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- [Comparative Endocrinology](#)
- [Comparative Physiology & Biochemistry](#)
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- [Vertebrate Morphology](#)



**EXPERIENCES IN SCIENCE EDUCATION - PART 3**

**TEACHING IS NOT AN ART — IT'S A CRAFT**  
*Michael LaBarbera, University of Chicago, recipient of the 2016 M. Patricia Morse Award for Excellence and Innovation in Science Education.*

A little over a year ago, after thirty-seven years as an academic, I retired. About once a month I bump into a colleague who asks "How are you keeping busy?" This seems a simple enough question, but it poses a bit of a conundrum for me. Do I give the expected answers — "doing some writing, a lot of photography, some volunteering"? Or do I tell the truth — "actually, I'm still teaching two to three courses a year and squeeze in some photography and writing on the side"? The latter inevitably evokes puzzled looks. If pressed, I explain that teaching still gives me great satisfaction and I'll continue as long as I think I'm doing a decent job at it. The puzzled expressions persist.



*LaB in the field with students.*

Given that I just received the M. Patricia Morse Award for Excellence and Innovation in Science Education from SICB, you might think that "doing a decent job at it" would not be an issue. However, the most I can comfortably claim is that I've had some excellent mentors in the craft of teaching (Steve Wainwright and the late Steve Vogel, both of Duke University, foremost among them), I've always been willing to pay attention to what's working and to try

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**SICB: NOW AND FUTURE**

*From the President, Peter Wainwright*

Wherever you are I hope spring has made its presence felt. Here in the Central Valley of Northern California the Japanese Magnolias are starting to wind up and most fruit trees are in full bloom and many agriculture fields show blooming almonds trees as far as one can see. It's a nice time of year!



Our annual meeting in Portland was a huge success. I hope that it was as interesting and fun for you as it was for me. Portland proved to be an excellent, SICB-friendly town. The convention center was as good as they get and I have to say that I quite enjoyed the snow that kicked off the week. We continue our trend of growth at the annual meetings. This was our largest meeting in history, even eclipsing the San Francisco meeting of a couple of years ago. The program was superb and organized spectacularly well. I really want to give a huge SICB thanks to Sherry Tamone, our now retired society Program Officer, all the divisional program officers, and our collaborators at Burk & Associates for the astonishing job they did with our program this year. In so many ways the core of the annual meeting is the program, and when the program is organized thoughtfully, room sizes are appropriate to audiences, and the audio visual systems work so well that you do not even notice them ... well, then you know things are going well!

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## SICB EXECUTIVE OFFICERS

**Peter Wainwright**

President 2015-17  
University of California,  
Davis

**Louis Burnett**

President-Elect 2015-17  
College of Charleston

**Billie Swalla**

Past President 2015-17  
University of Washington

**Karen Martin**

Treasurer 2013-19  
Pepperdine University

**Kathryn Dickson**

Secretary 2015-18  
California State University,  
Fullerton

**Richard Blob**

Program Officer 2016-18  
Clemson University

**Sherry Tamone**

Past-Prog. Officer 2016-17  
University of Alaska  
Southeast

**Brett Burk**

Executive Director  
McLean, VA

**INTEGRATIVE AND COMPARATIVE BIOLOGY NEWS - FROM THE EDITOR**

Editor, Marty Martin

It's a great honor to serve as Editor of *Integrative and Comparative Biology*, ICB! I hope to continue the progress that Hal Heatwole facilitated over the last 10 years. I also hope to foster new growth of and new impacts by the journal, and I've started to make some changes to ICB operations to help those things happen.



Marty Martin, who began his 5-year term as ICB Editor in January 2016.

First, I've appointed three fantastic Associate Editors (Ryan Earley, Cam Ghalambor, and Art Woods) who are playing a critical role in the handling of manuscripts and the direction of the journal. Now, decisions about manuscripts are distributed among several of us, each with different expertise. Over the coming months, the AEs and I are also planning several initiatives for ICB. Some of those details will appear in our editorial in the 2nd or 3rd issue of 2016.

A second major change that I've instituted is to involve Board Members heavily in the manuscript review process. Now, Divisional Board Members as well as our many International Associates identify referees and recommend acceptance, revision and such on each article. I expect that this approach will enhance the quality of ICB articles now that the most knowledgeable members of the editorial staff are the main points of contact with authors. As this approach increases the workload of Board Members, we're also growing the Board a bit to distribute the workload equitably. Thanks to the Board for excellent and efficient work so far!

Over 2016, I hope that you will let me know your thoughts and hopes about the journal, as it is a very exciting time for biology and especially an interdisciplinary society such as SICB. One thing I'd like to encourage of symposium organizers is that you work closely with your speakers/authors to ensure that they understand their obligations to ICB when they accept a speaker slot. ICB is unique among journals, relying on symposia contributions to fill its pages. It's critical that we continue to select and help speakers willing to carry on this tradition.

If you have ideas about how to expand the readership, improve or augment the content, or any other suggestions about the future of ICB, please let me know ([editor@sicb.org](mailto:editor@sicb.org)). I've had a great time in these few short months as Editor, and I look forward to working with you to make our journal a go-to venue for exciting work in organismal biology!

**2016 MEETING PRESS RELEASES AND SICB NEWS PREPARED BY STUDENT JOURNALISTS**

The Public Affairs Committee (PAC), chaired by Molly Jacobs, has done an excellent job in publicizing the research presented at recent SICB meetings. The PAC spearheaded two programs that highlight SICB members' research and meeting presentations for the press. The Newswise Press Releases from the 2016 meeting can be viewed at <http://www.sicb.org/publications/pressreleases2016.php> and the News Stories by Student Journalists have just been posted on the SICB home page and at <http://www.sicb.org/students/studentjournalism.php>

Dale Broder and Emily Kane present a poster related to one of the Newswise Press Releases from the Portland meeting ("Trinidadian Guppies Help 7th Graders Understand Evolution").



**"...we continue to be financially stable and able to meet our obligations, as well as support our students and symposia during our annual meeting."**

**Support your favorite SICB fund. Click on the "donations" button on the home page.**

[www.SICB.org](http://www.SICB.org)

## **SICB FINANCES - TREASURER'S REPORT**

*Treasurer, Karen Martin*

First and foremost, we continue to be financially stable and able to meet our obligations, as well as continue to support our students and symposia during our annual meeting. For the sixth year in a row, no increase in meeting registration fees is anticipated. Membership dues will remain unchanged for the tenth year.

The journal continues to do well. Revenues were \$326,511 from Oxford University Press, but expenses of about \$166,666 were greater than in previous years to make up for some under-counting by BAI of member subscriptions in the past. The anticipated passing of the editorial baton upon retirement of Hal Heatwole to Marty Martin should be smooth, and no financial concerns are anticipated from that process. The new editor will receive a small stipend and additional expenses are associated with an assistant as in the past. Discussion of an open-access journal is ongoing; this could provide an alternative revenue stream in the future.

The West Palm Beach meeting brought in \$364,288 in revenue against \$371,502 in expenses, thus finishing in the red by about \$7,214. This margin indicates that revenues and expenses are fairly evenly matched for the annual meeting, but audio-visual costs in particular continue to exceed predic-

tions, and totalled \$82,000 for the four days. The meeting "app" cost \$7000 in both 2015 and 2016. For 8 of the past 11 years, the annual meeting has finished in the black. (The exceptions were Orlando in 2006, Phoenix in 2007, and now WPB in 2015.)

One issue of continuing concern for the Finance Committee and the Treasurer has been the stagnation of the named funds in the endowment. The way that interest and dividends are calculated for these funds changed in FY 2014, but last year's poor performance of the stock market did not provide much help (Table 1). The current formula should permit prudent use of the funds with maintenance of principal and slow growth. Beginning FY 2015, the total value of the named funds was \$1,062,264 while at the end of the year the value was \$1,105,105, an increase of \$42,536. However, that increase is less than the value of that year's donations, which were above \$60,000. More analysis and possibly additional changes to the management of these funds will be considered in 2016.

Donations to SICB in 2014 totaled \$60,222, including two generous gifts of stock from Jarid Simons for the Hyman fund and the Moore fund. Happily, these funds achieved the \$25,000 threshold over the past year. The Bern fund, thanks to yeoman fund raising efforts by the Division of Comparative Endocrinology, reached this milestone in early FY 2016. [continued on page 8](#)

## **SICB MEMBER SURVEY 2016**

*President-Elect, Lou Burnett*

Periodically, the SICB surveys its members to obtain opinions on a variety of issues important to the Society. The results of the survey are used by the leadership of SICB in planning future activities. The last member survey was done in 2009.

The content of the 2016 survey was developed using the 2009 survey as a starting point. In the summer and fall of 2015, SICB Committees and the SICB Executive Committee were asked to provide input on the questions and the design of the 2016 survey. This input was received through the fall of 2015 and adjustments were made to the

survey to reflect the suggestions received. The survey in nearly its final form was presented to the Executive Committee at the 2016 annual meeting in Portland. Some additional adjustments were made in January and February. Finally, the survey was sent to a "test" group of about 25 individuals, who were asked for comments and suggestions. The survey was sent to the membership in mid-March 2016, and will be open until April 14th.

Please take the time to complete the survey and provide your valuable input!



### FROM THE DVM

**RESEARCHERS DATABASE:**  
Research on Inuit dogs in  
Greenland  
*Matthias Starck*



## 2016 - SICB PORTLAND MEETING RECAP AND 2017 MEETING UPDATES - PROGRAM OFFICER'S REPORT

*Program Officer, Rick Blob*

Thank you to everyone who attended and worked to make the 2016 SICB meeting in Portland a success. Between the exciting science, the fun environment of Portland, and the chance to catch up with old friends and meet new people, I hope that your conference was productive, and that you enjoyed as many great talks and events as I did. This was my twentieth SICB meeting, and every year I have been rewarded with ideas and interactions that make me look forward to coming back the next year.

