

The American Fisheries Society

Genetics Section Newsletter

Volume 20, Issue 3 August 2007



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President's Message

The annual meeting in San Francisco is fast approaching. I want to remind the section members about an important vote that will transpire at the business meeting. We will finally be voting on much-needed changes to the sections bylaws. You can read the changes in this newsletter or on the section's web page (in the "documents" section at http://www.fisheries.org/units/genetics/). The business meeting will be held on **Sunday**, **September 2 at 3:00 PM** in the Nob Hill "D" room of the San Francisco Marriott and I encourage all section members to attend.

The schedule for the entire meeting is posted on the AFS web page at http://www.fisheries.org/sf/. It looks like there will be many interesting and informative genetics presentations and posters. The section is sponsoring a symposium, organized by section president-elect **Kim Scribner**, entitled "Applications of Landscape Genetics to Fisheries Management in Freshwater and Marine Realms". The symposium will occupy both morning and afternoon sessions on Thursday, September 6. This looks like it will be a very informative symposium dealing with emerging methodologies for placing genetic analyses in context with habitat connectivity, behavior, and scale. I hope to see many of you there.

Sincerely, Ed Heist, AFS Genetics Section President

Genetics Section Member Profile: VCU Ecological Genetics Laboratory

Virginia Commonwealth University

AFS Genetics Section member **Bonnie Brown** has a busy laboratory in historic and beautiful Richmond at Virginia Commonwealth University. Bonnie and her team at the Ecological Genetics Lab are proud of the diverse work that they do. Their

newest project? The EGL is working with Virginia Tech to quantitatively determine the basis for calculating nutrient assimilation credits associated with commercial scale oyster cultivation. Major collaborators on this project include SK Stephenson, D Bosch and L Shabman. However, this is just the latest facet of a multitasking facility. Listed below are the other major efforts including thanks to the many collaborators that make such quality work possible.

Conservation genetics: Recent projects have examined molecular indicators of genetic variation to discern anthropogenic impacts on populations of the endangered blackbanded sunfish (*Eneacanthus chaetodon*), supplemented populations of American shad (*Alosa sapidissima*), and Nile tilapia (*Oreochromis niloticus*). Other studies have documented genetic variation in mammal populations (northern flying squirrel, *Glaucomys sabrinus*, and red-backed vole, *Clethrionomys gapperi*). Major collaborators on these projects include: RJ Dyer, JM Epifanio, TP Gunter, JM Pagels, P Smouse, Y Saad and D Schwab.

Aquaculture genetics: The primary goal of these studies is to promote domestication of aquaculture species (intensify selection without unintentional inbreeding) and appropriate supplementation (maintain high levels of genetic variation). Recent projects have evaluated efficiency of propagation-assisted restoration of American shad (*Alosa sapidissima*), gene mapping and QTL identification in eastern oyster (*Crassostrea virginica*), and gene mapping and QTL identification in yellow perch (*Perca flavescens*). Major collaborators on these projects include: JM Epifanio, TP Gunter, HP Wang and J Waters.

Ecological genetics: Other ecological and evolutionary studies involve use of molecular genetic characters to discern macro- and microevolutionary processes (American shad and other clupeids), to investigate speciation in parasitoids (wasp, *Cotesia congregata*), and to detect and quantify parasites and disease causing organisms in heterogeneous environmental backgrounds (Kudoa and parasitic amoebae on fishes, *Dermo* and MSX in oysters, *Bacillus* in soils, and influenza from environmental isolates). Major collaborators on these projects include: JM Epifanio, GC Garman, TP Gunter, J Jackman, C Keeler, KM Kester and W Watson.

Aquaculture: Performance evaluation of fishes and pre-domestic strains of oysters in local environments has been a focus since 1992. Major collaborators on these project include: AJ Butt, D Meritt, S Newton and KT Paynter.

Services to the industry and government: The EGL provides a number of services including genetic mixed stock analysis for estimating harvest composition, genetic biodiversity assessment, and ploidy analysis by flow cytometry for adult and larval fish and shellfish (grass carp, black carp, striped bass and oysters).

