



INSIDE THIS ISSUE:

Educational Council	2
Student Postdoctoral Affairs	2
SICB Finances	3
Broadening Participation Program for 2012	4
Distill the Message	5
Grand Challenges	7
NSF Changes Procedures	8
Researchers Database	13
DIVISIONS	
Animal Behavior	
Comparative Biomechanics	
Comparative Endocrinology	
Comparative Physiology & Biochemistry	
Evolutionary Developmental Biology	
Ecology & Evolution	
Invertebrate Zoology	
Neurobiology	
Phylogenetics & Comparative Biology	
Vertebrate Morphology	

**EXPERIENCES—A
PERSONAL
EVOLUTION AND
DEVELOPMENT IN
INTEGRATIVE
BIOLOGY**

by Brian Tsukimura

Program Officer, SICB 2010-12

This is awkward writing an 'Experiences Piece' when I feel that there are more experiences yet to explore than there is substance on which to reflect. Or maybe, it is that I feel I'm still wading through many exciting events such that it is difficult to find proper perspective. This is particularly true for my time within the Society for Integrative and Comparative Biology (and formerly, American Society of Zoologists). As most of us, I joined the ASZ/SICB as a graduate student where I was astounded by the faculty members, those writers of journal articles and books of my nascent education, mingling with each other, and with graduate students and postdocs. More importantly, it is where faculty, both within my field and in related fields engaged me to think in different ways about my research organisms and questions. There was a community. At times this community seemed 'scary,' not because they were monstrous, but because they were the 'intellectual elite' and thinking amongst them seemed intimidating. We all know now that they/we are friendly people trying to keep our labs alive, drive this organization forward and share ideas with our friends within this community. My

(Continued on page 9)

**THERE IS HISTORY
IN OUR FUTURE**

Philosophers and physicists argue about the nature of time, whether it has a direction, and whether it is inherently different than the three other dimensions of space-time. Is the future really determined or not? Our Executive Committee deals with the future, and can predict with a high degree of accuracy where we will be meeting for the next three years, for example. The seers on our Program Committee can tell you what symposia will be held - over a year in advance! Well, it appears true that at least the past is determined, and thus can be described even more accurately than our future. All it takes is finding the person to do it.

SICB and its predecessor societies have a long and distinguished history, with over a century of accomplishments and endeavors. The list

(Continued on page 7)

**FORMER SICB
PRESIDENT HEADS
BIOLOGY AT NSF—
ANSWERS QUESTIONS**

John Wingfield was president of SICB in 2003-2004. He was recently appointed to head the Directorate of Biological Sciences at the National Science Foundation. The Executive Officers of SICB posed some questions to John and he was kind enough to respond.

1. What do you think are the most challenging things facing NSF today?

(Continued on page 14)

SICB Executive Officers**Ken Sebens**

President 2011-13
U. of Washington

Rich Satterlie

Past President 2011-13
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Cal State U. Fresno

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Brett Burk

Executive Director
McClellan, VA

Ed Council: Teacher Information & Moore Lecture

The Educational Council urges all SICB members to enter information about the courses they teach in the new **"Teaching Information"** section of the member data page. This information will be used to build a searchable database that will provide easy access to course webpages and contact information, will allow members to plan and organize teaching workshops and informal exchange, and will promote networking and course development for new faculty. To update your member information, choose "Directory" at the lower left of the sicb.org page, login, and choose "Update your record" near the top of the page. Creation of this valuable database depends entirely on all of our members entering and

updating their teaching information. Members at all levels who are not currently teaching are encouraged to enter their teaching interests.

We are also looking forward once again to having the **Moore Lecture** as the capstone talk for the annual meeting and prelude to the end-of-meeting social. Our speaker this year will be **Dr. Brian Alters of Chapman University, Founder and Director of the Evolution Education Research Center**, a partnership among Chapman, Harvard, and McGill Universities. Please join us at **3 p.m. on the final day** of the meeting for Dr. Alters' talk.

Bob Podolsky, Chair

**Teaching Information Database**

- ◆ Add to the new SICB Teaching Information Database.
- ◆ Click on Directory on the lower left of the SICB web site.
- ◆ Enter your last name and SICB ID #.
- ◆ Click on "Update your record or review your dues status."
- ◆ Add your info to the Teaching Information Database.

Researchers Database

- ◆ Send a title, a short paragraph and a photo representing your research to your divisional secretary.
- ◆ The photos appear on the SICB homepage and change each time the page is refreshed.
- ◆ This is a great way to recruit students into your laboratory.

STUDENT/POSTDOCTORAL AFFAIRS

The Student/Postdoctoral Affairs Committee (SPDAC) is going strong and looking forward to another successful meeting in Charleston in 2012. We will be hosting the student orientation meeting where we will have 'tips' sheets available for all students! These 'tips' sheets are for students attending their first meeting (or any student for that matter) that will contain information about how to get the best out of the meeting. We will be calling this sheet the *Notes*

from the Above Ground to correspond with the *Notes from the Underground* (tips about local flare). In addition, we are hosting a workshop on applying and interviewing for jobs. We have rounded up several scientists from all levels of careers to offer their best advice and we will be hosting mock interviews during the workshop. We all hope to see you there!

