

## Division of Comparative Biomechanics

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### DCB Officers & Representatives

Melina Hale  
*Chair 2015-2017*

Sheila Patek  
*Chair-Elect 2015-2017*

Mark Denny  
*Past Chair 2015-2017*

Andrea Ward  
*Secretary 2016-2018*

Jake Socha  
*Program Officer 2016-2018*

Sandy Kawano  
*Student/Postdoc Rep 2016-2019*

### Message from the Chair

Melina Hale, [Chair.DCB@sicb.org](mailto:Chair.DCB@sicb.org)

Hello DCBers! I hope you are all having a great fall term and looking forward to SICB 2017. With its incredible cultural and natural attractions, New Orleans is always a great city for conferences, and the meeting location is next to the Riverwalk and a short walk from the French Quarter. Also particularly close to the meeting and possibly of interest are the *Audubon Aquarium of the Americas* and the *Audubon Butterfly Garden and Insectarium*.

Later in the newsletter, Program Officer Jake Socha highlights the terrific representation of DCB at SICB in 2017 and a number of symposia that will be of interest to DCB members. Keep up the symposium proposals! Symposia are a great way to focus our community on a topic of importance, and the sets of symposium papers in ICB that result are often well-cited and provide a useful multifaceted take on an area. The SICB meeting itself provides a great opportunity to consider ideas for symposia and reach out to potential co-organizers.

### Chair Elections Results

I am pleased to announce that Stacy Combes was elected in DCB's chair elections in the Spring. Stacy will first serve a two-year term as Chair-Elect starting at the end of the 2017 meeting when Sheila Patek, current Chair-Elect, will take over as Chair. Stacy will assume the Chair position at the end of the 2019 meeting. Note also that being chair also includes a two-year stint as Past-Chair! So, Congratulations Stacy and thank you for your upcoming six-year commitment to the Division's leadership.

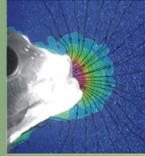
### ICB Editorial Board

I am also very pleased to announce that Ty Hedrick is our new DCB representative to the ICB Editorial Board. This is important service to the Society and Division and it is great to have Ty on the Board.

### Student Awards Presentations

Once again DCB has an outstanding group of applicants for the Division's *The Mimi A. R. Koehl and Stephen A. Wainwright Award for Best Student Presentation in Biomechanics* and *The Steven Vogel Award for the Best Student Poster* and nominees for the *Carl Gans Award* in Biomechanics. Thanks to John Long for chairing the Carl Gans award committee and for Jake Socha who organizes judging for the student paper and poster awards.

I encourage you to nominate yourselves and others for these awards in future years. Society awards are not only impressive acknowledgements by a community of peers but also lay the groundwork for other nominations and awards throughout a scientist's career.



## SICB Newsletter

Fall 2016 Issue

### Business meeting

The comparative biomechanics business meeting will be held at 5:45-6:30 pm on Thursday, January 5 – all DCBers are welcome and encouraged to attend. There are often DCB and SICB issues to discuss that would benefit from your input. The SICB executive officers always swing through during the meeting and are happy to take your questions. Even more exciting is that we will be announcing the winner of the Carl Gans Award at the DCB business meeting.

### Biomechanics Bash in the Big Easy!

With the lively atmosphere of New Orleans, it seems like the perfect place to have a party. We are once again collaborating with DVM to put together a DCB/DVM party and hope everyone will come. We are working out the details and information will be provided later in the fall.

### Biomechanics Digital Library

One topic at the business meeting will be the Biomechanics Education Resource on the SICB website. Useful teaching resources from members of the biomechanics community, including cool videos, are posted online. New contributions to the site are always welcome and there is a simple submission process. The resource and submission information can be found at: <http://www.sicb.org/rer/biomechanics.php3>

Over the past year Joe Thompson has graciously stepped in to curate the site. At the next DCB business meeting we will discuss formalizing a resource curator position in DCB leadership. In the meantime, let Joe know if you are interested in helping with the site ([joseph.thompson@fandm.edu](mailto:joseph.thompson@fandm.edu)) - it would be great to have lots of members involved!