If you would like to learn more about the VCU Ecological Genetics Lab, visit their website at http://www.has.vcu.edu/bio/faculty/blbrown/ or send an email to Dr. Bonnie Brown at blbrown@vcu.edu.

A Public Symposium

Six decades of fishery genetics: A retrospective view and a vision for the future

17-18 September 2007; Seattle Washington USA

Sponsored by:
NOAA's Northwest Fisheries Science Center
School of Aquatic and Fishery Sciences, University of Washington

Background

In the 1960s the advent of protein electrophoresis revolutionized the fields of genetics and evolutionary biology, and Dr. Fred Utter, with his team of scientists at the Montlake Laboratory (current headquarters of Northwest Fisheries Science Center), were among the first to adopt these methods for application to natural fish populations for conservation and management. These new methods were used to provide fresh insight into questions such as "How many stocks exist?" and "How can we tell the different stocks apart?", which have been central problems for fishery management for the past century. Dr. Utter also developed a strong relationship with the University of Washington School of Fisheries (now the School of Aquatic and Fishery Sciences) that enabled many students to gain experience with and be trained in the use of genetics and evolutionary biology as applied to fisheries management issues. Many of these students are now prominent figures in the field. The late 1980s and 1990s saw the rapid development of DNA techniques, which initially supplemented and now have largely replaced protein electrophoresis as a fishery management tool. In addition to bringing greater power of resolution and the capability of non-lethal sampling to traditional fishery genetics guestions, DNA methods have opened up a vast new range of applications in modern marine biology—from ecosystem assessment and ocean observation to seafood safety.

NOAA scientists and academic colleagues from the University of Washington and other institutions have played a major role in development and use of genetics and molecular biology to address key questions in fishery management. To build on that legacy, we are sponsoring a Symposium, dedicated to Fred Utter and his six decades of contributions to fishery genetics, that will be both retrospective (reviewing applications up to the present day) and prospective (looking ahead to new developments in the next decade).

The Symposium

The two-day symposium will be held at the Museum of History and Industry, a 5-minute walk from the NWFSC and the University of Washington in Seattle. The symposium will trace the history of advances in the fields of genetics, biotechnology and evolutionary biology and will feature three major themes: 1) An historical perspective on development of the field; 2) As assessment of the current state of the art in applying genetic methods to fishery management; 3) Prospects for the future. Major topics covered during the meeting include stock and species identification, mixed-stock fishery analysis, forensics, ecological genetics, hatchery-

wild interactions, aquaculture, environmental effects, health and physiology, microbial pathogens, and future applications of molecular tools and approaches to fisheries and ecosystem assessment. Confirmed speakers include leading scientists from Europe, Asia and North America. A poster session will provide an opportunity for participants to view the wide range of applications of genetic methodology to real-world problems of fishery management relevance. We expect the audience will include academic and agency scientists and managers doing research on (or interested in) genetics, fisheries and ecosystem management, population dynamics, ecology, stock structure, aquaculture, marine enhancement, fish physiology, and microbiology.

The molecular revolution in biology is just getting underway – changing how we conduct research and opening new approaches and tools for management of natural marine resources and large marine ecosystems. The increasing capacity and reduced costs for high-throughput DNA sequencing, comparative genomics, detecting changes in gene expression, and bioinformatics is fueling rapid changes in marine science. A key goal of the final part of the Symposium will be to bring together visionaries in two fields: those with knowledge about technology with a good sense for future developments, and those with the ability to envision how new technologies can be used to address practical questions in applied fishery management.

Graduate Students Wanted for Lake Sturgeon Studies

I will be recruiting 1 or 2 new graduate students to work on a long-term ecological and genetics study of **lake sturgeon on the Black River** in the northern lower peninsula of Michigan. Students will participate in on-going research focusing on the evolution of early larval life history traits associated with environmental variables linked to adult spawning time, estimates of inter-annual reproductive success related to adult phenotype and environmental variables, and genealogical and environmental components to juvenile survival and growth in stream and experimental settings.

