



The American Fisheries Society Genetics Section Newsletter

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In this issue:

Feature Article
Page 1

Contributed Articles
Page 2

Section Business
Page 3

Comics
Page 4

Announcements
Page 5

Section Officers and
Committees
Page 5

Calendar
Page 6

Symposia and
Workshops
Page 6

Jobs
Page 7

Comments from the
newsletter editor
Page 7

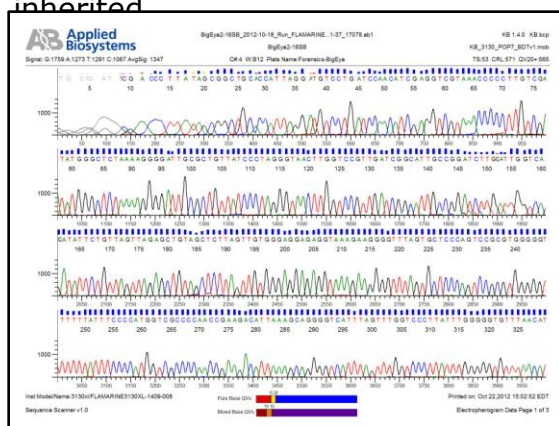
Eye of the tiger? Not this time

When a giant (softball-sized) eyeball washed ashore in Pompano Beach, Florida and went 'viral' on *You-Tube*, numerous and diverse hypotheses were offered by expert biologists and university professors as to the origin of the eye 'donor'. Offerings that gained the most traction were giant squid, bigeye thresher shark, and any of the billfishes. While it can be fun to speculate, in cases when only a part of an animal is recovered, species identification by visual inspection can be difficult.



Picture of giant eyeball taken by Lauren Connor.

A definitive identity can really only be achieved by a forensic analysis such as DNA sequencing. Such procedures, although highly technical, are now common in many labs, including the Genetic Research and Monitoring Laboratory at the Florida Fish and Wildlife Research Institute (FWRI). DNA 'barcoding' is now a standard method for species identification in resource management and regulatory enforcement following large-scale and successful efforts to obtain reference gene sequences for nearly all of the 20,000 marine and 15,000 fresh-water fish species. After extracting DNA from a small tissue sample of the giant eyeball, FWRI geneticists sequenced gene regions (mtDNA 16S and COI and nDNA S7), which were then visualized on an Applied Biosystems Prism™ 3130-Avant Genetic Analyzer. Comparison of the maternally inherited



Chromatogram from giant eyeball sample.

16S and COI sequences to those deposited in NCBI GenBank (<http://www.ncbi.nlm.nih.gov/>) provided a 100% match to *Xiphias gladius* (swordfish), a migratory visitor to the Florida Atlantic coast. The bi-parentally inherited S7 gene sequence confirmed that the specimen was not a hybrid. *Contributed by Dr. Seyoum of FWRI.*

Contributed Articles

2012 Phelps Award Recipient

The recipient of the 2012 Stevan Phelps Award is a paper summarizing a novel mixture model that utilizes information on the genetic composition of potential source populations to estimate phenotypic (non-genetic) traits of source populations (Bromaghin et al. 2011). The new model yields maximum likelihood estimates of phenotypic traits without assigning individuals to their most likely population of origin, thereby avoiding error in individual assignment. Another important advantage that estimation is based on a single sample from a mixture of multiple populations, as it is often difficult and costly to sample individual populations when they are segregated. The model leverages existing genetic baseline data to expand the utility of genetics in fish and wildlife research. An example of the model's utility using data on Yukon River Chinook salmon fecundity revealed new insights into constraints on reproductive investment strategies imposed by

arduous migrations that have important implications for fishery conservation and management. The authors of the paper are Jeffrey F. Bromaghin, research statistician with the U. S. Geological Survey; Alaska Science Center; Danielle F. Evenson, formerly fishery biologist with the Alaska Department of Fish and Game, currently with R2 Resource Consultants, and soon-to-be fisheries scientist with the Alaska Department of Fish and Game, Anchorage, Alaska; Thomas H. McLain, retired fishery biologist with the U. S. Fish and Wildlife Service, Fairbanks, Alaska; and Blair G. Flannery, geneticist with the U. S. Fish and Wildlife Service, Conservation Genetics Laboratory, Anchorage, Alaska. *Contributed by Jeffrey Bromaghin, USGS.*