Portland was the biggest SICB meeting ever measured by submitted abstracts (1713) and, with 2090 attendees, was second only to the 2013 meeting in San Francisco in total participation. Although this is nearly double our attendance from as recently as 2008, participation has risen steadily since then and has been close to this level (averaging 2000 attendees) since the 2012 Charleston meeting. Many of you (525!) gave us feedback through

the online Post-Meeting Survey. Results from the survey are now in, and have given lots of helpful insights and suggestions.

First, respondents shared a very positive view of the meeting overall (see Figure 1) - 87.1% of survey respondents felt that the meeting was very good or excellent, an increase from last year's already strong ratings (78.4%). The content and variety of scientific sessions were viewed as a particular strength, and the conference venue was also generally well regarded. Some preference was expressed for a venue that could have been closer to a central city district, or with hotels somewhat closer, but in general the proximity of hotels to the venue was seen as an improvement over West Palm, and the transit tickets provided by the city were appreciated as a way to improve travel and accessibility to the venue and around the city.

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## BROADENING PARTICIPATION COMMITTEE REPORT

*Chair, Stacey Combes*

"The Committee shall design and promote activities of the Society to increase the diversity of the membership of the Society and of the fields of integrative and comparative biology."

The Broadening Participation (BP) committee met on January 4th to discuss travel awards, workshop topics, and plans for BP events at the upcoming 2017 meeting in New Orleans. Members of the BP committee include Rita Mehta, Brian Tsukimura, Karen Maruska, Gabriel Rivera, Sharlene Santana, and Walter Wilczynski, as well as Michele Nishiguchi (committee chair) and Kendra Greenlee, who are rotating off this year with our sincere thanks for their dedication to the committee and its activities. New committee members include Stacey Combes (committee chair), and our newly appointed post-doc and graduate student representatives, Maya deVries and Clare Adams. Ex-officio members include Zen Faulkes (chair, Student/Postdoctoral Affairs Committee), Richard Blob (SICB

Program Officer), and Louis Burnett (SICB President-Elect).

The Broadening Participation committee will be granting travel awards for the 2017 meeting in New Orleans (applications due in October), and plans to increase its visibility by expanding its presence on the SICB website and working to ensure that SICB members are aware that everyone is welcome to attend BP events. We also plan to take part in a survey of past SICB members, to track the career paths of SICB members from underrepresented groups, and to determine how the BP program may have influenced its participants in the long-term.

### Portland, 2016 Activities

This year's meeting opened with a Broadening Participation meet-and-greet, held on January 3rd before the plenary talk, where the travel awardees were able to meet the committee members and learn more about the BP

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25% Discount on  
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Press Books**

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Home Page**

## 2016 EDUCATIONAL COUNCIL

*Chair, Bram Lutton*

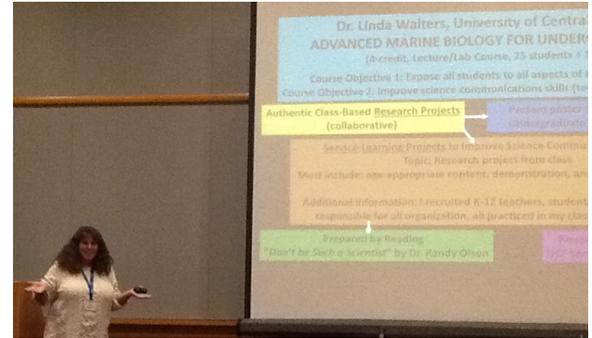
The Portland meeting was a great success for SICB members interested in the education theme of 2016: K-12 Science Outreach! Indeed, we all learned something new about the importance of both outreach and "partnerships" from the John Moore Lecturer, Dr. Jay Labov, Senior Advisor at the National Research Council. Jay spoke about The Changing National STEM Education Landscape: Connecting the Dots.



*Jay Labov, who presented the 2016 John A. Moore Lecture in Portland.*

Along with the Moore Lecture, the SICB Educational Council focused its

Teaching and Learning workshop (organized by Lisa Whitenack, Linda Walters, and Bill Hoese) on K-12 outreach and partnerships. Again this year, exciting networks and knowledge were shared during the evening's catered round-table discussions. Many thanks to all those at Burk and Associates, and on the Executive Committee, who helped make these events come together.



*Linda Walters presenting in the Educational Council-sponsored workshop, TAL-K-12: Scientific Outreach for the K-12 Audience.*

And again this year the Educational Council had the pleasure of offering the M. Patricia Morse Award for Excellence [continued on page 12](#)

## DONATIONS REPORT

*by Darwin Jorgensen*

Your donations have a profound effect on this Society and the future of comparative biology. Prior to the 2014 meeting in Austin, the SICB Development Committee implemented a tiered donor recognition program, and we have continued the program since that time. Five levels of giving are recognized and acknowledge donations from January 2015 (at the end of the West Palm Beach meeting) through the end of the Portland meeting this past January. You may have noticed ribbons attached to donors' meeting badges at the Portland meeting. The Society leadership wishes to extend its most sincere thanks to these individuals, and encourages all members to consider donating to the Society's Endowment. Several funds make up the Endowment and you can request that your donation be applied to the fund(s) of your choice.

The Society plans to continue to recognize donors in this fashion. Please know that the Endowment is crucial to the continued success of the Society and that every dollar counts. On behalf of the Executive and Development Committees, again, thank you for your generous support.

### **Diamond (\$500 and up)**

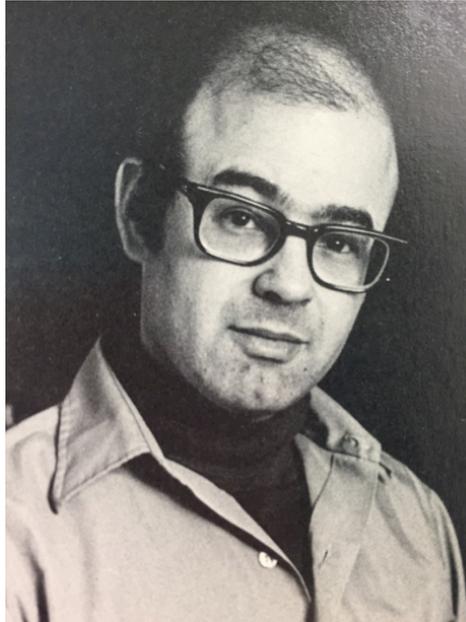
Patricia Morse  
Jarid Simons  
Peter Wainwright  
Sarah Woodin  
Michael Hadfield  
Thomas Daniel  
Pai San-Tsai  
Richard Nishioka  
Mary Mendonça  
Koichi Hashimoto (Zenyaku Kogyu Co.)  
Darwin Jorgensen  
Zuleyma Tang-Martinez  
Dianna K. Padilla

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**"This early paper first documented Steve's interest in dimensionless numbers, which continued as a theme throughout his career. "**

## Comparative Biomechanics: The Shear Impact of Professor Steven Vogel (1940-2015)

By Kate Loudon and Tom Daniel



As many are aware, Steven Vogel passed away Nov. 24, 2015. His accomplishments have been celebrated and acknowledged in recent obituaries in the New York Times (<http://www.nytimes.com/2015/12/04/science/steven-vogel-biologist-who-studied-how-things-move-dies-at-75.html>) and on Duke University's website (<https://today.duke.edu/2015/11/stevenvogel>). In addition, it seems natural for us to reflect on the incredibly important role he has played for generations of students and faculty in the Society for Integrative and Comparative Biology and beyond. In many ways SICB was the home society for this creative and influential scientist and the many students and scientists he inspired.

As most of us know, Steve was a superb experimentalist and had a deep understanding and intuition about physical phenomena. Given a rubber band, a thermos, duct tape, and a piece of cardboard, Steve could generate a device that would outperform many types of expensive purchased equipment.

### A bit of history

Born in Beacon, New York, Steve attended Tufts University as an undergraduate and had the opportunity to do research with the influential neuroethologist Kenneth Roeder, which is where Steve became exposed to experimental

science involving insects. He continued working with insects during his PhD with Carroll Williams at Harvard. Steve was a Junior Fellow during his last two years at Harvard, which he valued immensely. As a graduate student he published his first paper in *Nature* (Vogel, 1962) on evidence for a boundary layer of air "attached" to insect wings affecting wing-beat frequency and amplitude. This early paper first documented Steve's interest in dimensionless numbers, which continued as a theme throughout his career. Importantly, that early work foresaw an interest in the "added mass" associated with wing aerodynamics.

After leaving Harvard, Steve moved to Duke University in 1966, where he was on the faculty until his retirement in 2006. During his forty years at Duke, Steve teamed up with another Steve (Steve Wainwright, Past President of SICB), to lead a vibrant and interactive group of students, postdocs, and visiting scholars all focused on comparative biomechanics. Both Steves had a passion for encouraging others to do biomechanical research. To help make fluid mechanical research more accessible and affordable, Steve (Vogel) published two papers with Michael LaBarbera that were guides to making and using flow tanks and thermistor flowmeters (LaBarbera and Vogel, 1976; Vogel and LaBarbera, 1978). These incredibly affordable and easily constructed systems encouraged an amazing pipeline of scientists to add engineering thinking and fluid mechanical measurements to both their research and teaching missions. Related to this was Steve's fundamental belief that great science can be done without expensive resources, making science more available to more people (in this regard Steve had strong opinions that were voiced quietly; Vogel, 1998).