We look forward to seeing you all in Charleston!

Peggy Biga, Chair SPDAC



Students may receive support from SICB to attend the annual meeting for up to 3 years.

THE STATE OF SICB'S FINANCES IS GOOD —
TREASURER'S REPORT, BOB ROER

Assets and Investments

At the close of the past fiscal year, the unaudited assets of the Society amounted to \$1,533,153.11. This reflects a modest increase from the previous year and a marked increase over FY 2009. Of the total assets, \$1,000,315.21 is in our investment portfolio and \$428,206.65 is in liquid assets in various bank accounts.

We continue to keep a significant portion of our investments in mutual funds, bonds and cash instruments.

This has protected the Society from the wild fluctuations and possible declines in the equities market due to the prospect of sovereign defaults. Our liabilities are limited to approximately \$30K in accounts payable and accrued expenses, with the remaining amount in fund balances.

We closed the year with net income of \$30K before our unrealized capital gains of ~\$54K. The Society is in a very solid financial position.

Annual Meeting

The annual meeting in Salt Lake City was another resounding success. After deducting the portion of the Burk and Associates fee dedicated to managing the meeting, the Society netted slightly over \$21K, compared to just over \$4K for the Seattle meeting in 2010. With the

greatest number of abstracts submitted for a meeting to date, the 2012 meeting in Charleston promises to be in the black as well. The graph shows abstracts vs. registrations since 2001. The Charleston meeting with 1459 abstracts should have well over 1800 registrants.

The Journal

Proceeds from the publication of our journal, *Integrative and Comparative Biology*, exceeded the budgeted amount by over \$50K, with net revenue of \$236,137.92. Subscription

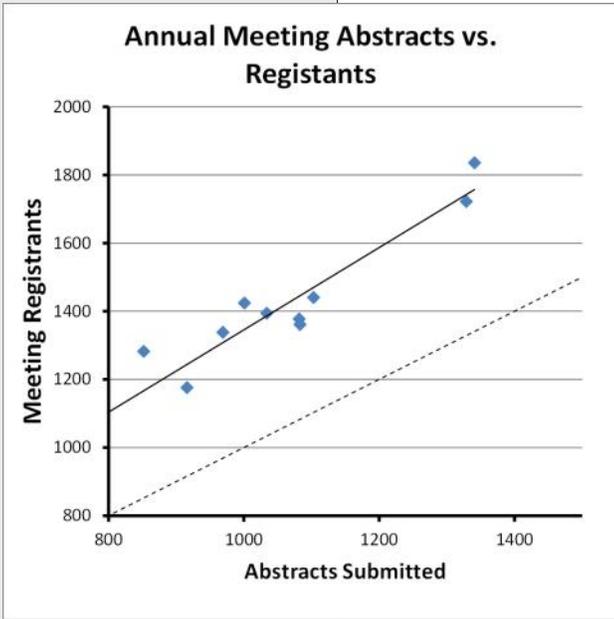
revenue was greater than expected and expenses were lower. The revenue from the journal continues to be the largest single revenue source for the Society.

Endowments

The restricted endowment funds benefited from the increase in the value of our investment portfolio. Because the yearly distribution from each of the endowment funds is tied to the five-year running average of their value, the current year distributions will meet the award needs for most of these.

However, a number of our endowment funds remain substantially below the requisite \$25K needed to be self-sustaining. These include the Davis, Moore, Wenner, Skinner, and Bern funds and they need our support in order for them to provide awards in the current and future years. Remember, one option that allows a fund to make an award, when its yield is insufficient, is for donors to specify that part or all of their contributions can be used in the current year with any surplus going into the corpus of the endowment. Please consider making a donation to the fund of your choice.

"...a number of our endowment funds remain substantially below the requisite \$25K needed to be self-sustaining."



The travel award program has been highly successful.



BROADENING PARTICIPATION IN SICB

First, we would like to welcome our new member, Jennifer Burnaford, as well as our ex-officio members Billie Swalla and Jon Harrison. We would also like to thank Joan Edwards and Denise Dearing for their past work on the committee, it was much appreciated.

Michele Nishiguchi, Brian Tsukimura, and Cheryl Wilga attended an invitation-only Broadening Participation Workshop sponsored by NSF Division of Integrative Organismal Systems (IOS) from Oct. 16-18. The workshop was facilitated by a team from *Knowinnovaton*, an organization that specializes in academic innovation workshops. The *Knowinnovation* team created a

stimulating environment that allowed us to think creatively about how to broaden participation in scientific societies, by keeping SICB objectives specifically in mind. As a result, we are working on a specific NSF-sponsored RFA targeted for scientific societies such

as SICB to fund our goal of increasing participation of underrepresented groups in SICB. This proposal will be submitted to the NSF in March 2012. We are particularly interested in assessing why decreases in membership occur between graduate and postdoctoral levels as well as postdoctoral and full members, and what measures we can apply to maintain or increase those levels. We are also interested in learning why SICB is good at attracting and retaining Asian members, but not other underrepresented groups. If you have any insights or thoughts that can help us address these issues, please email Cheryl (cwilga@uri.edu), Nish

(nish@nmsu.edu), or Brian (briant@csufresno.edu), or find us at the annual meeting in Charleston. Your ideas and thoughts will be invaluable in writing our grant proposal and may lead to funded activities that will benefit everyone in the society.