### Message from the Divisional Program Officer

Jake Socha, [DPO.DCB@sicb.org](mailto:DPO.DCB@sicb.org)

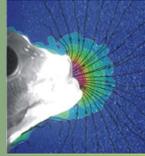
New Orleans. Do we need to say anything else? It's going to be a fantastic conference. If you remember the last time we were here, the conference was in a hotel. (If you don't remember, you probably spent too much time on Bourbon Street.) This time, it's in the new conference center, right on the Riverwalk and right in the heart of the city. The center is modern and absolutely gigantic. We will take up just one small section of it, and other concurrent events include Wizard World Comic Con. This should be *interesting*.

Speaking of gigantic, this year's DCB representation is immense. Between us and DVM, we have 284 talks and 190 posters. That's a lot, folks. (Perhaps we should rename SICB the Society for Interesting Comparative Biomechanics.) Manny Azizi and I organized the submissions at the recent programming meeting, and we have 40 talk sessions. Compare that to last year's large 35 sessions—now, more. If you do the math, you can see that it is unavoidable not to have competing sessions. Undoubtedly, your talk will be going at the same time as other interesting talks; you're not alone. But, we will indeed have two sessions that will command our undivided attention: the Best Student Paper award talk sessions. Our DCB session is on Friday morning, and DVM's is on Thursday morning. Be sure to catch them both and support our students. We have dedicated a large room (~350 seats) so that we can pack the house at these sessions. (Hey students, no pressure!)

DCB is also co-sponsoring three symposia: 1) The Ecology of Exercise: Mechanisms Underlying Individual Variation in Movement Behavior, Activity or Performance; 2) Integrative Life-History of Whole-Organism Performance; 3) Physical and Genetic Mechanisms for Evolutionary Novelty. Be sure to check them out. And do let me know if you have thoughts on a future symposium—now's the time to start fleshing out ideas.

In addition to talks and posters, be sure to pay attention to future announcements about the DCB/DVM social. Like last year, it is being organized by Callum Ross, it will be off-site, and it will go down. Be. There. And if you are interested in how the division operates, please come to the DCB business meeting at 5:45-6:30 pm on Thursday, January 5. All are welcome, including students.

Lastly, a sad note about Frank Fish. He will not be in the last session this year, a screwup on the part of Manny and myself. But Frank will be staying through to the end, and we hope you will too. We have 13 sessions on Sunday, so the day will be as exciting as all of the rest. (Almost all of us have to work on Monday, and we give you permission to show up bleary-eyed.) In fact, if you can afford the time to stay an extra day, I would recommend getting out of the city to see the region. There are swamp tours within 30 minutes of the city, and if you venture farther out into Cajun country, you'll be rewarded with some even more amazing and unique scenery. It is truly unlike any other place, definitely worth the venture. See you in Louisiana!



## Message from the Secretary

Andie Ward, [Secretary.DCB@sicb.org](mailto:Secretary.DCB@sicb.org)

Happy Fall! I hope everyone is having a great term. It is hard to believe that it is almost time for SICB in New Orleans. It seems like the meeting in Portland just ended! The start to the fall has been busy for DCB as we have been reviewing applications for the best student competitions and the Gans Award. We had a number of applicants for the *The Mimi A. R. Koehl and Stephen A. Wainwright Award for Best Student Presentation in Biomechanics* and *The Steven Vogel Award for the Best Student Poster* and we are all looking forward to the presentations by the finalists in New Orleans.

This is the 3rd year that we have had extended abstracts for the student awards and the officers have been really pleased with the high level of the applications. Please remember to follow all instructions if you are interested in applying for this competition. I am always happy to answer any questions that arise as you (or your students) are preparing abstracts.

We will be seeking nominations in the spring for Secretary and Program Officer. These individuals will take over following the San Francisco meeting in 2018. If you are interested in serving, please let our Chair, Melina Hale, or me know.

Melina Hale will be transitioning into the role of Past Chair at the end of the New Orleans meeting. She has been an excellent Chair and will be leaving the division in great hands as Sheila Patek takes over. Congratulations to Stacey Combes who will be our Chair-Elect starting in 2017. Thanks to Tyson Hedrick for agreeing to serve as the DCB member of the Editorial Board for *Integrative and Comparative Biology*.

If you have any events that you would like advertised, please let me know and I will incorporate them either into the newsletter or submit the information to the SICB member update.