### Vogel and SICB

In the 1980s, Steve Vogel and Steve Wainwright were instrumental in bringing Biomechanics to the fore at SICB in its prior life as the American Society of Zoologists (ASZ). That early influence

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## CALL FOR NOMINATIONS AND APPLICATIONS FOR SICB AWARDS AND LECTURES FOR THE 2017 ANNUAL MEETING IN NEW ORLEANS

**The George A. Bartholomew Award**. Each year the SICB Division of Comparative Physiology and Biochemistry recognizes a young investigator for distinguished contributions to comparative physiology and biochemistry or to related fields of functional and integrative biology. Eligible candidates are those who have completed their doctorate within the past seven years and who are members of SICB. The person chosen as the recipient of this award will be invited to present a special address at the 2017 SICB Meeting in New Orleans. **The deadline for nominations and applications is 25 August 2016.**

**The Howard A. Bern Lecture** was created by SICB to honor the outstanding contributions of Professor Howard A. Bern to the field of comparative endocrinology and to the society. The lecture is given annually at the SICB meeting by a scientist who has made significant contributions to the field of comparative endocrinology. Scientists from around the world are eligible, and affiliation with SICB is not required. **The deadline for nominations is 25 August 2016.**

**The Carl Gans Award**, administered by the SICB Division of Comparative Biomechanics, is given annually either to an outstanding young investigator (who has completed the doctorate within the past seven years) for distinguished contributions to the field of comparative biomechanics, or to an investigator at any level for the single most significant contribution to the literature of comparative biomechanics (research paper, review article, or book) published in 2015. Candidates must be members of SICB, and cannot have received the Bartholomew Award. **The deadline for nominations and applications is 25 August 2016.**

**The M. Patricia Morse Award for Excellence and Innovation in Science Education**, administered by the SICB Educational Council, is an annual prize awarded to a SICB member at any career stage for significant achievement in science education. This award honors the achievements and contributions of M. Patricia Morse, President of SICB in 1985, to the Society especially in the area of education. The Morse award winner will be recognized prior to the introduction of the Moore Lecturer at the 2017 SICB annual meeting, and will be expected to write a brief article for the SICB Spring newsletter or journal describing his or her achievements in, or any important aspect of, science education.



*Educational Council Chair, Bram Lutton, introducing the Morse Award at the 2016 meeting in Portland*



**FROM THE DIZ RESEARCHERS DATABASE:**  
Evolution of marine biodiversity  
A. Lindner



**SICB FINANCES, CONTINUED**  
**TREASURER'S REPORT, KAREN MARTIN**

*continued from page 3*

At this time three of the 12 funds remain under \$25,000: the Davis, Wenner, and Skinner funds.

**Table 1: Endowments**

Named fund	2014 balance	FY 2015 donations	FY 2015 expenses	2015 balance
Bartholomew	173,094	490	5028	169,861
Hyman	79,475	15,362	1,076	95,507
Davis	15,527	420	0	17,187
Moore	14,626	29,810	0	44,750
Wenner	13,066	75	200	13,037
Skinner	17,036	750 + 3020	333.51	20,931
Symposium	123,402	500	0	124,777
Mangum	323,054	1180	10,774	315,989
GIAR	220,941	1560	7399	216,789
Gans	41,050	400	0	41,742
Prosser	29,134	100	0	29,440
Bern	12,165	6555 (3000 FY 15)	0	15,165
<b>TOTALS</b>	<b>1,062,569</b>	<b>57,202</b>	<b>29,164</b>	<b>1,105,106</b>

Total invested funds were up to \$1,351,520 at the end of FY 2015 in June, an increase of \$46,598. This balance takes into account donations of stock worth \$41,068 and management fees of \$13,164. Thus, the net growth was only \$5,530 or about 0.5% over the fiscal year. However, by the end of February 2016, the balance was \$1,240,417, a loss of \$111,103 in 8 months.

Financial reports for FY 2015 indicate total expenses of \$1,041,136 with revenues of \$991,808, for a loss of \$73,500. Nevertheless the total assets of SICB were up by \$46,300 and the unrestricted funds increased by \$116,900 or 21% from \$551,412 in FY 14 to \$669,698 at the end of FY 15. Thus, the gain in unrestricted funds offset the net loss in FY 2015.

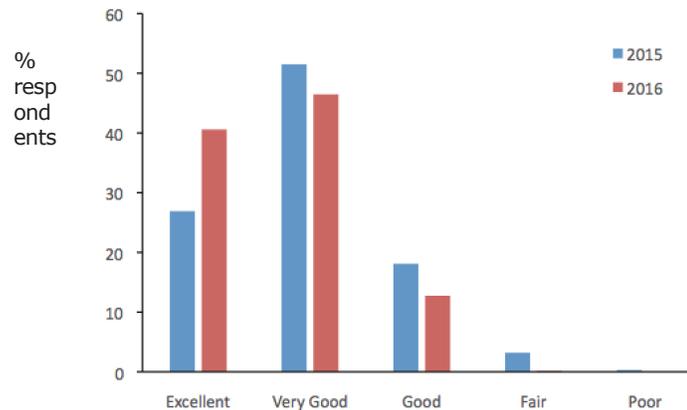
A balanced budget was approved for FY 2017. Anticipated revenues are \$885,025 and anticipated expenses are \$881,525, for a thin margin in the black of \$3,500. Additional details are shown in Table 2 as presented at the Business Meetings of the Executive Committee and the Society.

**Table 2.** Budget for FY 2017, showing revenues of \$885,025 and anticipated expenses of \$881,525, for a net of \$3,500.

	Expenses	Revenue
Administrative	\$314,520	\$166,000
Annual Meeting	\$344,713	\$358,175
Endowment Fund	\$38,100	\$16,350
Committees	\$26,270	0
Journal	\$92,000	\$330,000
SICB Memberships	\$4000	0
Divisional Budgets	\$51,500	\$14,500
Contingency Fund	\$10,000	0
<b>TOTALS</b>	<b>\$881,525</b>	<b>\$885,025</b>

## 2016 - PROGRAM OFFICER'S REPORT, CONTINUED

[continued from page 4](#)



**Figure 1.** Ratings of SICB members who responded in 2015 and 2016 to the question "Overall, how would you rate the meeting?"

Even with the success of the meeting, several constructive suggestions were provided. Several comments noted a seeming decrease in the number of vendor and exhibitor booths during poster sessions, compared to past years. Our data show that, with the exception of a large number (40) in Austin in 2014, the number of exhibitors has consistently been in the low-mid 30s since 2011 – however, we will work to increase these offerings for upcoming meetings. Many other concerns could be viewed as stemming, at least in part, from the success and growth of SICB. With four days of symposia, contributed presentations, workshops, and social events, there is usually a lot going on and difficult choices to be made among conflicting options. The committees and officers who contributed to the program schedule worked creatively to minimize conflicts, and to keep opportunities open for the networking that many members value as an important complement to the scientific program. Several divisions made either scientific or social program changes (or both), moving to focused sessions for Best Student Paper competitions and to off-site socials. These changes were generally very well received. In response to feedback regarding conflicts across large numbers of workshops, the program committee is already refining the selection process to prevent overscheduling. And, although improvements are being considered for some social events for next year (e.g., the pub crawl), oth-

er new events drew a good response (e.g., the SICB dance). The use of the subsidized day care service coordinated by SICB also grew compared to last year, with positive comments from members with children who used the service, and from members who did not use the service but supported it as an important offering. We are not anticipating extensive further growth in attendance at the annual meeting, but based on expectations from our steady attendance levels for the past several years,

venues in conference centers are a necessity and have been planned in advance for several exciting locations through 2020 (see SICB Future Meetings).

For the fourth year, we incorporated a meeting App for use with mobile phones and tablets. The proportion of attendees using the meeting App has grown steadily during this time, growing from roughly 70% in 2015 to nearly 80% in 2016. However, satisfaction levels with the App have not increased, with higher proportions of 2016 users finding the App marginal, deficient, or useless compared to last year (see Figure 2). Some of the issues raised were intrinsic to the App itself, whereas others related more generally to wireless availability in the conference center. Recognizing these potential issues, we have explored options for improving both services and found that they generally require significant expenses that cannot be covered through current meeting budgets. Results from the survey indicated little support (~33%) for increasing registration fees to fully fund free meeting wireless and greater App functionality. Following this sentiment limits the options for improving these services. Wireless rates for conference center venues have limited room for negotiation, and venue choices that offer desirable locations and other advantages often do not include free wireless, whereas venues that offer free wireless (e.g., West Palm Beach) commonly have other limitations. With venues set for the next several years, we will continue

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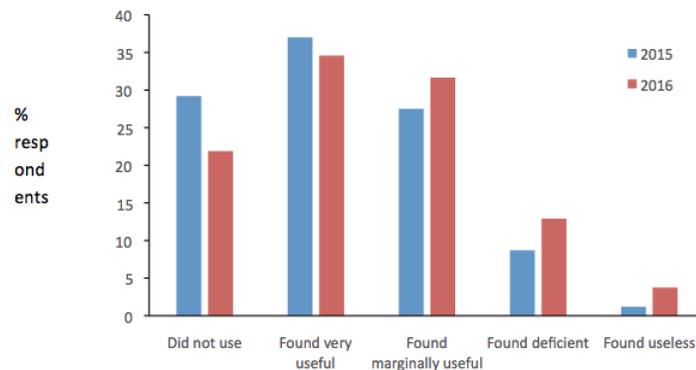
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**"Over half of Full Member respondents brought at least one student to the meeting and, as just one example of student engagement, over half of the respondents to the online, Post-Meeting Survey were students!"**

## 2016 - PROGRAM OFFICER'S REPORT, CONTINUED

*continued from page 9*

to look for ways to improve the services we can, within the means available. Although remaining support for printing a hard copy program means it will be maintained, some reduction in this cost may be possible.