Bromaghin, J. F., D. F. Evenson, T. H. McLain, and B. G. Flannery. 2011. Using a genetic mixture model to study phenotypic traits: Differential fecundity among Yukon River Chinook salmon. *Transactions of the American Fisheries Society* 140:235-349.

Contributed articles

2012 James E. Wright Recipient

Joy Young, a Ph.D. candidate from Florida Atlantic University was the 2012 recipient of the James E. Wright award at the American Fisheries Society (AFS) meeting in St Paul, Minnesota this past August. Joy has been involved with AFS at the state and regional level serving as the student representative for the southern division of AFS and volunteering for the Florida chapter raffle. In addition to attending graduate school, Joy works full-time as a fish biologist for the Florida Fish and Wildlife Research Institute/ Florida Fish and Wildlife Conservation Commission.

The award was used to fund travel home her home city of Jupiter, Florida to the AFS meeting where she gave an oral presentation on her graduate work. The objective of her research is to establish the relationship of Major Histocompatibility gene variability, parasitism and reproduction in fish, with the

goal of applying this research in egg production models used for stock assessments. Studies have shown that reproductive output and success is affected by disease; and certain genes affect susceptibility and resistance to disease. However, these elements have never been examined together in one species. Establishing and testing the relationship of genetic variation, disease and egg production will make a valuable contribution toward reducing uncertainty in stock assessments.



Bill Templin presented the James W. Wright award to Joy Young at the 2012 AFS meeting in Minnesota.

Section Business

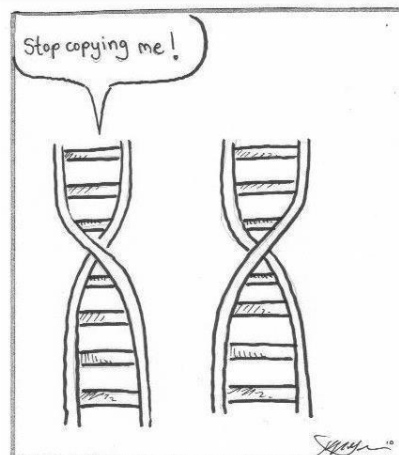
**AFS Genetics Section
2012 Annual Business Meeting Minutes
August 20, 2012
St. Paul, Minnesota**