Interested students can direct inquiries to the contact address below. Correspondence should include a brief statement of professional interests and goals, information on past field and laboratory experience as well as general background on grades and GRE scores. Michigan State University is an affirmative action, equal opportunity employer.

Sincerely, Kim Scribner

Please Contact: Kim T. Scribner, Professor, Department of Fisheries & Wildlife and Department of Zoology, 13 Natural Resources Building, Michigan State University, East Lansing, Michigan 48824-1222

Tel: (517)-353-3288 (office), (517)-432-4935 (lab), Email: scribne3@msu.edu, website: http://www.fw.msu.edu/people/ScribnerKim/index.htm.

A Symposium Announcement from AFS:

Tag2008 Symposium in New Zealand

The American Fisheries Society, the Australian Society for Fish Biology, and the New Zealand Marine Sciences Society are pleased to announce **Advances in Tagging and Marking Technology for Fisheries Management and Research**, to be held in Auckland, New Zealand, February 24-28, 2008. Abstract submission and registration are available now at our website, www.fisheries.org/units/tag2008, (abstract submission deadline is **31 October**) or feel free to contact brad.parsons@dnr.state.mn.us with questions. Also, please read our "Guest Director's Line" in the June issue of *Fisheries*.

The sessions for Advances in Tagging and Marking Technology for Fisheries Management and Research will include: satellite tags, archival tags, acoustic tags and arrays, radio telemetry, new methods utilizing traditional internal and external tags, chemical and genetic marks, various integrated approaches, and data analysis techniques. It is the hope that discussions held at this symposium will be the impetus for even greater advances in tagging for fisheries science. Furthermore, he proceedings of this new Symposium will provide the next step beyond Fish Marking Techniques, and the proceedings from the Australian Society for Fish Biology Tagging Workshop in 1988 and Workshop on Fish Movement and Migration in 1999, into this century's methods, technologies, advances, and challenges.

We look forward to seeing you in New Zealand!

Sincerely, Brad Parsons, Tag2008 Steering Committee

For Your Consideration:

Ethics and Fish Conservation Research

AFS Genetics Section member **Jeff Hard** passed on an interesting citation to me the other day. Two researchers from Michigan have published "What are 60 warblers worth? Killing in the name of conservation" in the latest issue of *Oikos*. The authors, John Vucetich and Michael Nelson, examine the arguments published in that journal surrounding a bird ecology study involving lethal sampling. The study's investigators and their detractors both make ethical arguments concerning when lethal sampling methods are justified in science, and especially, conservation. Vucetich and Nelson propose that all parties made serious errors in logic.

Some interesting quotes from this paper:

"On a per journal basis, [the Journal of the American Medical Association] alone publishes papers about ethics at a rate that is two orders of magnitude greater than [eleven top] ecology/conservation journals...In contrast to JAMA, conservation scientists seem to signal...that the moral dimensions of their work are not worth much discussion because they are insignificant, intractable, or obviously settled." (p. 1268)

"Peer-review does not ensure the ethical appropriateness of the research; in the same way that it does not ensure scientific quality. Researchers that regularly produce research of the highest scientific quality do not, we suspect, primarily gauge the quality of their own work by asking themselves whether or not it will merely pass peer-review." p. 1269.

Thanks again to **Jeff Hard** for bringing up this topic. I welcome any submissions to the next AFS-GS newsletter regarding ethical considerations in our work. As geneticists, the possiblity of non-invasive sampling is more attainable than for many other branches of fisheries science. Submissions on this topic can be sent to me at jcarlin@gustavus.edu. The full citation for the article (available here) is:

Vucetich J. A. and M. P. Nelson, 2007. What are 60 warblers worth? Killing in the name of conservation. Oikos 116: 1267-1278.

Sincerely, Joel L. Carlin, AFS Genetics Newsletter Editor

Proposed Revisions to AFS-Genetics Section Bylaws

[Additions are in **BOLD CAPS**, deletions are in **Strikethrough**. - Editor]

Bylaws of the Genetics Section of the American Fisheries Society

Section 1: Name and Objectives

The name of this organisation shall be the GENETICS SECTION, hereafter referred to as the Section, of the American Fisheries Society, HEREINAFTER REFERRED TO AS THE SECTION AND SOCIETY RESPECTIVELY, as provided for by the Constitution and the Bylaws of the Society.