**Figure 2.** Ratings of SICB members who responded to the questions concerning the usefulness of the Meeting App in 2015 and 2016.

One of the strongest features of the 2016 meeting was student participation. Over half of Full Member respondents brought at least one student to the meeting and, as just one example of student engagement, over half of the respondents to the online, Post-Meeting Survey were students! SICB is strongly motivated to promote student engagement and the presentation of their best science, because students are the future of the Society. Almost 80% of Full Member respondents indicated they were members as either a student or postdoc and, among current Student/Postdoctoral Members, roughly 85% indicated their intent to join as a Full Member in the future. In addition to student meeting support and special workshops and socials for students, new sessions dedicated to Best Student Paper competitions are helping to call attention to the best work of these SICB members.

Many thanks to the organizers of the 12 symposia in Portland for their hard work in contributing to the program of the annual SICB meeting, including Jeff Riffel, Ashlee Rowe, Annie Lindgren, Christopher Boyko, Jason Williams, Thomas Cronin, Sönke Johnsen, Brandon Moore, Diane Kelly, Robert Cox, Joel McGlothlin, Frances Bonier, Alexa Frit-

zsche McKay, Bethany Hoye, Maryem-gan Daly, Lisle Gibbs, Michael Dillon, Art Woods, Mike Sears, Sharlene Santana, Paul Gignac, Don Mykles, Karen Burnett, David Durica, Jonathon Stillman, Suzy Renn, Hans Hofmann, and Dustin Rubenstein. If you missed any of these

sessions, keep an eye out for their papers in upcoming issues of [ICB!](#)

If you are thinking about organizing a symposium for the San Francisco meeting in 2018, it is never too early to start the application process. You should contact your divisional program officer if you have a good idea for a symposium, and I am happy to answer questions as well ([programofficer@sicb.org](mailto:programofficer@sicb.org)).

There are also [SICB SYMPOSIA POLICIES AND GUIDELINES](#) published on the web that you should read. The deadline for symposium proposals for the 2018 San Francisco meeting will be August 25, 2016. You can find the [Call for 2018 Symposia](#) on the SICB Meetings website.

The symposia for the 2017 New Orleans meeting are [posted on the SICB web site](#). There are exciting symposia on each of the 4 days of the meeting (see below).

### 2017 New Orleans Tentative Symposium Schedule

January 5

1) **Indirect Effects of Global Change: from Physiological and Behavioral Mechanisms to Ecological Consequences (SICB wide)**

Organizers: Alex Gunderson, Jonathon Stillman & Brian Tsukimura; Sponsors: DAB, DCPB, DEE, DIZ, DNB & TCS

2) **The Ecology of Exercise: Mechanisms Underlying Individual Variation in Movement Behavior, Activity or Performance**

Organizers: Tony Williams, Shaun Killen & Ryan Calsbeek; Sponsors: DAB, DCB, DCPB, DEE & DVM

*continued on page 11*

## 2016 - PROGRAM OFFICER'S REPORT, CONTINUED

*continued from page 10*

- 3) **Molecular and Neuroendocrine Approaches to the Study of Evolutionary Tradeoffs: Food, Sex, Stress, and Longevity**  
Organizer: Jill Schneider; Sponsors: DAB, DCE & DNB

### January 6

- 1) **Evolutionary Impacts of Seasonality**  
Organizers: Caroline Williams & Gregory Ragland; Sponsors: DCE, DCPB & DIZ
- 2) **With a Little Help from My Friends: Microbial Partners in Integrative and Comparative Biology (SICB wide)**  
Organizers: Kevin Kohl & Denise Dearing; Sponsors: DCE, DCPB, DEDE, DEE, DIZ, DNB & AMS
- 3) **Integrating Cognitive, Motivational and Sensory Biases Underlying Acoustic and Multimodal Mate Choice**  
Organizers: Kathleen Lynch & Scott MacDougall-Shackleton; Sponsors: DAB, DCE & DNB

### January 7

- 1) **The Evolution of Arthropod Body Plans – Integrating Phylogeny, Fossils and Development**  
Organizers: Ariel Chipman & Doug Erwin; Sponsors: DEDB, DIZ, DPCB, AMS & TCS

- 2) **Integrative Life-History of Whole-Organism Performance (SICB wide)**

Organizers: Simon Lailvaux & Jerry Husak; Sponsors: DAB, DCB, DCE, DEDE, DEE, DNB & DVM

### January 8

- 1) **The Development and Mechanisms Underlying Inter-individual Variation in Pro-social Behavior**  
Organizers: Ben Dantzer & Dustin Rubenstein; Sponsors: DAB, DCE, DEE & DNB
- 2) **Physical and Genetic Mechanisms for Evolutionary Novelty**  
Organizers: Thomas Stewart, Stuart Newman & Günther Wagner; Sponsors: DCB, DEDB & DPCB
- 3) **Low Spatial Resolution Vision - Function and Evolution**  
Organizer: Anders Garm; Sponsors: DIZ, DNB, AMS & TCS

In addition to the symposia, there will be contributed talks, posters, and workshops to enliven the entire 4-day meeting. And, make sure to arrive in time on January 4 to see the opening evening plenary presentation. This year the plenary talk will be given by Dr. Billie Swalla, Professor of Biology at the University of Washington, Director of the Friday Harbor Laboratories and Past President of SICB. Dr. Swalla's research focuses on the evolution of chordates and the chordate body plan, integrating approaches from evolutionary and developmental biology, ecology, and genomics. She has been a strong advocate for integrative and comparative organismal biology throughout her career, and for SICB in particular. Her talk will kick off an exciting start to the meeting.

New Orleans is a city rich in culture, food, history and entertainment – why not plan to spend a few extra days? Check out the [2017 SICB meeting webpage](#) for updates on the venue and program throughout the coming year.

Finally, as I start in the role of SICB Program Officer, I want to thank our outgoing Program Officer, Sherry Tamone. Her hard work, organizational skills, and positive attitude have promoted fantastic activities and meetings for SICB, and laid a great foundation for these to continue. Thanks, Sherry!



## 2016 - EDUCATIONAL COUNCIL REPORT, CONTINUED

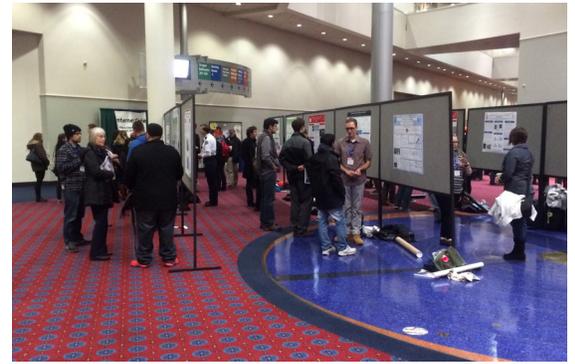
*continued from page 5*

and Innovation in Science Education to another outstanding candidate, Dr. Michael LaBarbera. The Morse Award is given annually to a SICB member in recognition of achievement in education, and Dr. LaBarbera's extraordinary career at the University of Chicago and the Friday Harbor Laboratories tied in beautifully with the vision for the award. Thank you Trish for making this great achievement possible!



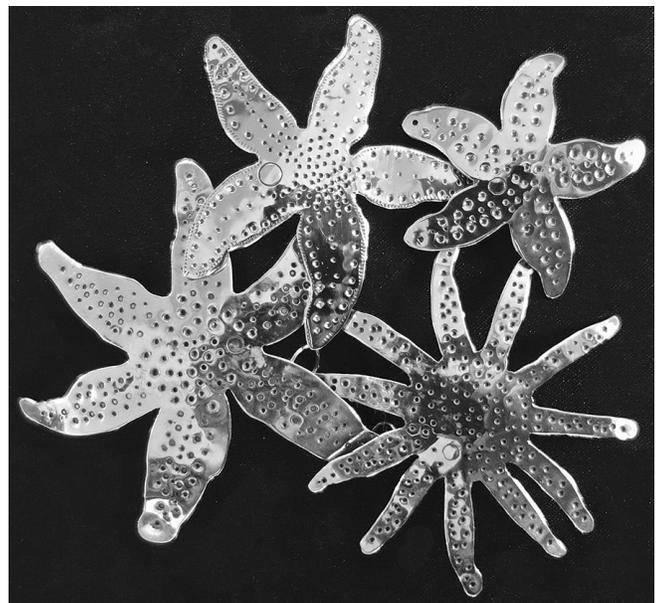
*Michael LaBarbera, recipient of the 2016 M. Patricia Morse Award for Excellence and Innovation in Science Education, with Trish Morse, at the 2016 SICB meeting in Portland.*

Once again, the poster display at registration on the first day of the meeting in Portland went very well, with approximately 50 posters illustrating undergraduate research and presented by undergraduate student members.



*The 6th Annual Arrival Day Undergraduate Poster Display featured posters presented by undergraduate students near the registration desk to start the meeting.*

The Educational Council accepts and evaluates nominations for the Morse Award, the Moore Lecturer, and for Teaching and Learning workshops organized by motivated individuals or teams of SICB members. If you are interested in offering nominations, ideas for workshops, or would like to contribute in any way to the goals of the Educational Council, please contact the Educational Council Chair ([chair.edcouncil@sicb.org](mailto:chair.edcouncil@sicb.org)) at your earliest convenience, as these opportunities and events are planned throughout the year. For more information, including nomination and application deadlines, you can visit the society's website: <http://www.sicb.org/membership/awards>.



