Academia.com, or similar). The DCPB is lagging far behind the other Divisions, so I might be contacting some of you directly, with the goal of improving our on-line visibility.

Finally, keep in mind that we welcome your service as an elected or appointed member of DCPB leadership. You will recognize many of the folks running for office below. We are responsible for the success of our own Division, so consider running for office in the near future. Attending the DCPB Business meetings at the SICB Conferences is a great way to see the operations from the inside, if you are curious.
Upcoming Meetings of Interest to DCPB members

• 2018 American Physiological Society, Comparative Physiology: Complexity and Integration Conference. This is the 8th in a series of meetings held every four years on the topic of comparative and evolutionary physiology. The APS Intersociety Meeting in Comparative Physiology is one of only a limited number of international meetings solely dedicated to the dissemination of recent conceptual and technological advances in this diverse and exciting area. It is perhaps the single most widely-attended and eagerly-anticipated opportunity for comparative physiologists to meet colleagues, present papers, and learn from one another. Location: New Orleans, Louisiana. Dates: October 25-28. For more information see www.the-aps.org/comparative.

• 2019 International Congress of Comparative Physiology and Biochemistry: Mechanisms and Evolutionary Professes. Location: Calgary, Canada. Date: August 5-9. For more information: www.ICCPB2019.com. This is the 10th in a series of meetings and will be attended by several other societies:
  - ANZSCPB: Australia & New Zealand Society of CPB
  - APS/CEPS: Amer Physiol Soc, Comparative & Evolutionary Physiology Section
  - CSZ: Canadian Society of Zoologists
  - DZG: Deutsche Zoologische Gesellschaft
  - ESCPB: European Society of CPB
  - JSCPB: Japanese Society for CPB
  - SASCPB: South American Society for CPB
  - SDP: Societe de Physiologie
  - SEB: Society for Experimental Biology

Message from the Student Postdoctoral Affairs Committee (SPDAC) Representative

Andrea Rummel (andrea_rummel@brown.edu)

Firstly, I’m very much looking forward to serving as the student representative for DCPB in the coming years! It was a great meeting in San Francisco this year — SICB continues to be welcoming to trainees, but if you have suggestions on ways DCPB or SICB could be more inclusive of students and post-docs, feel free to contact me.

In that vein, SPDAC hopes to improve programmatic support for first-time attendees, as well as for post-docs; we hope to do this by facilitating connections between faculty and post-docs, advertising post-doc positions, etc. If you have suggestions for what else might be valuable to students and (especially) post-docs, please contact me.

SPDAC is hoping to improve its own visibility as well; like SPDAC on Facebook and follow on Twitter @SICB_SPDAC for updates throughout the year and at the meeting. Look for information on the SPDAC workshop and table in the exhibitors hall at the next meeting!

Finally, graduate student and post-doc attendance at this year’s business meeting was pretty sparse. I would like to remind our members that business meetings are open to all DCPB members, students and post-docs alike.

DCPB Best Student Presentation Awards

Presentation Title: Omnivorous Sharks? An analysis of bonnethead shark digestive physiology provides evidence for seagrass digestion and assimilation (Best Student Oral Presentation)

Key findings: Bonnethead sharks are the only shark species known to be capable of seagrass digestion and nutrient assimilation — as determined by captive feeding trials, digestive enzyme assays, digestibility analyses, and stable isotope analyses.

Personal info: Samantha Leigh is a PhD Candidate in the Ecology and Evolutionary Biology Department at the University of California, Irvine in Dr. Donovan German’s lab.

Title: Sex-specific plasticity and the nutritional geometry of insulin-signaling gene expression in Drosophila melanogaster (Best Poster Presentation)

Key findings: The findings suggest that in Drosophila, sexual size dimorphism is regulated by sex-specific differences in the release of insulin-like peptides under different nutritional conditions.