## Message from the Student/Postdoctoral Affairs Committee Representative

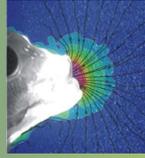
Sandy Kawano

**Advice on applying for a post-doc position:** The next few months welcome a particularly busy, yet exciting, time of the year to reflect upon the past academic year and make plans to reach new milestones in the upcoming year(s). Fall is often regarded as "job season" and, while most associate this with faculty po-

sitions, it is also an active period for post-doctoral applications. Given that deadlines for many post-doctoral fellowships may be due almost a year before doctoral students defend, careful planning can be crucial. Consequently, this post was written in response to inquiries from DCB students and post-docs to share relevant advice about lining up a great post-doc. These are by no means the only factors to consider and individual situations may vary, so applicants are encouraged to discuss plans with their mentors to develop a personal strategic plan. While this post was written with the DCB students and post-docs in mind, the information should be transferable to other basic biologists.

### 1. What are some options to obtain a post-doc position?

- 1.1 *Secure funding through a post-doctoral fellowship.* Securing source(s) of funding is a great way to strengthen one's CV, and encourage one to develop specific research aims that could be the foundation of one's future research program. With funding rates for grants dipping into the single digits, Principal Investigators (PIs) may often have to turn away many qualified applicants unless the applicant can obtain a fellowship to fund his/her position. Post-doctoral fellowships can be external (NSF, NIH, etc.) or internal (University of Massachusetts Darwin Post-doctoral Fellowships).
- 1.2 *Have a PI write you in as a post-doc for a grant application.* Arrangements should be discussed at least a few months in advance of the deadline (preferably much earlier, though). The PI and postdoc should discuss a post-doctoral mentoring plan and responsibilities to ensure that that the PI and post-doc agree on the conditions of the planned work and that the research products proposed in the grant can be realistically obtained within the timeframe.
- 1.3 *Apply to a post-doc position funded by the PI.* PIs may have an existing grant or lab start-up that could fund a post-doc. Applications to these positions can involve the standard combo of "cover letter, CV, letters of rec, etc." documents, but some may also involve completing a Skype/campus interview and potentially delivering a research talk. Some positions are solely research, whereas others also require teaching responsibilities. Read the job ads carefully to determine the required and desired qualifications, responsi-



bilities, and application requirements and be sure to contact the PI well in advance if you have any questions regarding what the post-doctoral position would entail.

## 2. So where does one look for post-doctoral opportunities?

- 2.1 *Twitter*. Seriously. Lots of job opportunities (post-doc, faculty, etc.) are shared on Twitter, sometimes well before the ads appear on popular listservs.
- 2.2 *ECOLOG* (<http://www.lsoft.com/scripts/wl.exe?SL1=ECOLOG-L&H=LISTSERV.UMD.EDU>).
- 2.3 *EVOL-DIR* (<http://evoldir.tumblr.com/>).
- 2.4 *SICB Jobs and Fellowships page* (<http://sicb.org/jobs.php3>).
- 2.5 *Conference job ad boards*. An added bonus is that the PI is usually attending the conference, so prospective applicants could meet with the PI in person to express interest in the job opening and build a rapport.
- 2.6 *Colleagues*. Sometimes colleagues know of post-doc positions that have not yet been advertised, or can direct you to labs that are actively recruiting post-docs.
- 2.7 *Eco Evo Job Wiki*. Occasionally post-doc positions are advertised on the "non-TT Jobs" section of the spreadsheets (<https://sites.google.com/site/wikibiologypostings/home>).

## 3. What should prospective applicants have prepared before applying?

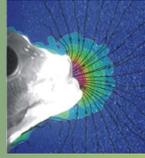
- 3.1 *An updated CV*. This is one of the most important documents to identify one's scholastic achievements. Keep it clean, organized, and relevant. Look at examples from your colleagues, and some additional advice here: <https://dynamicecology.wordpress.com/2016/08/25/formatting-a-cv-for-a-faculty-job-application/> (written in context to faculty positions, but relevant to post-docs).
- 3.2 *A Google Scholar page* (<https://scholar.google.co.uk/intl/en/scholar/citations.html>). Make it easy for others to find your papers and other published documents.