1. Call to order at 17:55 by Bill Templin-Quorum (16 members, 2 non-members in attendance)
2. Approval of 2011 minutes- Scribner; President Templin made motion to suspend Robert's rules of order for remainder of meeting. Carried by Dave Philipp.
3. President's Report
 - a. Bill Templin attended the Governing Board retreat. The attendees heard the report from the consultant who had been engaged to evaluate the current management and overall health of the AFS. The AFS is generally in good health; its strengths are: good quality publications, membership offers plenty of added value (e.g., meetings), generally stable membership, and a good history and reputation. Areas for improvement include: adopting technology for communication and using it to communicate with members (e.g., meetings, job opportunities), member services could be improved, the governance structure is too complex, and there may be too many units and specialized groups. Gus Rassam is due to retire soon and the search for a new executive has started. Motions passed: to add gender and ethnicity to membership forms, members can now apply to be a journal editor in addition to being nominated. Approved resolutions on presence of lead in fishing tackle and forwarded them to state and local government agencies. If possible, sections should consider making funds available for meeting in Mazatlán, Mexico (genetics section does not have funds for this).
 - b. Section activities
 - i. Section sponsored student to coastal salmon workshop at UC Davis.
 - ii. Need to advance technology and communications (e.g., Facebook, listserve)
4. Treasurer's Report-Our balance is \$4,759.11 (see report attached to agenda)
5. New officer elections: Jeff Olsen (Pres-Elect); Wendy Stott (Sec/Treas)
6. Committees
 - a. Standing
 - i. Nominations-Nothing to report
 - ii. Program- Numerous genetics talks and a couple of symposia (general genetics, Atlantic salmon, genetics in the Great Lakes) at the 2012 meeting. The 2nd annual genetics section social is on Tuesday and is sponsored in part by Fluidigm.
 - b. Ad-Hoc
 - i. Newsletter-Joel Carlin has retired as newsletter editor and a volunteer is needed to replace him. Dave Baisch and Joy Young are considering the job.
 - ii. Membership- Membership is good at around 227, but this is down a little from previous years. Try to recruit members whenever you can.
 - iii. Wright Travel Award-A new volunteer is needed to organize this award. Amy Welsh volunteered to head the committee and Andrea Schreier (UC-Davis) and Carol Stepien (UToledo) volunteered to be on the committee. There were 10 applicants this year. Awards to Joy Young (Florida Atlantic U) and Marissa Jones (U Washington)

Section Business

- a. Ad-Hoc continued
 - iv. iv. Phelps Award-A new volunteer is needed to organize this committee. Award to Jeffrey F. Bromaghin, Danielle F. Evenson, Thomas H. McLain and Blair G. Flannery for their paper "Using a Genetic Mixture Model to Study Phenotypic Traits: Differential Fecundity among Yukon River Chinook Salmon" in Transactions of the American Fisheries Society 140:235-249.
 - v. Website-Volunteers still needed to develop and post a brochure for the section. Andrew Whiteley volunteered to maintain Fishgendir list serve. AFS is restructuring web site and support.
 - vi. Education- no report
 - vii. Resolutions-no report
7. Old business
 - a. Propagated Fish in Resource Management (PFIRM). Out representative, Kim Scribner, reported that the genetics section worked with the aquaculture section to develop a committee for PFIRM II. There will be a symposium sponsored by participating sections in the first year (likely at AFS 2013), followed by a work shop in the second year, along with a publication.
 - b. Our proposal to establish a Genetics Section Hall of Excellence was approved by the governing board.
8. New business
 - a. Looking for volunteers to help Jeff Olsen with genetics symposium and social at the 2013 meeting. It would be helpful to have some volunteers who live in the area.
 - b. Are there other meetings for which we could give support to students?
 - c. Now that we have a Genetics Section Hall of Excellence, we need a section member to volunteer to co-ordinate nominations and election of the inaugural member(s) in time for the 2013 meeting. The announcement could possibly be combined with the section social.
 - d. The black bass diversity symposium at the regional meeting has requested support from the section, through monetary contributions and/or papers. Meredith Bartron will be our lead representative.
 - e. We are encouraged to consider submitting short (around 500 words) articles to Fisheries. Marissa Jones has volunteered to coordinate ideas and submissions.
9. Announcements-Meredith Bartron was announced as the new section president *in absentia*. She is also a new mother.
10. Adjournment- 18:40

Comic



Announcements

Genetics Section Listserve

The Genetics Section has a new way to share information. A newly created listserv, called Fishgendir, is now hosted by the parent society and available to all Section members. This is a moderated list (so no SPAM will get through) and for now only Genetics Section members can sign up. The list will provide an easy way for all of us to share information (in addition to this newsletter, of course). Please post information about jobs, graduate or post-doc opportunities, new software, etc. Also, feel free to post questions about running software or labwork-related issues (e.g. PCR, DNA preservation, SNP assays). Also, look for announcements about Genetics Section-specific awards (e.g. the James E. Wright Award), meetings (e.g. The Coastwide Salmonid Genetics Meeting), or other Section news.