Samantha Leigh

Pegah Nabili
Personal info: Pegah was an undergraduate thesis student in the Shingleton Laboratory at Lake Forest College. She graduated from Lake Forest College in December 2017.

Program Officer Nominees

Name: Dane A. Crossley II
Current Position: Associate Professor of Biological Sciences

Faculty appointments: Department of Biology, University of North Texas since 2011; Department of Biology, University of North Dakota from 2006-2010.

Education: B.S. in Biology and Zoology from Oregon State University; M.S. in Biology from Portland State University under the direction of Stanley Hillman; PhD. in Biology from the University of North Texas under the direction of Warren Burggren; postdoctoral work in cardio-respiratory physiology under the direction of James Hicks and Albert Bennett at the University of California Irvine; postdoctoral work in fetal cardiovascular function under the direction of Kent Thornburg at Oregon Health and Sciences University; visiting research fellow investigating embryonic cardiovascular function under the direction of Jordi Altimiras Linkopings Universitet, Linkoping, Sweden.

Professional Experience:

2014-2016 American Physiological Society Nominated Conference Committee Member

2010-2012 American Physiological Society Membership Committee Member

SICB Activities: Society member since 1996. Active in annual meetings and DCPB business meetings.

Other Memberships: American Physiological Society, Society of Experimental Biologists, American Heart Association, Species Survival Commission, World Conservation Union — Selected Member of the Crocodile Specialist Group, American Society of Ichthyologists and Herpetologists

Research Interests: Integrative Developmental of Vertebrates; Comparative Cardiorespiratory Physiology; Developmental Phenotypic Plasticity; Effect of Environmental Pollutants on Animal Physiology; Fetal Programming in Vertebrates

Goals Statement: I am honored to be nominated to serve as the program officer for the division of comparative physiology and biochemistry. This is an exciting time for comparative physiology; the membership of DCPB is working at the forefront of many issues of concern to the public, such as global climate change, conservation of threatened and endangered species and loss of biological diversity — just to name a few. I strongly believe we are in a unique position as comparative physiologists to communicate to the public the strength and importance of our diverse approach to understanding the natural world. Our collective discoveries about adaptations and evolution of the planet's organisms places us in a unique position to provide leadership on these global issues. As program officer of the DCPB, my primary goals would be to ensure these discoveries are shared at the annual meeting and timely symposia sessions are prominent each year. Critical to achieving these goals and future growth in the division, is the inclusion of early career scientists. As program officer I will use my experience in a similar role in the APS to recruit symposia proposals from early career scientists. As program officer I will also identify submitted sessions that may match the expertise of “up and coming” scientists to ensure opportunities are available for early career colleagues. Through this proactive recruitment I hope to increase participation in the DCPB division and promote interactions to ensure its future strength.
Name: Jennifer Jost

Current Position: Associate Professor, Department of Biology, Bradley University, Peoria, IL.

Education: B.A., Biology, Colby College (2001); Ph.D., Biology, University of South Carolina (2007).

Professional Experience: Post-doctoral researcher, Department of Marine Sciences, University of New England, (2007-2010); Assistant Professor, Department of Biology, Bradley University (2010-2016); Associate Professor, Department of Biology, Bradley University (2016-present).

SICB Activities: Active member since 2002; Judge for Best Student Presentations (DCPB and DIZ); authored or co-authored 12 posters/talks with students and collaborators.

Other Memberships: Illinois State Academy of Sciences; Beta Beta Beta.

Research Interests: Research in my laboratory focuses on the environmental physiology of invertebrate species. Using the invasive zebra mussel as a model species, we aim to understand the mechanisms that allow these animals to tolerate environmental fluctuations and stress. We are particularly interested in the biochemical changes that occur during seasonal acclimation. Using physiological and biochemical methods, we are investigating mussel response to temperature stress both alone and in combination with other environmental stressors.