The objectives of the Genetics Section are to:

- (a) Develop and maintain an association of individuals interested in all aspects of the genetics of aquatic organisms.
- (b) Provide a forum for genetics information transfer among researchers, managers, and administrators.
- (c) Promote coordinated interactions among Regional/State/Provincial committees or groups concerned with the genetics of aquatic organisms.
- (d) Facilitate the organization, standardization, and integration of research on the genetics of aquatic organisms among the various States and Provinces.
- (e) Formulate AFS policies to help States and Provinces address conservation issues and promote the conservation of our native aquatic communities.

Section II: Membership

Membership in the Genetics Section of the American Fisheries Society shall be composed of Society members in good standing who apply for membership after payment of annual dues.

Section III: Officers

The Officers of the Section shall be the President, President-Elect, and Secretary-Treasurer. All officers shall be elected for a term of two years, or until a successor is elected. The terms of office for all officers shall run concurrently. The President-Elect shall, upon completion of his/her term, accede to the Presidency. Officers shall serve without salary or other compensations for their services.

- (a) Candidates for the office of Secretary-Treasurer and President-Elect will be nominated by the Nominating Committee. Mail **OR ELECTRONIC** balloting will be completed 30 days before alternating Section business meetings, and the Officers shall be elected by a majority of the returned ballots and will be announced and installed at the Section business meeting.
- (b) In the event of a vacated position, except the President's, the Executive Committee shall, by majority vote, appoint a qualified replacement for the unexpired term. If the President's position is vacated, the President-Elect shall perform the duties of the President for the remainder of the President's term.

Section IV: Duties of Officers

- (a) The President shall chair the Executive Committee and shall preside at the annual business meeting of the Section, appoint all committees, and serve as an Ex-Officio member of these committees. The President shall represent the Section and perform other duties and functions as authorized and necessary. **PROCEED TO THE OFFICE OF PAST-PRESIDENT AT THE END OF THE TERM.**
- (b) The President-Elect shall perform the duties of the President in the absence of the President, and assume those duties in the event the office is vacated for any reason. The President-Elect will ensure that Section Bylaws are not violated in the course of Section activities, and will chair a Section Bylaws Committee. The President-Elect will ensure that at least a semi-annual newsletter is distributed. **ADVANCE TO THE OFFICE OF PRESIDENT AT THE END OF THE TERM.**
- (c) The Secretary-Treasurer shall maintain a current list of membership, receive all funds, pay all bills, keep an itemized account of all receipts and disbursements, present a semi-annual report to the Section's Executive Committee and an annual report to the membership. He/she shall submit a report to the Executive Director of the Society within 30 days after the annual business meeting of the Section is held, and at other times as requested by the Governing Board of the Society.
- (D) THE IMMEDIATE PAST-PRESIDENT SHALL SERVE ON THE EXECUTIVE COMMITTEE; SERVE AS THE CHAIR OF THE NOMINATING COMMITTEE; AND ASSIST THE OTHER OFFICERS AS NEEDED.

Section V: Executive Committee

The Executive Committee shall consist of the current officers of the Section, the immediate Past President, the chairs of any standing committees, and the permanent newsletter Editor

as a nonvoting member. THOSE WITH VOTING PRIVILEGES SHALL BE THE PRESIDENT, PRESIDENT-ELECT, IMMEDIATE PAST PRESIDENT AND SECRETARY-TREASURER.

A quorum is required for transaction of official business at an Executive Committee meeting. A quorum for an Executive Committee meeting shall consist of three of the four members. Executive Committee members can appoint a proxy.

The Executive Committee shall have the authority to determine policies and conduct business consistent with the objectives of the Section. Meetings of the Executive Committee may be held at the call of the President when a majority of the committee members can meet and conduct business. Business and voting by the Executive Committee may be conducted by mail **OR ELECTRONIC MEANS**.