It is our hope that this list becomes our own internal version of Evoldir but for a smaller community of those of us working on fish-specific problems. We hope that this tighter and more focused community (100's of subscribers instead of 1000's) will create an

environment where people involved in fish genetics (PI's, postdocs, grad students, undergrads, etc.) will feel comfortable posting messages.

The list is set up to be "bulletin board" in nature (think Evoldir, if you reply to a post it only goes to the original author of the post) rather than a "discussion" (think ECOLOG, where responses to posts are directed to the entire list). If you do post a query, we hope that you will post collected answers to the entire list. If you respond to a posted question, your response might therefore be shared with the rest of the community.

If you are an active Section member, you have been signed up. You can manage your account (including the option to unsubscribe) at: <http://lists.fisheries.org/listinfo.cgi/fishgendir-fisheries.org>. To post a message, send your email to: fishgendir@lists.fisheries.org. You can set options to receive emails of posts daily or in digests. Direct questions and comments about the list itself to Andrew Whiteley, the current list moderator (awhiteley at eco.umass.edu). *Contributed by Andrew Whiteley.*

Section Officers, Committees and Representatives

President

Meredith Bartron

Meredith_Bartron@fws.gov

President Elect

Jeff Olsen

Jeffrey_Olsen@fws.gov

Secretary/Treasurer

Wendylee Stott

wstott@usgs.gov

Newsletter Editor(s)

Joy Young

Joy.Young@MyFWC.com

Committees

Hall of Excellence
Jeff Olsen

James Wright Award
Amy Welsh
Andrea Schreier
Carol Stepien

Listerve
Andrew Whitely

Stevan Phelps Award
????

Website
????

Representatives

PFIRM
Kim Scribner

Black Bass Symposium
Meredith Bartron

Fisheries
Marissa Jones

What are those question marks? Your opportunity to volunteer!!!

Calendar

November 2012

13th-27th *Application due.* Fall 2013 NSF Graduate Research Fellowship Program (GRFP)

27th *Application due.* Fall 2013 EPA Science to Achieve results (STAR) Fellowships for Graduate Environmental Study

30th *Abstract due.* Southern Division of the American Fisheries Society (SDAFS) meeting

January 2013

3rd-7th *Meeting.* The Society for Integrative and Comparative Biology. San Francisco, California.

11th *Symposia due.* Annual American Fisheries Society (AFS) meeting. Theme: Preparing for the Challenges Ahead

15th *Application due.* Graduate Women in Science Fellowship

20th *Application due.* NOAA Sea Grant Joint Graduate Fellowship in Population Dynamics

February 2013

7th-10th *Meeting.* SDAFS meeting in Nashville, Tennessee.

18th-22nd *Meeting.* Federation of European Biological Systematic Societies in Vienna, Austria. Theme: Evolutionary Epigenetics

March 2013

1st *Application due.* American Society of Ichthyologists and Herpetologists (ASIH) Raney Fund Award

15th *Application due.* Sigma Xi Grants-In-Aid of Research

15th *Abstract due.* Annual AFS meeting.

30th *Abstract due.* American Society of Ichthyologists and Herpetologists (ASIH) meeting

April 2013

1st *Application due.* American Fisheries Society J. Frances Allen Fellowship

On the radar

10th-15th July, 2013 *Meeting.* ASIH meeting in Albuquerque, New Mexico.

8th-12th September 2013 *Meeting.* Annual AFS meeting in Little Rock, Arkansas.

July 2014 *Meeting.* International Society of Animal Genetics (ISAG) in Xi'an, China.

Symposia

Population Genetics as Applied in Fisheries Management and Conservation (SDAFS meeting)

February 8, 2013; 8 am-12 pm . Sheraton Downtown Hotel, Nashville, Tennessee.

The bulk of the session will discuss practical applications of population genetics within fisheries, including definition of management units, evolutionarily significant units, and genetically cognizant hatchery and stocking guidelines. For more information visit <http://www.sdafs.org/meetings/2013/workshops.html>.