Goals Statement: It is an honor to be nominated to serve as the DCPB Program Officer. SICB has been my primary professional society over the past 16 years, and I have participated as a graduate student, postdoc, and faculty member. For the last two years, I mentored graduate and undergraduate students as they attended their first biological conference, introducing a new generation of members to the society. If elected, the DCPB program officer position would allow me to give back to this division and society, but it would also allow me to grow as a SICB member. My goal is to continue the collaborative efforts of past Program Officers in offering symposia that bridge the disciplines of biochemistry and physiology and that also foster interactions between students and senior members. As such, one major objective would be to encourage the involvement of our student members not only as presenters, but also through increased attendance and participation. I also think it is important to address the major issues affecting SICB and DCPB. The 2018 meeting successfully highlighted the importance of science communication; along these same lines, I would strive to sponsor symposia that address this and other current issues affecting SICB and DCPB.

Name: Kristi Montooth

Current Position: Associate Professor of Biology, School of Biological Sciences, University of Nebraska-Lincoln


Professional Experience: Assistant Professor, Biology, Indiana University (2008-2014), Associate Professor, Biology, University of Nebraska-Lincoln (2014-present)

SICB Activities: I have been a member and attending SICB meetings since 2000 (although not continuously); Symposium speaker; Session chair; DEE beer & brains participant

Other Memberships: Genetics Society of America; Molecular Biology and Evolution; Society for the Study of Evolution

Research Interests: My research investigates, broadly, how physiologies and genomes evolve in response to the environment. My lab combines functional genetic, physiological and genomic approaches to answer questions ranging from the evolution of plastic physiologies – such as membrane homeoviscous adaptation – to the co-evolutionary dynamic that shapes mitochondrial and nuclear genomes. In all of our research systems – which now include butterflies and mud snails, in addition to the genetic work horse in the lab, Drosophila melanogaster – we aim to use physiology to link genetic variation to phenotypic variation that impacts fitness; in so doing we hope to learn about the critical role that physiology plays in shaping genomes.

Goals Statement: I have three home societies that reflect the three approaches that I use in my research – SICB, the Genetics Society of America, and the Society for the Study of Evolution – and I have been participating in their annual meetings since my
early years of graduate study. The study of integrative biology is where I see the future of biology, and I am honored to have been nominated to serve SICB as DCPB program officer. I have just recently served a similar role for SSE and it was, by far, my most rewarding professional service. I am excited to bring my experiences as an SSE council member and as an organizer for regional meetings and symposia to continue a strong tradition of promoting excellent DCPB symposia at the annual meetings. I have also been involved in the new open-access journal, Evolution Letters, and I am excited by opportunities to promote submission of the best work presented at the SICB meetings to the new open-access Integrative Organismal Biology journal. Finally, while I was on the SSE council, we increased graduate student and postdoc involvement at the governance level of the society, with many positive side effects, including the development of professional and diversity workshops at the annual meetings. I would encourage increasing the role of our trainees in making the annual SICB meeting even better and more relevant to the next generation of integrative biologists.

Chair-Elect Nominees

**Name:** Markus Frederich  
**Current Position:** Professor of Marine Sciences, University of New England, Biddeford, ME  
**Education:** B.S./M.S. 1996 Technical University of Darmstadt, Germany, Biology; Ph.D. 1999 Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany, Physiology; 1999-2003 postdoc, cardiovascular physiology, Harvard Medical School, Boston, MA  
**Professional Experience:** 1998 Visiting Scientist, Station Biologique de Roscoff, France; 1999 Visiting Scientist, Instituto de la Patagonia, Universidad de Magallanes, Punta Arenas, Chile; 2004 and 2005 Principal Investigator, Mount Desert Island Biological Laboratory, MDIBL, Bar Harbor, ME; 2003 – present Assistant to Full Professor of Marine Sciences, University of New England, Biddeford, ME; 2013-2016 Assistant Department Chair, Department of Marine Sciences, University of New England, Biddeford, ME  
**SICB Activities:** SICB member since 2008  

**Other Memberships:** MDIBL corporation, lifetime member; American Physiological Society, APS  

**Research Interests:** My research focuses on invertebrate stress physiology, energy metabolism, and invasive species. We are currently using the OCLTT framework to investigate population-specific differences in stress tolerance of invasive crustaceans, comparing physiology and behavior in crabs from the US, Canada, and Iceland. We also investigate effects and energetic cost of predator-prey interactions between soft shell clams, green crabs, and milky ribbon worms. I am deeply involved in implementing novel pedagogical approaches in undergraduate STEM education.