The Broadening Participation Committee sponsors two workshops at SICB, based on suggestions from Broadening Participation Travel Award applicants. The workshops at the 2012 annual meeting are: "Demystifying the Grant Process" hosted by the NSF and "Science is a Two-way Street: Mentorship and the Mentee" organized by Michele Nishiguchi. The Broadening Participation Travel Award applications are currently in review. We hope to have decisions on awards by mid-November. Travel Awards will be given to recipients at the Broadening Participation Social during the annual meeting. So, be sure to come to the social and enjoy the refreshments while you chat with your SICB colleagues. We welcome the participation of all SICB members and look forward to hearing your comments and suggestions for broadening participation in our society.

Events for the 2012 Meeting in Charleston:

- ◆ Committee on Broadening Participation meeting, Jan 4, 7-8 a.m.
- ◆ Workshop - "Science is a Two-way Street: Mentorship and the Mentee" organized by Michele Nishiguchi, Jan. 4, Noon -1:00 p.m.
- ◆ Workshop - "Demystifying the Grant Process" hosted by NSF, Jan. 6, Noon - 1:00 p.m.
- ◆ Diversity Social hosted by Cheryl Wilga on Jan. 6 at 8 - 10 p.m. and hosted by the BPC.

*Cheryl Wilga, Chair
Committee on Broadening
Participation*



A program rich in lectures, workshops, and symposia await you in Charleston 2012.

GREAT PROGRAM CHARLESTON 2012

Brian Tsukimura, SICB Program Officer

I hope that we are all excited about our upcoming 2012 SICB meeting in Charleston. Come experience the largest SICB meeting in its history, with 1471 presentations (Boston was 1341). This year, we will present 10 exciting symposia that are now spread out over four full days so that you can get to more of them. Each of these symposia has associated complementary sessions, both oral and poster. In addition, there are 120 sessions of contributed papers and 3 sets of

poster daily sessions from 3-5 PM. The Program Committee is to be congratulated for putting this all together on the last weekend of September. As we did last year, the Society-Wide Social in Honor of Students and Post-docs will be Saturday afternoon following the Moore Lecture, where light hors d'oeuvres will be offered. We will kick-off the meeting with the **Ple-nary Lecture** by **Margaret**

McFall-Ngai concerning the "Grand Challenges in Organismal Biology." We also have excellent presentations for the **Bartholomew Lecture: Dr. Emanuel (Manny) Azizi** "From sarcomeres to organisms: the role of muscle-tendon architecture in determining locomotor performance," the **Bern Lecture:**

Lynn Riddiford "How Does Juvenile Hormone Regulate Insect Metamorphosis and Reproduction?", and concluding the meeting with the **Moore Lecture: Dr. Brian Alters** "Evolution Education and Creationism Through the Decades." The Student/Postdoctoral Affairs Committee will hold their annual workshop: **Maximizing your Potential through Job Applications and Interviews.**

The welcoming social, coffee breaks, and end-of-the-meeting hors d'oeuvres social will provide ample time for interaction and discussions among members and visitors. The **Charleston Embassy Suites** and associated hotels are within walking distance of all types of casual restaurants. In addition, SICB has arranged buses to run to Downtown Charleston for restaurants, nightlife and entertainment. Check out the *Charleston Notes from the Underground* coming in December. Registration and the exhibit hall for vendors, posters and coffee breaks, and divisional and society wide socials will be held in the **Charleston Convention Center** across the street from the hotel.

The selection of the symposia is the highest priority for the Program Committee, as the contents of the journal are based solely from the content of the activities from the SICB meetings. Thus, the selection of diverse topics and relevance to a broad interest directed the selection of the 2012 symposia.

Several of the symposia have associated workshops to further explore the subjects, e.g. 'Interface of Math and Biology', and 'Building Conceptual Bridges between Marine Snake Research and Challenging Frontiers in Biology'. Please check your meeting locations for summar-

(Continued on page 6)



The Program Committee assembles the program for the 2012 Charleston meeting in late September.



The selection of symposia is the highest priority for the Program Committee, as the contents of the journal are based solely from the content of the activities from the SICB meetings.



Strong Programs=Successful Annual Meetings

Brian Tsukimura, SICB Program Officer

(Continued from page 5)

ies and locations.

The SICB Executive Officers, Program Committee, symposia and workshop organizers, Burk & Associates, and I have labored very hard to make your 2012 SICB meeting as productive and as engaging as possible. If you have comments about the program, please feel free to contact us before, during or after the meeting. We look forward to seeing you in Charleston at the start of the 2012 New Year! Wishing you a fantastic Holiday Season!

As this will be my last meeting as Program Officer, I leave you in the fully capable hands of incoming Program Officer, Jon Harrison. I would like to especially thank the Program Committee for tremendous effort making my job seemingly effortless, and in particular, thank those members who are also stepping down after this meeting.