The Executive Committee shall be in charge of producing the newsletter with the President-Elect as the editor, if no permanent Newsletter Editor is available. At least two newsletters will be published each calendar year and **DISTRIBUTED** to all members of the Section, all Society Newsletter Editors, State and Provincial Fisheries Chiefs, and the home office of the Society.

Section VI: Standing Committees

The Section will have various standing committees that will function to support the activities of the Section as a whole and the Society in general. Each Standing Committee will be comprised of a chair and two members at large from the Section.

- (a) Nominating Committee: The Nominating Committee will be chaired by the immediate Past-President and will present a slate of candidates for the office of President-Elect and Secretary-Treasurer to the general membership to be voted on by mail or electronic ballot before the annual meeting. Two candidates will be nominated for each office. The chair will also receive and tally the ballots.
- (b) Program Committee: The Program Committee will be chaired by the President-Elect and will solicit and sponsor an annual program, symposium, or workshop to be held during the Society's annual meeting.

Section VII: Annual Business Meeting

An annual business meeting of the Section will be held during the annual AFS meeting, These meetings shall be to conduct Section business in accordance with the Bylaws of the Society. The President shall preside over the business meeting. The Secretary-Treasurer shall take minutes and provide an annual report to the Society Executive Director within 30 days after the annual business meeting of the Section.

Section VIII: Voting and Quorum

Decisions at business meetings of the Section shall be in accordance with the Constitution of the Society. A quorum at business meetings IS REQUIRED FOR TRANSACTION OF OFFICIAL BUSINESS AND shall be 15 10 members of the Section.

BUSINESS AND VOTING MAY BE CONDUCTED VIA MAIL OR ELECTRONIC MEDIA, IF APPROVED BY THE EXECUTIVE COMMITTEE.

UNLESS OTHERWISE SPECIFIED IN THESE BYLAWS OR THE CONSTITUTION OF

THE SOCIETY, BUSINESS SHALL BE CONDUCTED ACCORDING TO THE LATEST EDITION OF ROBERT'S RULES OF ORDER.

Section IX: Fees

The Executive Committee may assess members of the Section a membership fee as provided by the Constitution and Bylaws of the Society. The annual membership fee shall be determined by the Executive Committee.

Section X: Amendment of Bylaws

- 1. THE BYLAWS ARE THE DEFINING DOCUMENT FOR THE UNIT AND TAKE PRECEDENCE OVER ALL OTHER RULES AND PROCEDURES OF THE UNIT. THE BYLAWS CANNOT BE SUSPENDED AND CANNOT BE CHANGED WITHOUT PRIOR NOTICE TO MEMBERS.
- A. THE BYLAWS MAY BE AMENDED BY A 2/3 MAJORITY OF ACTIVE MEMBERS CHOOSING TO VOTE, PROVIDED THAT THE PROPOSED AMENDMENT(S) ARE CIRCULATED IN WRITING TO THE MEMBERSHIP AT LEAST 30 DAYS PRIOR TO VOTING.
- B. IN ACCORDANCE WITH THE SOCIETY CONSTITUTION, AN ADOPTED AMENDMENT SHALL BE REVIEWED BY THE SOCIETY'S CONSTITUTIONAL CONSULTANT FOR CONFORMITY WITH THE CONSTITUTION, RULES AND PROCEDURES OF THE SOCIETY. THE CONSTITUTIONAL CONSULTANT PRESENTS THE ADOPTED AMENDMENT TO THE SOCIETY GOVERNING BOARD FOR APPROVAL.
- C. AMENDMENTS TAKE EFFECT WHEN THE UNIT RECEIVES WRITTEN NOTICE OF THEIR APPROVAL BY THE GOVERNING BOARD FROM THE EXECUTIVE DIRECTOR.
- 2. RULES ARE THE NEXT HIGHEST LEVEL OF DOCUMENTATION OF UNIT OPERATIONS. THEY ARE GENERALLY ESTABLISHED TO FACILITATE THE CONDUCT OF UNIT BUSINESS, AND TO DESCRIBE DUTIES AND RESPONSIBILITIES OF OFFICERS AND COMMITTEES. THEY MAY BE SUSPENDED OR AMENDED AS FOLLOWS.
 - A. THE RULES MAY BE SUSPENDED DURING AN EXECUTIVE COMMITTEE MEETING UNTIL THE NEXT ANNUAL OR SPECIAL UNIT MEETING BY A 2/3 MAJORITY OF THE EXECUTIVE COMMITTEE.
 - B. THE RULES MAY BE SUSPENDED FOR THE DURATION OF A MEETING BY A 2/3 MAJORITY OF ACTIVE MEMBERS VOTING AT AN ANNUAL OR SPECIAL UNIT MEETING.
 - C. THE RULES MAY BE AMENDED BY A SIMPLE MAJORITY OF ACTIVE MEMBERS VOTING AT AN ANNUAL OR SPECIAL UNIT MEETING.
- 3. PROCEDURES ARE THE LOWEST LEVEL OF DOCUMENTATION OF UNIT OPERATIONS. THEY ARE GENERALLY ESTABLISHED TO PROVIDE CONTINUITY IN THE CONDUCT OF UNIT BUSINESS. THE PROCEDURES MAY BE SUSPENDED OR AMENDED BY A SIMPLE MAJORITY VOTE OF THE EXECUTIVE COMMITTEE.