**2016 - DONATIONS REPORT, CONTINUED***continued from page 5***Platinum (\$250-499)**

Andy Baxevanis  
James Clegg  
Munitaki Shimizu  
Lauren Bern  
Sherry Tamone  
William Klitz  
Elaine Alarid  
Lou and Karen Burnett  
Yoshitaka Magahama

**Gold (\$100-249)**

Spencer Koury  
Ray Huey  
Susan Williams  
John Hermanson  
Richard Blob  
Michael Greenberg  
Robert Roer  
Rosemary Knapp  
Peter deFur  
Anna Christensen  
Nora Terwilliger  
Richard Strathmann  
Steven Vogel  
Rita Mehta  
Joseph Planas  
Kevin Foskett  
Gopalan Unithan  
Morgan Bernowitz-Fredericks  
Mark Chappell  
John Pearse  
Robert Podolsky  
Erica Krespi

**Special recognition for individuals who contributed substantially beyond the \$500 level:**

Sarah Woodin  
Dianna K. Padilla  
Peter Wainwright

**Silver (\$50-99)**

Frank Fish  
Nancy Staub  
Callum Ross  
Joyce Caugron  
Kathy Dickson  
Nathan Kirk  
Ken Sebens  
Duncan MacKenzie  
Akihiko Hara  
Shizuo Kimura  
Jumpie Enamie  
Raphael Cruz Guzman  
Stephanie Grum  
Maria Kivel  
Sean Lema  
Ignacio Moore  
Michael Romero  
Jon Harrison

**Bronze (up to \$49)**

Natalia Taft  
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Alice Gibb  
John Pearce  
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Duane McPherson  
Charles Booth  
Stephen Schoech  
Bram Lutton  
Joshua Drew  
Marshall Andersen  
Christine Lattin  
Zsi Yaron  
Sarah Woodley

Jarid Simons  
Koishi Hashimoto

**WEAR A RIBBON AT SICB**

Donations to the various funds of the SICB allow the Society to offer a superb program at its annual meetings and make this a student-friendly and family-friendly organization. At the 2016 annual meeting in Portland, Oregon, attendees sported different kinds of ribbons showing their support of SICB through their donations. This will be done again this year at 2017 New Orleans, Louisiana. Show your support!

Diamond >\$500	Silver \$50-99
Platinum \$250-499	Bronze up to \$49
Gold \$100-249	



## PROFESSOR STEVEN VOGEL (1940-2015), CONTINUED

[continued from page 6](#)

prompted the first symposium on comparative biomechanics that was arranged by Mark Denny in 1982 at the ASZ meeting in Louisville, KY, at which both Steves were speakers (Denny, 1984). In the years that followed, the fraction of contributions to SICB in this domain rose from about 5% in the 1980s to about 25% today (Vogel, 2007).

Steve was a regular attendee at SICB over the years, and was sometimes assigned to give the final contributed talk of the entire meeting. A legendary speaker and gifted communicator, the room would always be packed. Most importantly, Steve would spend every spare moment at the meeting talking to students and offering both encouragement and advice for the next generation of biomechanics students and faculty. The Best Student Poster in Biomechanics at the annual SICB meetings is now "The Steven Vogel Award for the Best Student Poster in Biomechanics." And Comparative Biomechanics took on such a footprint in SICB that it now has its own division, keeping this domain current in the Society.

In 2007 SICB held a very Vogel-inspired event in which individuals who connected their research to Steve were encouraged to honor not just his career, but the vast imprint he has made through writings and other contributions. Thus, rather than selecting some narrow subset of people to present work related to his research, the floodgates opened, and a torrent of presentations ensued: 61 in all, spanning three days covering topics in marine biomechanics, hydrodynamics, terrestrial biomechanics, aerodynamics, and general biomechanics.

Few individuals have had as broad an impact on the direction of Comparative Biomechanics as Steven Vogel. Having applied the world of fluid mechanics to myriad organismal level functions, he was a key pioneer in an entire discipline. From feeding and swimming, to dispersion and wind forces, from giant creatures to tiny ones, Vogel opened our eyes to how organismal design reflects physical constraints of the world in which they live. Indeed, Steve was such a great communicator that ending this celebration of his life in his own words (Vogel, 2006, pers. comm.) seems most appropriate:

appropriate:

"We biologists study that wonderful phenomenon called "life." Ecology studies its context, paleontology its history, evolution the strategy, and physiology its tactics. Comparative biomechanics forms one of the main areas of physiology—the study of how organisms work. Put another way, the centerpiece of biological theory is evolution; together with uniqueness of the living state itself, it distinguishes biology from all other areas of science. Evolution depends on natural selection; natural selection, in turn, depends on reproductive success; reproductive success depends on the successful functioning of organisms in their environmental contexts.

That context has both biological and physical aspects. Evolution can manipulate the former, but natural selection remains powerless to change the latter. No area of functional biology more directly faces this physical context of life than comparative biomechanics. It looks at the aspects of the physical world that determine the possible structures and ways of operating open to the evolutionary process. And it investigates both the way these factors constrain biological design and the diverse opportunities they afford for effective functional devices."

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**BROADENING PARTICIPATION REPORT, CONTINUED**

*continued from page 4*

program. The BP committee gave out \$500 travel awards to 21 of the 51 members who applied. The 21 applicants who received awards consisted of 5 undergraduates, 5 M.S. students, 6 Ph.D. students, 4 post-docs, and 1 assistant professor, with 16 being Hispanic/Latino, 1 African American, and 4 not stated; 18 of the 21 awardees were women.

The Broadening Participation Committee sponsored a workshop at noon on January 6th, "How to integrate diversity awareness into science institutions, from the bottom up." The workshop, run by Drs. Kendra Greenlee and Michele Nishiguchi, consisted of presentations and breakout group discussions, in which members shared some of their personal experiences concerning diversity awareness at their own institutions. The session was attended by about 40 members, ranging from undergraduates to full professors.



*Participants in the 2016 Broadening Participation Workshop*



*BP committee members Kendra Greenlee and Michele Nishiguchi leading the 2016 Broadening Participation Workshop.*

Travel awards were presented to recipients at the Broadening Participation social, held from 8-10 PM on January 6th at the Eastlund Hotel. The social was well attended, with the travel award fellows, BP committee members, past and present members of the executive committee, and other SICB members present. Many of the attendees went on to the SICB dance after meeting and mingling over tasty snacks at the BP social.



*Recipients of the 2016 BP Travel Awards at the BP reception in Portland.*

We welcome the participation of all SICB members in BP and look forward to hearing your comments and suggestions for broadening participation in our society in the next year. If you have ideas or comments, please contact [chair.bpc@sicb.org](mailto:chair.bpc@sicb.org).

**Support your favorite SICB fund.**  
Click on the "donations" button on the home page.

[www.SICB.org](http://www.SICB.org)

## PRESIDENT'S REPORT, CONTINUED

[continued from page 1](#)

We continue our tradition of being a very student-friendly society and conference. Overall SICB spent about \$250,000 on student support this year, in the form of travel grants, reduced meeting registration, the Charlotte Mangum Student Support Program, and grants in aid of research. I am extremely happy with the success of our student support programs and I am looking forward to continuing and developing this into the future.

SICB is an exceptionally healthy and vibrant scientific society. Fundamentally this is because our research disciplines are healthy and vibrant, but at the center of the research disciplines are the people, and of course this is what actually makes SICB special. Our members are interested and committed to SICB and believe in our mission and activities. During my time as President of SICB I have been deeply impressed with the unfailing willingness of our members to help make things happen. Whenever there is a job to do, SICB members are alert and eager to help. Involvement of our members is the key factor that makes us successful. Thanks to all of you!

### A new era for our journal

January marked the leadership transition of our society journal, *Integrative and Comparative Biology*, as Marty Martin has taken over for Hal Heatwole who served the journal in this capacity for a remarkable 10 years. Marty is bringing in some changes, including extensive reliance on Associate Editors to handle manuscript review and acceptances. He is also studying opportunities to extend the impact of our journal by publishing special papers of various types. Our journal is quite unusual on the landscape of society journals, as we have been committed to the model of publishing our symposia. This gives us a great opportunity to produce papers that are valuable reviews of topics and present novel,

even untested ideas. I think it is worth pausing now and then to appreciate the extent to which our model is almost unique and distinguishes the journal and our society.

### A new journal for SICB?

In recent months a conversation has begun about the possibility of our society starting a new journal. *Integrative and Comparative Biology Open* would publish rigorously peer-reviewed primary research papers that integrate across scales and disciplines, from genes, molecules and cells, development, morphology and physiology, to ecology and evolution. Our authors and readers will reflect a broad interdisciplinary group of scientists who study organisms from functional, environmental and comparative perspectives. Such a journal would help us build our brand globally through the development of a highly international readership and group of authors. The open access format would maximize availability of the published work and the flexibility for the types of articles we could publish. If successful, the journal would also produce a novel source of revenue for the society, thus diversifying our income streams and giving SICB an even more robust financial footing. We have a proposal for such a journal from Oxford University Press, our excellent partners in publishing *Integrative and Comparative Biology*. In addition to providing their expertise in scientific publishing, Oxford would help us with important, early advertising and they have offered to accept the financial risk of the new journal.

Journals require expert management and editorial teams and we would most likely draw primarily from our membership for these positions. Thus, the cost of the new journal would be felt in terms of the effort required by our membership to staff it and ensure the high quality of the product. We live in a time of expanding journal options and we do not want to add to the abundance of new journals without a strong rationale. During the spring member survey we will be asking several questions about the possibility of this new journal and I hope that you will take this opportunity to provide us with your thoughts on this interesting new



Inside Convention Center,  
Portland, Oregon

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**PRESIDENT'S REPORT, CONTINUED**[continued from page 16](#)

opportunity.