Workshop Lineup for 2012

- ◆ "Science is a two-way Street: Mentorship and the Mentee"
- ◆ "The New NSF-IOS program solicitation and review process"
- ◆ "Biostatistics: Survival Analysis for Integrative Biologists"
- ◆ "Distilling Your Message, Communicating Science"
- ◆ "Experimental Studies of Osmoregulation in Marine/Estuarine Snakes- Why is There so Much Diversity in Regulatory Mechanisms?" (complementary to "New Frontiers from Marine Snakes to Marine Ecosystems").
- ◆ "Demystifying the Grant Application Process at NSF"
- ◆ "Research and Training at the Interface of Theory and Experiment" (complementary to Combining Experiments with Modeling and Computational Methods to Study Animal Locomotion)

- ◆ "Using Stable Isotope Techniques to Investigate the Ecology and Physiology of Marine Vertebrates" (complementary to "New Frontiers from Marine Snakes to Marine Ecosystems").
- ◆ On Saturday we will conclude the meeting with a Grand Challenges update at noon.

Symposium Lineup for 2012

- ◆ Novel methods for the analysis of animal movement: spatial and temporal structure across scales (Organizer D. Altshuler)
- ◆ Poecilogony as a window on larval evolution: Polymorphism of developmental mode within marine invertebrate species (Organizers E. Knott and D. McHugh)
- ◆ Mangrove killifish: an exemplar of integrative biology (Organizer E. Orlando)
- ◆ Dispersal of Marine Organisms (Organizers S. Lindsay and V. Martin)
- ◆ Comparative Proteomics of Environmental and Pollution Stress (Organizer L. Tomanek)
- ◆ New Frontiers from Marine Snakes to Marine Ecosystems (Organizer H. Lillywhite and F. Brischox)
- ◆ The Impacts of Developmental Plasticity on Evolutionary Innovation and Diversification (Organizer M. Wund)
- ◆ Combining Experiments with Modeling and Computational Methods to Study Animal Locomotion (Organizers L. Miller and S. Alben)
- ◆ EvoDevo Rides the Genomics Express (Organizer B. Swalla)
- ◆ Barnacle Biology: Essential Aspects and Contemporary Approaches (Organizer J. Zardus)



Distilling Your Message — Communicating Science

The Public Affairs Committee is happy to announce a new workshop for the upcoming Charleston meeting, entitled "Distilling Your Message." This 90-minute workshop will be run by Stony Brook University's Center for Communicating Science, whose main mission is helping scientists to communicate more effectively. The workshop will focus on general principles of communicating with the public, in particular how to craft short, clear, conversational statements, intelligible to non-scientists, about what you do and why it matters. The workshop will be on Jan. 5 at noon.

New science journalism internship program

The Public Affairs Committee would like to announce the creation of a **new science journalism program for students** in conjunction with the Charlotte Mangum Student Support Program. The purpose of this position is to provide students interested in science writing with a real-world science-writing experi-

ence at the SICB annual meeting. Each student will identify a talk or poster of their choice, conduct interviews, and write an original popular science piece that will be posted and highlighted on the SICB web site. Up to four students per year will be chosen.

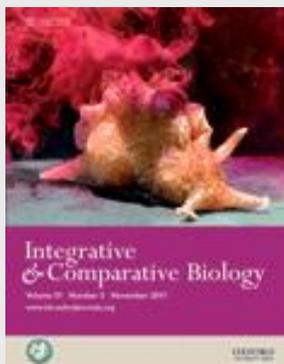
Students will be chosen by the Public Affairs Committee in advance of the meeting and notified no later than the second week of December. The application will consist of the following: 1) Name; 2) University & department; 3) Degree program and year; 4) General research interests; 5) Paragraph describing why the student is applying; 6) Short piece of original popular science writing (500 word max). Applications should be sent in pdf format to Jake Socha at jjsocha@vt.edu. See the Charlotte Mangum Student Support Program web page for more details.

Jake Socha
Chair, Public Affairs Committee

*SICB has a new
Science Journalism
program for students
at the SICB annual
meeting.*

*See article on this
page!*

*Integrative &
Comparative
Biology is
published by
[Oxford University
Press.](http://www.oxfordup.com)*



HISTORY IN OUR FUTURE

(Continued from page 1)

of past presidents going back to 1890 is a literal who's who of the varied scientific disciplines encompassed by SICB (see our website). All along, some of our members have been busy collecting photos and documents from a variety of sources, as well as documenting our new meetings and events. SICB maintains archives of historical documents, many now digitized, as well as photos and other materials, but this treasure trove needs attention. It is an incredible resource for someone interested in the history of science in the United States, and in our society in particular.

To that end, SICB will provide support for the position of SICB Archivist. The person will be supported to attend the annual meeting and make visits to the SICB Headquarters to examine and organize these materials in person.

There is also the option of establishing a committee to deal with archiving and historical analysis if there is more than one person interested.

If you have an interest in our history, or know of someone who might, please contact any of the executive officers to discuss this position.

Ken Sebens, President

What's next for Integrative and Comparative Biology's Grand Challenges?