Population and Conservation Genomics Workshop

(Plant and Animal Genome XXI International Conference)

January 12, 2013. Town and Country Convention Centre, San Diego, California.

Topics may include: population genomic diversity and structure; selection signatures and local adaptation; application of genomics in conservation and management of genetic resources; management practices, fragmentation, bottlenecks, climate and environment change, and transgenic deployment; and gene conservation; etc. For questions please contact Dr. Om P. Rajora, orajora@unb.ca and see www.intlpag.org.

Graduate and Professional Course Non-Invasive Genetic Techniques in Wildlife Conservation

1-7 June 2013. Smithsonian-Mason School of Conservation At the Smithsonian Conservation Biology Institute, Front Royal, VA.

This course is an introduction for graduate students and professionals to the applications, benefits, and drawbacks of non-invasive genetic techniques to wildlife conservation. Visit <http://SMconservation.gmu.edu> or contact SCBItraining@si.edu for more information.

Jobs

ASSISTANT PROFESSOR OF BIOLOGY: GENETICS. Tennessee Tech University, Cookeville, Tennessee. Full-time, nine-month, tenure-track appointment to begin August 2013. For questions, contact Dr. Hayden Mattingly, hmattingly@tntech.edu.

ASSISTANT PROFESSOR. Duquesne University Genetics/Genomics Duquesne University, Pittsburgh PA, in the Department of Biological Sciences. To apply, email your application, including a cover letter, CV, and statements of research and teaching goals to: geneticsearch@duq.edu. Please direct inquiries about the position to biology@duq.edu.

FACULTY POSITION IN EUKARYOTIC GENETICS The Department of Biological Sciences (<http://biology.uark.edu>) at the University of Arkansas solicits applications for a tenure-track Assistant Professor working in eukaryotic genetics. Contact Andrew Alverson aja@uark.edu.

FULL-TIME LABORATORY COORDINATOR. The Department of Life Sciences at Texas A&M University-Corpus Christi is accepting applications to manage the Core Genomics Laboratory and support the high-throughput Marine Genotyping Laboratory at TAMUCC. Questions email Dr. Chris Bird at chris.bird@tamucc.edu.

Graduate positions and postdocs

PH.D. GRADUATE STUDENT FELLOW in evolutionary genetics. The Good lab at the University of Montana in Missoula. Note that applications for Fall 2013 admission to the OBE program must be submitted by January 10th. jeffrey.good@mso.umt.edu

PH.D. GRADUATE STUDENT FELLOW in Fisheries Conservation Genetics/Genomics. University of Toledo, Ohio. Contact carol.stepien@utoledo.edu.

POSTDOCTORAL ASSOCIATE in environmental DNA. University of Minnesota. Additional information may be obtained from Peter Sorensen (soren003@umn.edu) or Michael Sadowsky sadowsky@umn.edu.

POSTDOCTORAL POSITION in evolutionary genomics. Department of Genetics and the Human Genetics Institute of New Jersey at Rutgers University. The position could begin as early as January 2013. Interested candidates should submit an electronic version of their CV along with a cover letter describing their qualifications and relevant experience to Andrew Kern kern@biology.rutgers.edu.

Comments from the editor

Hello everyone! I am excited and honored to help with the genetics section newsletter. Joel Carlin has breathed life into this form of communication for many years, and I only hope I can keep his tradition of informative articles and humor alive. Mr. Carlin has been instrumental in getting this November issue completed and will be a voice in these pages for years to come. I believe that newsletters are hugely beneficial in staying current in regards to research, future meetings, and

funding opportunities. As a student member of the Education, Fish Health, Fisheries Management and Genetics Sections I am better connected to the fields involved in my work and graduate studies because of these publications. With that said, this is my first turn at the wheel in editing a newsletter. I am open to comments, suggestions and especially submissions! Please send any feedback and / or submissions to Joy Young at Joy.Young@myfwc.com.