3.3 *ORCID ID* (<https://orcid.org/>). A professional ID that can uniquely identify your academic achievements (e.g., publications). Brian O'Meara also recently developed open-source R code that generates a CV using information from academic websites including ORCID and Google Scholar (code available here: <https://github.com/bo-meara/cv>).

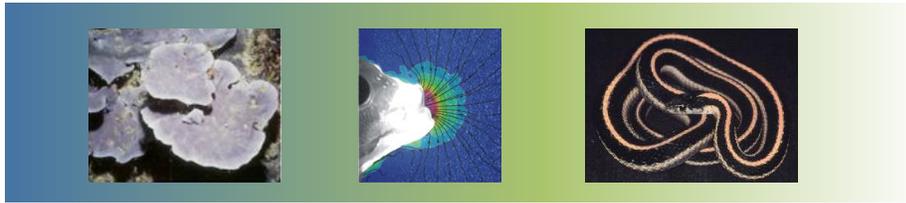
3.4 *A professional website*. Google Sites (<https://apps.google.com/learning-center/products/sites/get-started/>) and Weebly (<https://www.weebly.com>) are some of the easiest options, with templates and no HTML requirements that can allow users to build websites almost immediately. WordPress (<https://wordpress.com/>) is another popular option, and has more flexibility than "easier" options (e.g., Google Sites). A website is a great way to showcase your academic achievements including research projects, teaching and outreach activities, media attention, and multimedia. This can be particularly helpful to communicate the progress of on-going projects. A PDF of one's CV should be included on one of the webpages, and keep the website updated! It can be useful to send prospective PIs a link to the CV on your website rather than an email attachment because the latter might flag the email to the PI's spam folder.

## 4. How else can I increase my chances of obtaining of a post-doc position?

- 4.1 *Start early*. If possible, begin planning a post-doc position about two years ahead of time. Two years may sound excessive, but it provides adequate time to seek out a post-doctoral adviser, plan the research project, and secure funding (this may take multiple applications). Considering that some funding sources take several months to send out notifications and are only offered once a year, the two years fly by rather quickly.
- 4.2 *Have contingency plans*. Funding is limited and the competition for post-doc positions can be high (e.g., >75% applicants rejected), so try to have plans B and C in place. This can increase one's chances of obtaining a postdoc offer and would provide options should one secure multiple offers.



- 4.3 *Consult your mentors.* Seek experienced members in the field who are genuinely invested in *your* professional development, and can provide useful guidance relevant to your career goals. This may not necessarily be your doctoral adviser or members of your dissertation committee, which may be particularly true for those who “grew up” in academia but plan to pursue a career outside academia. Diversify your network of mentors. Mentors may encompass a range of research approaches (theoretical, empirical, basic, applied), research backgrounds (biomechanics, evolution, ecology, computational biology, wildlife biology, etc.), educational levels (early career researchers to emeritus), ethnicities, genders, etc. Learning from such a diverse group of mentors enables one to gain a broad perspective on science at many different levels, and provides guidance that would be difficult to obtain from any single individual.
- 4.4 *Learn from other early career researchers (ECRs).* Other ECRs may have key insights into the labs/grants/fellowships on your radar. Some may even share their funded application(s) with you as a reference. If they do not offer their application or decline to share, be polite and respect their privacy and decisions. If they do share their application, treat it as confidential and do not distribute it to anyone else. On the flip side, respect your privacy as well. While “scooped” research doesn’t seem common (especially within the SICB community), it can happen. Choose a handful of researchers you can confide in to help you brainstorm ideas and hopefully review your applications before submitting. Do your research, too. What have other ECRs done to secure a post-doc (and potentially permanent positions)? Did they obtain any fellowships? If so, which ones? Do they know what the review panel looked for? If it was a broad range of reviewers, have colleagues from diverse fields review a draft of your application.
- 4.5 *Network, network, network.* The search for a post-doc position starts well before your last year as a doctoral student. PIs may be scouting for new lab members years in advance by consulting colleagues, taking note of great student presentations at conferences, reviewing manuscripts that students submitted, reading published work by students, etc. In addition, colleagues can potentially recommend you to other labs and open doors that you never knew existed.
- 4.6 *Ask faculty what they look for in post-docs.* Consult some of your faculty mentors who have had post-docs in their lab about what criteria they use to assess post-doctoral applicants and possible “do’s and don’ts” of contacting a PI about positions in their lab.
- 4.7 *Manage your time wisely.* Applicants may be encouraged to “apply broadly,” but be reasonable about the number of applications you submit. Compare the relative cost versus benefit of preparing an application. Consider whether it is better to focus your effort on three main fellowships versus spreading your time across eight different applications, while also juggling your many other responsibilities (e.g., publishing papers, teaching, mentoring students).
- 5. What are some of the Fall deadlines for post-doctoral fellowships?**
- 5.1 *November 1, 2016:* NSF Research Fellowships in Biology ([https://www.nsf.gov/funding/pgm\\_summ.jsp?piims\\_id=503622](https://www.nsf.gov/funding/pgm_summ.jsp?piims_id=503622)). A webinar about the fellowship is available here: [http://www.nsf.gov/events/event\\_summ.jsp?cntn\\_id=189442&org=NSF](http://www.nsf.gov/events/event_summ.jsp?cntn_id=189442&org=NSF). This is a particularly fruitful opportunity, as the funding rates are relatively high compared to other fellowships.
- 5.2 *November 1, 2016:* University of California President’s Post-doctoral Fellowship Program (<http://ppfp.ucop.edu/info/index.html>). Note: some UCs also offer a Chancellor’s Post-doctoral Fellowship Program.
- 5.3 *November 10, 2016:* Ford Diversity Post-doctoral Fellowship ([http://sites.nationalacademies.org/PGA/FordFellowships/PGA\\_171940](http://sites.nationalacademies.org/PGA/FordFellowships/PGA_171940)). Note: there are multiple stages of deadlines.
- 5.4 *November 15, 2016:* American Association of University Women (AAUW) Post-doctoral Research Leave Fellowship (<http://www.aauw.org/what-we-do/educational-funding-and-awards/american-fellowships/>).
- 5.5 *December 1, 2016:* AAUW International Fellowship for non-US citizens to work in the U.S.A. (<http://www.aauw.org/what-we-do/educational-funding-and-awards/international-fellowships/>).