Our Society for Integrative and Comparative Biology has been a partner in helping define the Grand Challenges in Organismal Biology for the 21st Century. This initiative was started several years ago with encouragement from the NSF, and thus far has resulted in several perspective pieces published in *Integrative & Comparative Biology* and elsewhere. Last year at our annual meeting in Salt Lake, the Plenary Lecture given by Tom Daniel from the University of Washington focused on Grand Challenges in Organismal Biology and a workshop was held to discuss how we can move forward to begin to address the many Grand Challenges that have been defined.

Dr. Daniel defined our scientific Grand Challenge as the understanding of complex problems and systems, and discussed how the integration of computational methods and approaches are needed to keep pace with empirical research enabling us to make significant scientific progress. A common thread running through papers that have articulated Grand Challenges in Biology is the call

for collaborative, interdisciplinary work that integrates knowledge across fields and levels of biological organization. Several steps were defined in how Grand Challenges should be implemented, such as initial white papers followed by moving ahead to define specific working groups collaborating to solve fundamental complex biological problems.

During the summer, we estab-

lished a working group to further study "Evolutionary processes that are important for organismal responses to global climate change." A sub-committee convened at Friday Harbor Laboratories to write a NES-Cent proposal to fund a working group to get together and approach the question from a variety of scientific disciplines. Unfortunately, that proposal was not funded, but we are resubmitting and also investigating the possibility of holding an NSF Workshop, and discussing the potential for establishing a Synthesis-Type Center to bring together interdisciplinary groups in Organismal Biology. If you are interested in either of these initiatives, please let us know.

This coming year we will convene another working group to further advance the discussion of the Grand Challenges, specifically focusing on a single question. The working group will draw scientists from across a range of fields initiating collaboration and cross-talk among the range of disciplines needed for Grand Challenge questions. Hopefully this working group can integrate the broad, interdisciplinary thinking and approaches that will be needed, and narrow the focus to specific priority questions that should be addressed and around which new funding opportunities may be created. We will also encourage discussions of the infrastructure necessary to move the science around Grand Challenge questions forward. A general discussion focused on Grand Challenges activities will be held on Saturday, January 7 in Charleston.

B. Swalla, D. Padilla, B. Tsukimura

Schwenk, Padilla, Bakken and Full, 2009 *Integ Comp Bio* 49:7-17.
Schwenk 2010 *BioSci.* 60:673-674.
Stillman et al. 2011 *Integr Comp Bio* 51:7-13.

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*“Experiences—Part 11
in a series
of articles about the
research experiences
of members of SICB.*

*“SICB members
like a good story about
an expedition,
a field experience,
a lab experiment
or another
researcher.”*



A PERSONAL EVOLUTION IN INTEGRATIVE BIOLOGY — BRIAN TSUKIMURA

(Continued from page 1)

first meeting was Nashville, ASZ '86 (704 presentations). Our meetings back then ran from December 27-30, 4 full days.

I started out as a reproductive endocrinologist using crustaceans as my organism. I spent much time attempting to garner some kind of understanding about how my organisms regulate reproduction; most of this has been through comparisons with other animals, particularly insects and fish. I still find myself unraveling the nuances of anatomy and physiology of crustaceans and trying to understand what they are doing during the preparation for reproduction. These studies were on decapod crustaceans (mostly table

food). *My first oral presentation was in San Francisco, ASZ '88 (1024 presentations, largest meeting for 16 years), and first as a postdoc. I also met Dorothy Skinner for the first time. Charlotte Mangum was ASZ President in '94, the year I got my tenure track job.* [Note that awards

are named after both of them for their support of students.] If you are a graduate student, yes you were alive then!

Tadpole shrimp were on the front page of the business section of a local newspaper (during my interview at Fresno State University), where they were described to be numerous pests in rice fields. I saw them as an ancient creature (at least ancient looking) that may possess a fast life cycle and a fascinating development. Their pre-

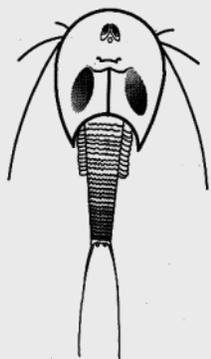
gastrula cysts are able to detect temperature, moisture and day length, where all elements must be correct for gastrulation to proceed. They also become reproductive in 5-6 days. After further investigation, we found that the California subspecies were selfing-hermaphrodites, making them easy to grow and maintain in culture. And more importantly, they have very few organs, so I hoped that understanding their reproduction might be easier. *My first presentation with tadpole shrimp was made at Albuquerque, SICB '96 (514 presentations, lowest number in decades [at least since '81, most likely much earlier]).*

During the mid-90's, the invasion of San Francisco Bay by the Chinese mitten crab added a new component to my research lab. I initially joined government work groups to study the only catadromous crab in North America and to look at this crabs reproductive processes. We were able to describe simple reproductive traits, but like all research, more questions were raised than answered. This is also when my lab became somewhat schizophrenic, with a physiological group and an ecological group, which started examining plankton samples for mitten crab zoea. We were fortunate to be able to utilize archived plankton tows from the California Fish and Game to look for larval forms of the mitten crab. The zoeae are the life stage most subject to mortality, and thus seemed like the place to start to determine population dynamics. The mitten crabs have now started expanding on the East Coast, leading to new collaborations with groups in New York. Our lab was also involved in the updating of the National Management Plan for the mitten crab. Mit-