The Bylaws of the Section may be amended by mailed ballot and approved by the Society Governing Board in accordance with the Constitution and Bylaws of the Society.

Wanted: Your News Items

Are you meeting on microsatellites? Conferencing for cobia? Publishing on perch? Just email me, the newsletter editor, at jcarlin@gustavus.edu if you would like to advertise / describe / shamelessly plug something. Submissions for the November newsletter are due **October 24**. A week early, cuz I gotsta work on my costume!

Sincerely, Joel Carlin, Newsletter Editor

Calendar of Upcoming Events

August 2007

- Aug 19-24 The 3rd International Conference on **Quantitative Genetics**. Yellow Dragon Hotel, Hanzhou, China. See www.icqg.org.
- Aug 31 Registration deadline for Annual Meeting of **ICES**, the International Council for the Exploration of the Sea. Sep 17-21, Marina Congress Center, Helsinki, Finland. See www.ices.dk/iceswork/asc/2007/index.asp.

September 2007

- Sep 1 Registration deadline for **SEEPAGE 2007**: the Southeastern Population Ecology and Evolutionary Genetics conference. To be held 21-23 Sep at Great Smoky Mountains Institute, Tremont TN. See web.utk.edu/~bfitzpa1/seepage.html.
- Sep 2 Annual Business Meeting for the AFS Genetics Section. 3:00 PM in the Nob Hill "D" room, Marriott Hotel, San Francisco. View the bylaw revisions in this issue, or at http://www.fisheries.org/units/genetics/.
- Sep 2-6 137th Annual Meeting of the American Fisheries Society. Marriott Hotel, San Francisco. See www.fisheries.org/sf/. Don't miss the AFS-GS symposium "Applications of Landscape Genetics to Fisheries Management in Freshwater and Marine Realms" in both morning and afternoon sessions on Thursday, September 6.
- Sep 7 Abstract deadline for annual meeting of **SICB**: the Society for Integrative and Comparative Biology. To be held Jan 2-6 2008 at Gonzalez Convention Center, San Antonio TX. See http://www.sicb.org/meetings/2008/.
- Sep 9 "3-month Warning": Three months until the Jan 9 2008 full Proposal deadlines for **National Science Foundation** grants in Population and