**Looking ahead to New Orleans 2017**

While it is still many months in the future, our 2017 meeting promises to be as interesting and exciting as the meeting just completed. We will convene in New Orleans. This meeting has considerable historical significance for SICB, because in 2009 our society took New Orleans out of consideration for annual meetings because of official positions taken by the state of Louisiana that weakened the teaching of evolution in their public schools. Our action was prompted by the Louisiana Science Education Act of 2008 that opened the door for the teaching of creationism

and other non-scientific alternatives to evolution in the state's public school science classrooms. A letter was sent from SICB president Richard Satterlie to Governor Bobby Jindal in 2009 indicating that, in opposition to these policies, SICB would not hold future meetings in New Orleans. Subsequent actions taken by the New Orleans City Council in 2011 and the Orleans Parish School Board in 2012 prohibited the teaching of creationism or intelligent design in science classes. Following these actions, SICB lifted its ban on meeting in New Orleans, and the 2017 meeting will be the first SICB meeting in this popular conference destination since these events. I hope that you will take a moment early next January to reflect on this series of events and their importance.

**EXPERIENCES IN SCIENCE EDUCATION - PART 3, CONTINUED**[continued from page 1](#)

new approaches when it wasn't, and I've always cared about helping the students entrusted to me. Here I'd like to offer a few things I've learned (often painfully) over the past 35 years. I won't claim profound insights, but I think some of what I present below might make your life easier (or at least make your efforts better appreciated) and your students more successful.

**Inadvertent experiments.** For 15 years, I taught a class that attracted a variety of students — pre-meds, ecologists, geosci majors, and the occasional student from physics or economics. Then, five years ago, the course was moved into a track that basically eliminated participation by pre-med undergrads; enrollment dropped from 115 to about 30. I changed nothing about the structure of the course, I gave basically the same lectures and labs, I tested the students in exactly the same way I had before (see below) ... and student performance immediately improved by about 15% and has stayed at that higher level since. Pre-meds are some of our best students, so I can't credit the explanation that they dragged scores down. This was as close to a controlled experiment as I've ever come in a classroom and the results were unequivocal — class size *per se* really does matter for learning, even in a format as traditionally structured as my class. My enrollment

has been crawling back up again year-by-year (now about 45 students per quarter); if I can identify the class size where student performance takes a hit, I'll let you know.

Early on in my career, I decided that I was no longer comfortable with the traditional testing regimen (one or two "mid-terms" and a final) and moved to weekly quizzes (rationale below). This is when I learned not to trust "experts." A number of my colleagues (including some in Education) predicted that weekly quizzes would be a disaster — that undergraduates don't work on that schedule, they would be unable to perform, and that they would rebel. Only one part of that litany proved true; every year, for the first few weeks, the students grumble about the frequency of the quizzes. But they soon begin to see the benefits of more frequent testing with lower stakes. In mid-quarter I administer an unofficial evaluation to solicit feedback from students while there is still time to implement some of their suggestions (a practice they REALLY appreciate). Each year I've asked if they'd prefer a traditional mid-term/final or the weekly quizzes; each year 90-95% of the students choose the weekly quizzes. Try it — it will make your teaching more effective, with the only downside that you have to write weekly quizzes. (I hate writing tests. I do it anyway.)

**Testing — advice from the trenches.** Everything about the academic environment from the academic calendar to the

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**EXPERIENCES IN SCIENCE EDUCATION - PART 3, CONTINUED***[continued from page 17](#)*

folks you drink coffee with tends to reinforce the message that the “proper” way to assess students’ learning is to offer one (or two) midterms and a final exam. However, it always seemed to me that more frequent exams with smaller stakes were the better option — students are encouraged to engage the material soon after you present it, not every three to four weeks, and they can avoid the pile up of high-stakes exams at mid- and end-term. Not to mention reducing the impact of the unusual but not uncommon pre-exam catastrophe — an ill-timed case of the flu, the call from home announcing your parents are getting a divorce, or the badly timed break up with or by the student’s romantic interest. Frequent testing also has direct benefits, especially if the goal of the course is primarily to teach a mode of thinking or problem solving rather than a body of facts; more opportunities to exercise those skills are more likely to perfect them.

Another advantage of frequent testing is improved opportunities for timely (in several senses) interventions. By the third quiz in my courses, I’ve identified the struggling students and often can even have a fair idea of why they are struggling. The usual culprit is inefficient study habits (more on this below) but, for a plurality of these struggling students, when faced with a timed exam, they clutch. Most deny (I think sincerely) that they feel pressured but, if given additional time, their performance improves significantly, even if nothing else they do changes. I’m less interested in how fast students can think than how well they can think. Time limits on exams exist only so we can get on with other business. For the first quiz, I make the students take the exam in the canonical 20 minutes — a calibration opportunity so they can get a better idea of what I’m going to expect of them. A third of the class finds this time allotment generous, a third find it do-able, and a third are still writing frantically in the last thirty seconds. I benefit from fortunate scheduling — one class is the first class of the day, another comes right after lunch — so I have the luxury of offering my students as much time as they want; for the second and all subsequent quizzes, I’ll show up in the classroom a half

hour early and give the quiz to whomever wants to start at that point. At first, everyone shows up early to take advantage of the full fifty minutes; by the third quiz, a third of the students confidently stroll in at the normal start of class and finish easily in the allotted twenty minutes. But the students who need more time get it, everyone performs better, no one has an “advantage,” and I’m generally thought to be a fine (if somewhat strange) fellow.

**Aide-mémoire.** The proliferation over the last decade of electronic devices with screens has not been without cost to students’ intellectual skills. Although information is only a Google search away, a well-honed sense of critical skepticism is necessary to winnow through the profusion of hits. Students have come to expect all their courses to post PowerPoint presentations, PDFs of lecture notes, and other resources that free them from the necessity of taking much in the way of notes. The problem is that students don’t really know how to deal with the sheer volume of information at their fingertips, how to winnow through the cascade of words and images to glean the central ideas and concepts.

Some years ago I ran into a major problem with respect to my quizzes. A delegation of students came to me with a plea for ... something. Help. Intervention. Justice. They weren’t sure what they wanted me to do, but they were adamant that I do something. Unbeknownst to me, several of the campus fraternal organizations were keeping files of my quizzes from year to year and members were using the old quizzes to study from; my petitioners felt these students thus gained an unfair advantage. I agreed, but decided that the solution was not to write trick questions to catch the miscreants (as suggested by one student); rather than take away the advantage from the few, I choose to give it to the entire class. I thus began the practice of giving my class a set of “sample questions” for each quiz — questions that I had used for that material in previous years. This attempt at achieving equity for all my students, in retrospect, turned out to be the most effective teaching innovation I’ve ever implemented. (Wish I could claim deep insight produced this innovation, but it really was an ac-

*[continued on page 19](#)*



### FROM THE DVM

**RESEARCHERS DATABASE:**  
How fish alter their swimming mechanics and physiology when exposed to turbulent flow environments

*James Liao*

## EXPERIENCES IN SCIENCE EDUCATION - PART 3, CONTINUED

*continued from page 18*

cident.) I offered 15-25 questions for each topic from my archives, but deliberately withheld the answers so the students were forced to work them out on their own. The sample questions thus became a tutorial in how to think about the material in the lectures — examples of key concepts and how those concepts reappeared in different guises throughout the course. I encouraged (strenuously, to the point just short of compelling) the students to work on the sample questions in groups of two to four, combining their knowledge and insights. (Groups larger than four tend not to be effective — in larger groups at least one person ends up parasitizing the rest and often distracts the group from the task at hand.) My strategy is to (1) get the students to review their notes, (2) identify and extract the information needed to address each question, and (3) draw the requested inferences. I also offer the students feedback on these sample questions — if they send me their answer(s), I'll tell them if their answer would have been acceptable. If the answer falls short I offer guidance (incomplete answer, doesn't address the question, unstructured memory dump) but never give the canonical answer away; the point of this exercise is for the student to learn how to think about the material, not to memorize a "correct" answer. These sample questions are remarkably effective as a learning aid and have the added benefit of reducing student anxiety; by the time of the quiz, the students are familiar with the kinds of questions I'm likely to ask and reassured about their ability to handle them.

One last anecdote I'd like to share. Some time ago (I really can't remember when), it struck me that my students were wasting huge amounts of time and energy memorizing factoids for the quizzes. Admittedly, the courses I teach (invertebrate zoology, biodiversity, biomechanics) include numerous such factoids, but few really deserve to be committed to memory; for most such bits of information it's enough to know they exist and where to find them. As a way to lower the students' anxiety level, I began permitting them to bring a single sheet of 8.5x11" paper to the quizzes

with anything they wanted written on that page (front, back, and edges if they could it pull off) — factoids, lists, names, graphs, figures — I really didn't care what they included. But with malice of forethought, I insisted that everything on the sheet had to be handwritten — no printouts in six point font, no massively-reduced versions of the lecture figures. Thus, they could have all of the details necessary to answer the sample questions (and the questions I was likely to ask) ready at hand. But, more importantly, preparing this sheet forced them to read through the notes with a critical eye, separating the merely illustrative from the heart of the lecture, organizing the information in a more compact and logical form and reviewing it all for relevance. Those over forty will recognize this as an extreme form of the way we all used to prepare for exams in the era before search functions and copy and paste, but it is a revelation to the students that, once they have prepared this sheet, they rarely need to refer to it; the act of critically reviewing the notes and coupling mind to hand in writing impresses the information on the brain. I felt very smug after I came up with this ploy — it's remarkably effective — until, a few years ago, I ran across an really wonderful 2010 article (Amer. Sci. 98: 378-382) in which Roald Hoffman recommends exactly the same 8.5x11" security blanket. As he says there (p. 380) "its true purpose is to make the student review the material, to make judgments about what is essential and what isn't, and to organize the material" — an example of pedagogical convergence. But I was comforted to find an exemplary educator who also saw the merits of the one page aide-mémoire as a learning tool.