- 5.6 *January 9, 2017:* Burroughs Wellcome Fund for researchers transitioning from physical/mathematical/computational sciences or engineering to biology; \$500K for post-doc and early stages of faculty position (<http://www.bwfund.org/grant-programs/interfaces-science/career-awards-scientific-interface>)
- 5.7 *January 15, 2017:* Friday Harbor Laboratories Post-doctoral Fellowships (<https://depts.washington.edu/fhl/resPdocFellowInfo.html>).
- 5.8 *Around January 2017:* Newton International Fellowship to work in the United Kingdom (<http://www.newtonfellowships.org/the-fellowships.aspx>).
- 5.9 *Around January 2017:* Discovery Early Career Researcher Awards to work in Australia (<http://www.arc.gov.au/discovery-early-career-researcher-award>). Note: there are multiple stages of deadlines.

Allison Barner (Twitter handle = @algaebarnacle) has kindly shared an extensive spreadsheet of post-doctoral fellowships via Google Documents. Although there is an emphasis in ecology and the United States, the topics are broad enough to encompass biologists in general. Here is a link to the spreadsheet: <https://t.co/H0x60491Vq>.

Okay, that's it for now. I hope this basic information about applying for post-doc positions is useful and will help spur discussions among DCB members. There are many career paths and many ways in which to prepare for said careers, so find what works best with your preferences and consult with people who lead similar careers as the one you aspire to achieve. If you're looking to broaden your professional network, challenge yourself at the next SICB meeting to have lunch/dinner with someone new each day!

See you in New Orleans!

Cheers,  
Sandy



### From the DCB Researchers Database

*Daniel Goldman*

#### **Sandfish Locomotion**

The picture shows the head of a sandfish, a lizard that can swim in sand using propulsion driven by the back undulations. Our paper developed physical, numerical and theoretical models to show how the propulsion is generated and how in the models to optimize kinematics for maximal forward swimming speed - a prediction in accord with the biological observations.

From the article "Mechanical models of sandfish locomotion reveal principles of high performance subsurface sand-swimming" by Ryan D. Maladen, Yang Ding, Paul B. Umbanhowar, Adam Kamor, and Daniel I. Goldman, in *J. R. Soc. Interface* (<http://rsif.royalsocietypublishing.org/>)