- Evolutionary Processes, Revisionary Syntheses in Systematics, Systematic Biology, Ecological Biology, Ecosystem Science, Long Term Research in Environmental Biology. See www.nsf.gov.
- Sep 11-15 **Fish Stock Assessment Methods** for Lakes and Reservoirs Conference: Towards the True Picture of Fish Stock. Ceske Budejovice, Czech Republic. See www.fsamlr2007.czweb.org.
- Sep 16-19 **Wild Trout IX**. West Yellowstone Holiday Inn, West Yellowstone, MT. See www.wildtroutsymposium.com/.
- Sep 16-21—Association of Fish and Wildlife Agencies, Louisville, Kentucky. See www.fishwildlife.org/annualmeet.html.
- Sep 17-18 Symposium "Six decades of **Fishery Genetics**: a retrospective view and vision for the future." Museum of History and Industry, Seattle WA. See www.regonline.com/sixdecades.
- Sep 17-21 Annual Meeting of **ICES**, the International Council for the Exploration of the Sea. Marina Congress Center, Helsinki, Finland. See www.ices.dk/iceswork/asc/2007/index.asp.
- Sep 21-23 **SEEPAGE 2007**: the Southeastern Population Ecology and Evolutionary Genetics conference. Great Smoky Mountains Institute, Tremont TN. See web.utk.edu/~bfitzpa1/seepage.html.
- Sep 27-29 **ConGen3**: the third biannual International Symposium on Conservation Genetics. American Museum of Natural History, New York NY. http://genomics.amnh.org/congen3.

October 2007

- Oct 1 Application deadline for NOAA Saltonstall-Kennedy **S-K Grant Program**. See http://www.nmfs.noaa.gov/mb/financial_services/skhome.htm.
- Oct 5-6 Symposium on the Theory of **Island Biogeography** at 40: Impacts and Prospects. Harvard University, Cambridge MA. See http://www.mcz.harvard.edu/events/island_biogeography/.
- Oct 9-12—International Symposium: **Wild Trout IX**, West Yellowstone, MT. See www.wildtroutsymposium.com/.
- Oct 15 Sigma Xi **Grants-in-Aid of Research** application deadline for undergrad and graduate students. See www.sigmaxi.org/programs/giar/index.shtml.
- Oct 15-17 **Aquaculture America 2008**, Lake Buena Vista FL. See www.sustainableaquaculture.org.
- Oct 21-24 **SeAFWA**, the Southeastern Association of Fish and Wildlife Agencies Annual Meeting, Charleston, WV. See www.seafwa2007.org.
- Oct 23 Deadline for Fall 2008 Environmental Protection Agency Science to Achieve Results **STAR fellowships** for graduate environmental study. See http://es.epa.gov/ncer/rfa/2008/2008_star_fellow.html.

Oct 24 — Submission deadline for the November **AFS Genetics Newsletter**. Email the editor at jcarlin@gustavus.edu.

November 2007

- Nov 4-8 **ERF 2007**: Estuarine Research Federation Meeting: Science and Management Observations/Synthesis/Solution, Providence, Rhode Island. See http://erf.org.
- Nov 16 Full Proposal deadlines for **National Science Foundation** DDIG Doctoral Dissertation Improvement Grants. See www.nsf.gov.
- Nov 16-19 International conference for **Computational Phylogenetics and Molecular Systematics**. Moscow State University, Moscow Russia. See http://www.smbe.org/downloads/CPMS_1007.pdf.
- Nov 30 Early registration for annual meeting of **SICB**: the Society for Integrative and Comparative Biology. To be held Jan 2-6, 2008, at Gonzalez Convention Center, San Antonio TX. See http://www.sicb.org/meetings/2008/.

Dec '07 / Jan '08

- Dec 9-12 68th **Midwest Fish and Wildlife** conference. Madison WI. See www.midwest.ncd-as.org.
- Dec 17-20 **PopGroup '07**, the annual meeting of the Population Genetics Group. University of Warwick conference center, Warwick UK. See http://www.popgroup.org.
- Jan 2-6— Annual meeting of **SICB**: the Society for Integrative and Comparative Biology. Gonzalez Convention Center, San Antonio TX. See http://www.sicb.org/meetings/2008/.
- Jan 9 Full Proposal deadlines for National Science Foundation grants in Population and Evolutionary Processes, Revisionary Syntheses in Systematics, Systematic Biology, Ecological Biology, Ecosystem Science, Long Term Research in Environmental Biology. See www.nsf.gov.

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