(Continued on page 10)



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



A PERSONAL EVOLUTION IN INTEGRATIVE BIOLOGY — BRIAN TSUKIMURA

(Continued from page 9)

ten crabs both cultivated a new research component to our lab and evolved the questions that we were asking; a personal Evo-Devo. *In 1996, our name changed from ASZ to SICB to reflect our inclusion of plants and microbes, and to emphasize that we are integrative and comparative biologists. Our journal subtitle indicated that for years. In 1997/98 SICB switched from a December meeting to a January meeting. The reduction in abstracts allowed the annual meeting to drop down to a 3½ day meeting.*

During this same time frame, I became Chair of what is now the Student/Postdoctoral Affairs Committee (SPDAC) starting with the '96 meeting. The low turnout, was the culmination of three low years of <600 presentations. The economic woes of the society were likely the cause of the problem. The drop in membership was certainly a concern. There was the unanimous voice of the society leadership to save itself by reinvesting in the society through support of its graduate students and postdocs. The SPDAC luncheon grew from box lunches into lavish meals with real silverware. There was a concerted effort to be sure that there were free-food events for student's each of the 4 days of the meeting. There was also a social in honor of students and postdocs following the SPDAC workshop. These meals later would become too expensive, but they served its purpose during that time. The workshop attendance grew because so-

ciety members, especially the revered names volunteered their time to make those workshops special. Imagine Bob Full, Ken Dial and Peter Hochachka bantering amongst themselves about 'how to start a career.' The voice of the students and postdocs was further elevated to a voting seat on the Executive Committee at the end of my term. The society-wide effort to increase student participation worked well. One part of the gradual evolution of the committee, was to drop the "graduate" and include all students; new name Student/Postdoctoral Affairs Committee. As the only full member on the committee, it was exciting to see its members be forced to resign because they received jobs. *Presentation numbers jumped back to ~725 each for Boston in SICB '98, Denver SICB '99, and Atlanta in SICB 2000.*

I still find myself unraveling the nuances of anatomy and physiology of crustaceans and trying to understand what they are doing during the preparation for reproduction.

After a year away from SPDAC, I was appointed to the Student Support Committee (SSC), then, to my surprise, immediately selected as chair. The SSC was always made aware of the Charlotte Mangum Awardees [that's the inexpensive rooms students receive at the meetings] (remember she was the ASZ President in '94) and that the numbers were continuing to expand. The SSC also selected the Grants-In-Aid of Research awards, where the applicant pool exploded from ~30 to 85 in a few years. During this time, SSC was also tasked with naming and implementing the Fellowship for Graduate Student Travel (FGST)

(Continued on page 11)

A PERSONAL EVOLUTION IN INTEGRATIVE BIOLOGY — BRIAN TSUKIMURA

(Continued from page 10)

which also added another 30 applications. This was a commitment of \$30K in awards. Combined expenditures for the rooms and awards totaled over \$80K. [So if you are



wondering why we don't have free alcohol, here's why.] To handle the increase in applications, the SCC grew from 5 members to over 12 dedicated members sorting the excellent applications. The total costs for student support were growing and not being met by the registration fees. What remains is still some best support for students by professional societies. *Chicago SICB '01 (885) and Anaheim SICB '02 (916) indicated a recovery in meeting participation and attendance. At New Orleans SICB '04, SICB breaks a participation record (1,103) and suggested that all the efforts of SICB leaders were bringing high levels of success. Our journal changed its name from the American Zoologist to Integrative and Comparative Biology in 2002.*

By explaining the success of the SICB to one of our sisters societies, The Crustacean Society (TCS), I was made their Liaison to the SICB where I joined the newly reorganized SICB Program Committee

in '04. Great mentors (Kathy Coates and Ed Rosa-Molinar) on the Program Committee made transitioning into this newly reorganized committee effortless. We became veterans of the Program Committee together through the rest of the decade: Ed, a former Program Officer (PO), and Kathy, the AMS President-elect. Each year, we tried to reduce the overlap of presentation topics, particularly with symposia, and to improve the whole program. And each year I learned more about what it took to make SICB operate. *The presentations hovered around 1000: San Diego SICB '05, (1001), Orlando SICB '06 (1034), Phoenix SICB '07 (1082) and San Antonio SICB '08 (967). In Boston '09, SICB set a new record for presentations with 1341. Cramped quarters for posters and crowded limited space for symposia brought about discussion that we might have to go 4 full days.*

My development feels like it began anew when assuming office of Program Officer-Elect after Boston '09. In San Antonio, the NSF introduced the concept of the Grand Challenges in Organismal Biology (GCOB). As most of the Executive Officers had their hands full running SICB, they decided that I should provide guidance to the SICB attempt at moving the GCOB forward, but just having arrived on board, I had a ton of catching up to do. When first handed this task, 'trying to define what the relevant research questions are going to be in 5-10 years, and describing the tools required to get there,' I felt like I was standing at the edge of an abyss staring into a blackhole. Sometimes I still feel this way. Fortunately, I was able to converse with Dr. Bill Zamer on a frequent basis about the GCOB and receive guidance in my attempt to organize the first GCOB workshop

(Continued on page 12)



A PERSONAL EVOLUTION IN INTEGRATIVE BIOLOGY — BRIAN TSUKIMURA

(Continued from page 11)

at SICB. In the interim, more and more GCOB white papers were being produced that also helped enlighten me on things we could do to encourage the most people to participate. In inviting participants, I was fortunate to be able to call and discuss the GCOB with some of the leaders of other professional societies. These are researchers I would otherwise never have a reason to cold call and talk science. In organizing the first workshop, one goal was to try to bring in as many societies as possible to the discussion, but still have the "diversity" of participants as possible. I was encouraged to make the most of 'broadening participation.' I contacted numerous profes-

2010); two people with whom I would have never otherwise published.