**My Morse Award Acceptance Speech (never given).** I really owe this honor to my ex-students, who took the trouble to nominate me and wrote impassioned (or so I was told) letters on my behalf; I am humbled (and flattered) that they would bother. I'd also like to thank the outstanding teachers I've studied under; Trish Morse, both for her example and for her friendship; and the students I've had the honor to teach, particularly at the University of Chicago and Friday Harbor Laboratories. Folks, I owe you all.

**Candidates for  
President-Elect:**

- **Elizabeth L. Brainerd**
- **James B. McClintock**

**Ballots will be issued in  
May.**

## ELECTIONS - SOCIETY-WIDE OFFICES

**President-Elect  
Elizabeth L. Brainerd**



**Current Position:** Professor of Biology, Brown University, Providence, RI.

**Education:** A.B. Harvard College (1985); Ph.D. Harvard University (1991).

**Professional Experience:** Assistant and Associate Professor, University of Massachusetts Amherst (1994-2005); Professor, Brown University (2005-present); Director, OEB Interdepartmental Graduate Program, UMass Amherst (2002-2005); Director of Graduate Studies (2009-2013) and Vice Chair (2006-2014), Department of Ecology and Evolutionary Biology, Brown University; Associate Editor, *Evolution* (2004-2007) and *Journal of Experimental Zoology, Part A* (2009-2011); Editorial Board Member, *Physiological and Biochemical Zoology* (2001-2014) and *Journal of Experimental Biology* (2009-present).

**SICB Activities:** Member for over 30 years (1985-2016); Member at Large (2012-2014); Chair, Division of Vertebrate Morphology (2005-2007); Chair, Broadening Participation Committee (2001-2003); Member, Student Awards Committee (1998-1999); Local Committee Chair, Northeast Regional DVM/DCB Meetings (1996, 2000, 2006, 2009).

**Other Memberships:** AAAS (Fellow); International Society of Vertebrate Morphology (President Elect, 2013-2016; President 2016-2019); American Society of Ichthyologists and Herpetologists; Sigma Xi; Society for Experimental Biology.

**Research Interests:** Vertebrate morphology; biomechanics; physiology; evolution; biomedical imaging; data management.

**Statement of Goals:** Integrative biology embraces complexity, and increasingly we are challenged with the problem of managing large and complex datasets. Successful data management facilitates synthesis, integration, and collaboration, and effective data management requires consensus standards for data and metadata curation. Building community consensus on data and metadata standards is particularly important now that NSF evaluates our data management efforts through Annual and Final Reports, and Results of Prior Support. If we do not develop standards ourselves, NSF will have to rely on a patchwork of reviewer and panelist opinions for evaluating our data management plans and implementation. As President of SICB I would: 1) work with the Divisions and membership to build community consensus on data and metadata standards; 2) foster new data management initiatives; and 3) identify and support the existing database and data management efforts of our members. As a 30-year member of SICB, I have witnessed tremendous growth in the size and influence of the Society. As President I would nurture the principles and activities that have made SICB great, including our dedication to the professional development of early-career members, the excellence and influence of our journal, outstanding national meetings, broadening participation, and leadership in science education, outreach, and policy. The Society has led a renaissance in integrative biology, and new initiatives such as developing community standards for data management will strengthen our position and keep SICB at the forefront of the life sciences in a changing world.

## ELECTIONS - SOCIETY-WIDE OFFICES

### President-Elect

#### James B. McClintock



**Current Position:** Endowed University Professor of Polar and Marine Biology, University of Alabama at Birmingham.

**Education:** B.A. University of California Santa Cruz (1978); M.S. University of South Florida (1980); Ph.D. University of South Florida (1984); Postdoctoral Fellow, University of California Santa Cruz (1987).

**Professional Experience:** Assistant through Endowed Full Professor, University of Alabama at Birmingham (1987-present), Dean of the School of Natural Sciences and Mathematics (1999-2003), Interim Dean of the Graduate School (2003-2005); Contributing Editor, Marine Ecology Progress Series (2005-present); Editorial Board, American Scientist (1992-1998); Board of Advisors, E.O. Wilson Biodiversity Foundation (2012-present); Board of Trustees, The Nature Conservancy (2015-present, Alabama Chapter).

**SICB Activities:** Member for 38 years; Past Chair, DIZ (2015-2017); Chair, DIZ (2012-2014); Program Officer, DIZ (2009-2011); Subject Editor, American Zoologist (1998-1999), Chair, Libbie Hyman Auction Committee (2015-2016); lead organizer of society-wide symposia (1990, 2000, 2010).

**Other Memberships:** American Association for the Advancement of Science (elected Fellow in 1999); American Microscopical Society; Sigma Xi; The Antarctic Society.

**Research Interests:** Chemical ecology; environmental biology; ocean acidification; polar biology; benthic ecology; reproductive and nutritional biology of marine invertebrates.

**Statement of Goals:** As President of SICB I will dedicate myself to promoting public forums, research symposia, and development activities that underlie the critical role we as integrative and comparative biologists play in educating society on the pressing issues of climate change, biodiversity, and environmental sustainability. Leveraging my fund raising experience as a Dean and for our society, I will work diligently to grow our endowments. The success of SICB is attributable not only to its relevance in cutting edge research, building professional collaborations and addressing societal issues, but also to the energy and optimism that accompanies a remarkable growth in student members. I'd work hard to raise and budget funds to continue to encourage undergraduate and graduate students to attend annual conferences, while ensuring we as a scientific society continue to attract more minority students, postdoctoral fellows, and faculty. For me, SICB has been a life-long passion; I arrived as a graduate student, returned as a postdoc, and enjoyed decades of participation as a professor accompanied by students. The society has played an important and multifaceted role in my ontogeny as a biologist, teacher, author, and public speaker. It would be an honor to serve as President of SICB, to provide leadership and serve a society that invests so successfully in its members.

**Candidates for Secretary-Elect:**

- *Alice C. Gibb*
- *Stephen T. Kinsey*

**Ballots will be issued in May.**

## ELECTIONS - SOCIETY-WIDE OFFICES

**Secretary-Elect  
Alice C. Gibb**



**Current Position:** Professor of Biology, Northern Arizona University, Flagstaff, AZ.

**Education:** B.A. Mount Holyoke College (1989); Ph.D. University of California, Irvine (1997); Postdoctoral Fellow, California State University, Fullerton (1999).

**Professional Experience:** Assistant through Full Professor, Northern Arizona University (1999-present); Associate Chair, Department of Biology, Northern Arizona University (2015-present); Director, Northern Arizona University's Initiative to Maximize Student Development (2004-present); Director, Watershed Research and Education Program at Northern Arizona University (2010-2013).

**SICB Activities:** SICB member for over 15 years; Committee Chair, Davis Award, Best Student Paper in Vertebrate Morphology (1999); SICB Student Support Committee Member (1999-2002 & 2009-2012); Chair, Division of Vertebrate Morphology (2013-2015); co-organized several symposia for SICB.

**Other Memberships:** Sigma Xi, Northern Arizona Chapter President (2001-2002).

**Research Interests:** Functional morphology and biomechanics of behaviors critical to individual fitness using teleost fishes as a model system.

**Statement of Goals:** The Society for Integrative and Comparative Biology is at a potential inflection point: student attendance is booming, but the academic job-market remains extremely competitive. In addition, in the internet age, where social media venues often serve as outlets for "breaking" scientific news, the ultimate function of a professional meeting and the overarching reason for participating in a professional organization like SICB may be changing. My goal as Secretary would be to facilitate SICB continuing its mission of furthering "research, education and public awareness in the areas of organismal, functional and evolutionary biology" during a time of potential change by the following activities. (1) Identifying and recruiting candidates for SICB leadership positions who are aware of the dynamic role of a professional society for its current and future members. (2) Working to expand the SICB Researchers' Database, both in terms of the scope of information included in the database and by increasing the number of researchers included in the database. (3) Raising the profile of SICB through current and emerging social media outlets, including Facebook and Twitter. (4) At the executive committee level, recognizing the potentially changing role of a professional society for student members, given that many of SICB's student members may not be pursuing jobs in the traditional academic pipeline.

## ELECTIONS - SOCIETY-WIDE OFFICES

### Secretary-Elect Stephen T. Kinsey



**Current Position:** Professor of Biology and Marine Biology, University of North Carolina, Wilmington, NC.

**Education:** B.S. Old Dominion University (1987); M.S. University of South Florida (1991); Ph.D. Florida State University (1996); Post-doctoral fellow, National High Magnetic Field Laboratory (1996-1997).

**Professional Experience:** Assistant through Full Professor, Department of Biology and Marine Biology, University of North Carolina Wilmington (1997-present); Graduate Coordinator and Assistant Chair, Department of Biology and Marine Biology, University of North Carolina Wilmington (2010-present).

**SICB Activities:** Student member (1993-1996), Full member (1997-present); DCPB officer nominating committee (2007); Session chair (2006, 2007, 2009); Student poster judge (many times); Discussion leader, Student/Postdoctoral Affairs Committee workshop (2016); Invited speaker, Special session honoring Steve Morris and David Towle (2012); Invited speaker, Special session honoring Bruce Sidell (2013).