**Goals Statement:** SICB has become my scientific home, and every year I take full advantage of the depth and the breadth of presentations in and outside of my field of expertise at the SICB meetings. My key goals as a member of the DCPB leadership team would be to ensure that the symposia and presentations continue to provide an exciting mix of highly specialized and broadly applicable topics. Additionally, I think we need to strengthen the effort to support and highlight undergraduate research, as this trains the next generation of scientists.

**Name:** Ken Welch  
**Current Position:** Associate Professor, Department of Biological Sciences, University of Toronto Scarborough  
**Education:** BS Trinity University (San Antonio, TX; 1998), PhD University of California Santa Barbara (2007)  
**Professional Experience:** Postdoctoral researcher (2007-2009), Department of Ecology, Evolution, and Organismal Biology (lab of D. Altshuler), University of California Riverside; Assistant professor (2009-2015), Department of Biological Sciences, University of Toronto Scarborough; Graduate faculty member (2009-present), Department of Cell & Systems Biology, University of Toronto; Graduate faculty member (2009-present), Department of Ecology & Evolutionary Biology, University of Toronto; Associate professor (2015-present), Department of Biological Sciences, University of Toronto Scarborough  
**SICB Activities:** I have been a SICB member since 2004. I have attended 11 of 15 annual SICB meetings since 2005, and given
6 oral and 2 poster presentations. Students from my lab have given 6 oral and 3 poster presentation at SICB meetings. I have been co-author on another 2 oral and 1 poster presentation. In 2006, I was selected as the Dorothy Skinner (Best Student Presentation) Award Winner for the DCPB section. I am a regular attendee of the DCPB divisional meeting.

**Other Memberships:** Canadian Society of Zoologists; American Physiological Society

**Research Interests:** My research program seeks to understand comparative variation in locomotor behavior, dietary ecology, and metabolic physiology and how these features influence and constrain each other. We employ approaches from the lab and field to interrogate locomotor and metabolic function and their regulation at all levels of biological organization. We focus much of our work on bats and small birds, because of the dietary specializations often seen in these groups and because the evolution of flight has so strongly shaped much of their physiology. Of particular interest is comparative variation in how different species of macronutrients (e.g. glucose versus fructose; essential versus non-essential amino acids) are differentially routed and metabolized.

**Goals Statement:** The Society for Integrative and Comparative Biology, and the Division of Comparative Physiology and Biochemistry, was the first professional society I joined as a graduate student. It, and the annual and associated meetings were an important venue in which I honed analytical, interpersonal, and presentation skill sets, and received the most relevant feedback from my peers and mentors. Now, I consider the SICB annual meeting a critical venue for not only my own continuing professional development and growth, but for my students. Almost all of my graduate students have, at one time or another, attended and presented at SICB. I am honored to now be asked to stand for election to the position of Chair-Elect. I look forward to the chance to help SICB continue to be the important forum for young (and established) researcher and educator development and exchange. As a US citizen living and working in Canada, and as an active collaborator with researchers in Central and South America, I have become increasingly appreciative of the great research being done not only in the US, but throughout the Americas. I will work to build on DCPB’s success by encouraging greater interaction with scientists outside of the US. In particular, I will focus on encouraging greater participation by student and early career researchers from underrepresented areas in the Americas. I feel increasing engagement with other sections within SICB, with researchers in other countries, and with other professional societies ensures our division will continue to flourish in an ever-changing world.