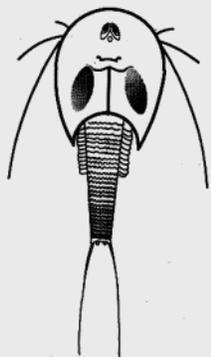
A midyear meeting of convenience brought together a small work group at the APS meeting on Climate Change in Colorado 2010 to discuss how to implement the GCOB. These discussions lead to organizing the second GCOB workshop by Jonathon Stillman. This workshop moved the discussion forward to encourage groups to form and



start discussions on specific research questions that could lead the focus of the GCOB. One such result was a recent submission of a NESCent proposal with Billie Swalla and Dianna Padilla. We will discuss this more at the January meeting in Charleston. *Salt Lake City participation fell slightly (1102). I felt fortunate to be involved in the GCOB workshop and publication of its results with Stillman, Mark Denny, Padilla, Sheila Patek, and Marvalee Wake. Again, this was an opportunity to share intellectual substance with colleagues that otherwise would likely not have happened. A further developmental moment for me.*

The Committee on Broadening Participation was struggling to find an identity within the SICB. The new Chair, Cheryl Wilga, certainly didn't have that problem and invigorated the committee to put on workshops at each meeting and develop a mentoring system. As Program Officer, I am an ex-officio member of this committee and am excited by the energy exerted by it.

(Continued on page 13)



sional societies to acquire a balanced panel. I was shocked at how difficult it was to find diverse society leadership, one problem that never really existed at SICB. *There was still strong attendance at the Seattle meeting in 2010 (1292 presentations). I was able to publish the results of the GCOB workshop in ICB with Hannah Carey and Dianna Padilla (Tsukimura et al.,*



Researchers

Database

Send a short paragraph and a photo representing your research to your divisional secretary.

The photos appear on the SICB homepage and change each time the page is refreshed.

This is a great way to recruit students into your laboratory.



NSF CHANGES PROPOSAL REVIEW PROCESS IN TWO PROGRAMS IMPORTANT TO SICB MEMBERS

The Divisions of Environmental Biology and Integrative Organismal Systems at the National Science Foundation recently announced significant changes to the proposal review process. Both divisions have implemented an annual cycle of preliminary and full proposal review beginning in January 2012. In particular these changes require the submission of preliminary proposals that will be reviewed at panel, followed by binding decisions to invite or to not invite submission of full proposals that will be reviewed subsequently. Below are links to the core program solicitation IOS/DEB, New Solicitations FAQs, the Dear Colleague Letter announcing the changes, the uploaded webinar, the webinar slides, and the complete transcript. NSF Program Directors will be attending the annual meeting in Charleston, and will conduct a session during which the SICB membership will

have a chance to ask questions about these changes.

All proposals submitted to DEB or IOS in response to the core program solicitations, and to the Research at Undergraduate Institutions (RUI) and Long-term Research in Environmental Biology (LTREB) solicitations, must pass the preliminary proposal stage. The only exceptions are LTREB Renewals.

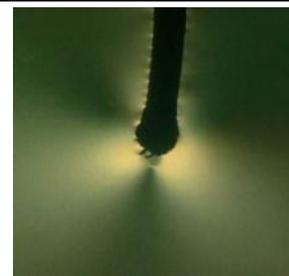
A workshop on the new procedures is scheduled for noon Jan. 4 in Charleston.

Links:

- [IOS Core Programs Solicitation](#)
- [IOS/DEB New Solicitations FAQs](#)
- [BIO Proposal Processing Changes Dear Colleague Letter](#)
- [IOS Core Prog. Solicitation Webinar \(Recorded Streaming\):](#)
- [IOS Core Programs Solicitation Webinar \(Recorded Download\):](#)
- [IOS Core Prog. Webinar Text Transcript](#)
- [IOS Webinar Slides](#)

CAN YOU GUESS WHAT THIS IS?

Go to the **SICB Researchers Database**. This entry by [Kelly Dorgan](#) shows the polychaete *Nereis virens* burrowing in gelatin by crack propagation. Send a photo of some aspect of your research, a title, and a brief description to your divisional secretary for inclusion in the researchers database. Entries appear in the upper left of the home page of SICB.