**Other Memberships:** American Physiological Society; Biophysical Society; Sigma Xi; Society for Experimental Biology.

**Research Interests:** Skeletal muscle physiology, with particular emphasis on the tradeoffs between structure/function demands and maintenance costs, and how these interactions are altered during animal growth; reaction-diffusion processes in muscle; sources of variation in whole animal metabolic rate.

**Statement of Goals:** One of the most important functions of any organization is effective communication to both its members and the public at large. The unique position that SICB occupies in the scientific community provides a host of opportunities to promote its mission, as well as specific challenges that can be addressed through an effective message. As SICB Secretary, I believe that my primary duty will be to clearly articulate the vision of the executive committee to both the society and the general public. In addition, I will assist the executive committee in being responsive to the membership, planning annual meetings, and maintaining and enhancing the legacy of student and post-doctoral support that the society offers. My principal motivation for asking to be considered for SICB Secretary is to give back to the society that has provided so much support to me (and my students!) for more than 20 years. I feel that I owe a debt to SICB and, if elected, I will do my best to uphold the high standards set by past officers.



[www.SICB.org](http://www.SICB.org)

**Candidates for  
Program Officer-Elect:**

- **Gary Gillis**
- **Susan H. Williams**

**Ballots will be issued in  
May.**

## ELECTIONS - SOCIETY-WIDE OFFICES

**Program Officer-Elect  
Gary Gillis**



**Current Position:** Professor of Biology and Associate Dean of Faculty, Mount Holyoke College, South Hadley, MA.

**Education:** B.A. History, B.S. Biology, magna cum laude, Pacific Lutheran University (1990); Ph.D. University of California, Irvine (1997); Postdoctoral Fellow, Concord Field Station, Harvard University (1998-2002).

**Professional Experience:** Assistant Professor to Full Professor, Mount Holyoke College (2002-Present); Neuroscience and Behavior Program Chair (2010-2015); Associate Dean of Faculty and Director of the Science Center (2015-Present); Half-time Program Director, Physiological and Structural Systems, National Science Foundation (2012-2013).

**SICB Activities:** Member of the Division of Vertebrate Morphology (DVM) since 1991 and currently also a member of the Divisions of Comparative Biomechanics and Comparative Physiology and Biochemistry. Served as Secretary of DVM from 2006-2010, as a member on the SICB Nominating Committee in 2011, and as a judge of student papers/posters most years since 2002.

**Other Memberships:** AAAS.

**Research Interests:** Biomechanics and neuromuscular control of vertebrate locomotion; functional morphology and evolution of the musculoskeletal system.

**Statement of Goals:** SICB is my intellectual home, and its annual meetings are the intellectual gatherings I most look forward to every year. The importance SICB places on young scientists and fostering diversity, as well as its commitment to interdisciplinary approaches and promoting a public face for integrative biology, all align with my own priorities as a scientist. Having the opportunity to help organize future programs and work with symposium organizers to bring compelling topics and speakers to upcoming meetings is very appealing. I'm particularly interested in continuing to test out new, innovative program formats (e.g., 5-minute talks, student-prize sessions) while simultaneously making sure we retain meeting features that matter most to society members. The Society has been formative to me throughout my career and I am excited to have this opportunity to give back as Program Officer.

## ELECTIONS - SOCIETY-WIDE OFFICES

### Program Officer-Elect Susan H. Williams



**Current Position:** Professor of Anatomy, Department of Biomedical Sciences, Ohio University, OH.

**Education:** B.A. Bryn Mawr College (1994); Ph.D. Duke University (2004); Postdoctoral Researcher, Ohio University (2003-2005).

**Professional Experience:** Assistant through Full Professor, Ohio University (2005-present).

**SICB Activities:** Member for over 15 years; Secretary, DVM (2012-2013); Broadening Participation Committee (2012-2015); symposium organizer "Synthesis of Physiologic Data from the Mammalian Feeding Apparatus using FEED, the Feeding Experiments End-User Database" (2011); DVM Student Prize judge (multiple years).

**Other Memberships:** Sigma Xi; Society of Vertebrate Paleontology; International Society of Vertebrate Morphology; International Associate for Dental Research; American Association for Dental Research; Advisory Board, National Evolutionary Synthesis Center (2012-2015).

**Research Interests:** Evolutionary anatomy and morphology; evolution of the vertebrate skull and feeding systems; craniofacial biomechanics and functional morphology; motor control and coordination; sensorimotor integration; feeding physiology and ecology.

**Statement of Goals:** SICB has always been my primary society and the organization in which I "grew up" as a scientist. As such, I feel it is important to be actively involved, and I am excited about the possibility of serving as its Program Officer. If elected, I will strive to increase cross-divisional activities and collaboration, including but not limited to interdisciplinary support of symposia at the annual meeting. I will also support and facilitate as needed various ancillary activities and programs of SICB, such as regional meetings, childcare at the annual meeting, and professional development activities. In addition to helping Division Program Officers in the coordination and scheduling of their contributed talks and posters, I look forward to working with various committees in my capacity as Program Officer. I am particularly excited about continuing to work with the Broadening Participation Committee to support student scientists from underrepresented groups and working with the Public Affairs Committee to disseminate society activities to its members and the broader public.

**Candidates for  
Member-at-Large:**

- **Dominique Adriaens**
- **Creagh W. Breuner**

**Ballots will be issued in  
May.**

## ELECTIONS - SOCIETY-WIDE OFFICES

**Member-at-Large  
Dominique Adriaens**



**Current Position:** Full Professor of Biology, Ghent University, Belgium.

**Education:** M.Sc. Ghent University (1992); Ph.D. Ghent University (1998).

**Professional Experience:** Professionally born and raised at UGent (1998 - postdoctoral assistant, 2001 - assistant professor, 2009 - associate professor, 2012 - full professor); Research Associate at the AMNH since 2004; Director of the UGent Zoology Museum since 2002; Head of the research group 'Evolutionary Morphology of Vertebrates' since 2003; Chair of the educational board Biology at UGent since 2009; Coordinator of the teacher's education in Biology since 2012; member of the Executive Board of the International Society for Vertebrate Morphology (since 2010); member of numerous grant and project reviewing committees of various funding agencies (national and international); supervisor of 13 past and 7 on-going Ph.D. students; supervised students from at least 16 different countries; member of the editorial board of a couple of journals.

**SICB Activities:** Attended SICB every year since 2006. Student judging at several SICB meetings. Honorary Associate to the Editorial Board of Integrative and Comparative Biology from 2013 to 2015.

**Other Memberships:** Member of Royal Belgian Zoological Society (Chair twice); International Society of Vertebrate Morphology; American Society of Ichthyologists and Herpetologists; European Aquaculture Society.

**Research Interests:** Interested in too much, actually, but mainly focusing on evolutionary morphology of vertebrates, specifically aspects related to feeding and locomotion; background in fish morphology, but over the years have been working on other vertebrate groups as well; main interest is functional morphology, but placing things in a broader ecological, evolutionary, behavioral, and applied context (e.g. aquaculture, engineering, biomimicry, ...).

**Statement of Goals:** The strength of SICB over other societies is its broad and integrative scope of its members and their presentations at the yearly meetings. That is the reason why these meetings are a must for me, although it involves travelling across the ocean. Wherever I feel it relevant, I advocate the meeting just because of that, as well as I try to bring students as much as possible. As a Member-at-Large, I would just continue to do that, i.e., value and strengthen the integrative perspective. Considering my research background, having worked with toxicologists, ecologists, engineers, physicists, philosophers, etc., I think I have a good sense of bridging disciplines and a good affinity with several of the SICB divisions.

## ELECTIONS - SOCIETY-WIDE OFFICES

### Member-at-Large Creagh W. Breuner



**Current Position:** Professor, The University of Montana, Missoula, MT.

**Education:** B.A. University of Washington (1991); Ph.D. University of Washington (1998); Postdoctoral Fellow, Arizona State University (1998-2001).

**Professional Experience:** Assistant Professor, University of Texas-Austin (2001-2006); Assistant through Full Professor, The University of Montana (2006-present).

**SICB Activities:** Member for over 20 years, actively involved in DCE with presentations service throughout that time; Nominating Committee for DCE chair (2012); judge for the Best Student oral and/or poster competitions many times over the past 15 years; Chair of the student competition in 2004.

**Other Memberships:** AAAS; Sigma Xi; International Society for Avian Endocrinology; International Committee: International Society for Avian Endocrinology (2012-present).

**Research Interests:** I focus on hormonal mechanisms that mediate tradeoffs between survival and reproduction in free-living animals. From this ecological perspective, I seek to understand how evolutionary pressures have shaped hormone action at the protein, cellular, plasma and organismal level. I have also recently worked in the conservation realm, working to increase

the applicability of glucocorticoid physiology in conservation applications.

**Statement of Goals:** I joined SICB early in my graduate career, and am committed to the promotion and success of this society. I believe the excellence of our group is based on two primary strengths: first, the integrative nature of the society broadens all of our horizons, makes us stronger biologists, and keeps us learning about new fields as cross-divisional activities challenge our thinking; second, our incredible support of young scientists ensures the training and promotion of new ideas and energy into our group. As a Member-at-Large, I would work to further both of those strengths across the society. Most of my work with SICB to date (and truly, the majority of service as a professor at my home institution) is to promote and train graduate students. They are the heart of our society and I plan to work to incorporate more of their ideas and goals into our society business meetings, while continuing to increase support for their research and travel. I also look forward to working across divisions at the society to represent our large diversity of opinions and ideas. In graduate school I 'grew up' with members from the Divisions of Invertebrate Zoology, Vertebrate Morphology, Comparative Endocrinology, Comparative Biomechanics, and Ecology and Evolution, and maintain relationships with folks from across divisions today. I look forward to facilitating communication between all the divisions to bring new ideas to the Executive Committee.