(Continued from page 12)

Last year, Michele Nishiguchi, Cheryl and I submitted a pre-proposal to NSF for broadening participation. We recently (October) attended a NSF workshop on Broadening Participation and plan to submit a full proposal next March for 5 years at ~\$90K/yr. *I'm still wondering where this will lead? I wonder how much the lack of diversity in professional societies played a role in stimulating this RFP for a Broadening Participation.*

In reflecting backwards, I'm thank-

ful that so many people let me participate in so many exciting events with them. In looking forward, I'm still waiting to see where all these paths will lead, and am excited to see the next steps in the evolution of the GCOB and Broadening Participation with SICB. Our upcoming meeting in Charleston SICB '12 will break all records with 1475 presentations.

Brian Tsukimura

California State University, Fresno



WINGFIELD ON NSF

(Continued from page 1)

In such economic times, obviously we must be prepared for the worst in terms of budget in the Biology Directorate (BIO). Protecting the "core" programs is essential to maintain the innovation, integration and new discoveries in basic biology that come from proposals submitted by individual Principle Investigators and



their students. Aside from this basic challenge, the major issues in BIO include broadening participation and education, especially to the public at large. We must continually work to broaden participation of under-represented groups and retain women in science careers. A recent initiative introduced

by First Lady Michelle Obama and the Director of NSF, Dr. Subra Suresh, addresses policies of the NSF in relation to career/life balance. Education issues in relation to public outreach are also a major focus, at least in BIO, so that the adult public at large, as well as K-12 students and beyond, are aware of the major problems that face society in the next 50 years. Most of these have some biological basis.

2. How do you think the Biology Directorate will evolve over the next few years? Are any new directions planned?

One of the major goals of Director Suresh is to promote "one NSF" and to break down the barriers among the Directorates to promote integrative science on large scales. For BIO this means not only blurring the boundaries between cell and molecu-

lar biology and organismal biology but also broad cooperation with other Directorates. For example, we have initiated a program that nurtures collaboration between BIO and Mathematical and Physical Sciences (MPS) and Engineering (ENG) to promote research in synthetic biology, biophysics, modeling etc. Another developing initiative is Science, Engineering and Education for Sustainability (SEES) that brings together essentially all of the Directorates at NSF. BIO will be in the thick of this, especially through our core programs that fund basic biology related to conservation, bioeconomy, environment and global change, biodiversity and organismal biology – the "glue" that holds such broad integration together.

3. Are there any specific goals that you (JW) would like to accomplish in your new role?

I have two major goals for BIO. First to enable organismal biology that can draw on the full potential of the technologies in the post-genomic era. There are many huge challenges here, not only conceptually as outlined by the National Academy Report but also technologically. For example, "big data" is and will continue to be a major bottleneck for integrative science across the board. For these reasons collaborations of BIO with Computational and Informational Science and Engineering (CISE), MPS and the Office of Cyberinfrastructure (OCI) and other Directorates will attempt to address data intensive and computational intensive sciences in general. The results will make possible scientific collaborations on a scale from molecules to organisms and environment.

Second, we must continue to work hard and come up with new innovations to broaden participation of under-represented groups in BIO and science in general. Retention of these groups, especially women, in the more senior positions in science continues to result in numbers far below

(Continued on page 15)



I feel there is a great need to target the adult generations and educate them about biology relevant to their lives.



WINGFIELD ON NSF — CONT.

(Continued from page 14)

what they should be. This has been a challenge for decades already and we need to take a long and critical look at current practices and how we can change them to make significant progress.

4. *How can we further the Grand Challenges in organismal biology effort through SICB?*

SICB has always been one of the societies that nurtures integrative science on a broad front from microbes and symbioses to vertebrates. It has encouraged symposia that cross boundaries among the Divisions and many exciting new concepts have arisen as a result. However, I think there is a need to do more and to implement the

grand challenges. SICB provides a forum for multi-disciplines to interact under one umbrella, but there is not as much interaction as perhaps there should be. Of course, it is essential to retain the core of the different divisions and maintain focused biological specialties, but it is also critical that each division look more to collaboration with others and foster a community that enables broad integration. How to do this and maintain dialog across broad disciplinary boundaries is a major challenge in itself, but one that SICB is ideally poised to address.

5. *How can we help address the devaluation of science in the larger society - what plans does NSF have to combat this trend?*

We are investing funding and effort into education from K-12 to the

postdoctoral level. This continues to be a major goal so that future generations will have a better understanding of how basic science contributes to society and improves the quality of life. However, we almost entirely neglect the general adult population where devaluation of science has the most impact. Many students can go through college with minimal exposure to biology and thus move on to careers with little

understanding of the biological issues underlying societal problems. I feel there is a great need to target the adult generations and educate them about biology relevant to their lives. Some of us are making important inroads here but a much more concerted and synchronized effort



is needed.

6. *How can SICB assist NSF in promoting both NSF and the value of basic science?*

This question is closely related to number 5, but I can point out how much impact SICB, its Divisions and members can have both with the public and with government at all levels. In my short time at NSF I have been repeatedly surprised by how many SICB members (and those from other societies) still think it is our job (NSF) to lobby congress. As Federal employees we are forbidden to do so and we also cannot ask anyone to lobby for us. NSF can release popular highlights, support general forums for education at all levels and we are working hard to increase the efficacy of such problems. The rest is up to you.