

# NEAFS Newsletter

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# President's Message

As my term as NEAFS President comes to an end, I hope that I have been able to make a positive impact on both the current and future state of the organization. I would like to say thank you for the opportunity to serve this great organization over the past 12 years.

I was lucky to witness and be a part of the tremendous growth of our organization; both financially and what we offer to our members. Because of the vision of Board/Staff members both past and present, NEAFS has truly become the best regional forensic organization in my eyes.

My journey in leading the Association over the past year wasn't done alone. I was accompanied by a team of dynamic individuals, both elected and appointed, who shouldered most of the work load. We were able to complete projects that were started when I first became involved in the organization...yes 12 years ago. We completed the electronic storage of important organizational documents/records and set up procedures to ensure that they continue to be archived going forward, updated several areas of the organization's bylaws, completed the new administrative bylaws, opened training/recertification reimbursement to all members, online meeting proceedings are now available, as well as having conducted 2 offsite training classes and many other smaller projects.

NEAFS is in a unique situation right now financially. Because of sound fiscal practices of past Officers and Directors, we are in a position to offer numerous training/educational opportunities to our members that we weren't able to in the past. Also, our annual meetings have been a beneficiary to this windfall; their overall scope has expanded, incorporating guest speakers and instructors from across the country.

However, this should not be taken as sign that our work is done. We must reverse the trend of declining membership and remain diligent in our efforts to continue to improve and expand the quality of our organization. With the talents of the next group of Officers ascending the organizational ranks, I have no doubt that the organization will continue to flourish into the future.

I will end my final message by going back to my Navy days and wish NEAFS *Fair Winds and Following Seas* moving forward.

Sincerely,

Kevin MacLaren  
NEAFS President - 2014





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# NEAFS Outreach: Milton S. Hershey School

As part of the 2014 Annual Meeting, members of NEAFS conducted an outreach program for a group of students from the Milton Hershey School. Approximately fifty students, mainly 11th and 12th graders, took part in a half-day forensic science workshop.



The day began with an introductory assembly. The students then conducted a mock crime scene investigation. Six identical scenes were set up, and the students worked in groups to properly document and collect the various items of physical evidence. They then rotated into three different lab sessions, consisting of fingerprints/impressions, DNA, and trace evidence. The students were told to write a reconstruction of the crime based on the information gathered at the scene and in the lab sessions. The culmination of the program was a video presentation of the crime actually taking place (as captured by a “surveillance camera”).

The Hershey school serves children in financial and social need by providing them education, housing, food, medical and psychological health care, recreation opportunities, and clothing with no financial obligation to the family. The students were very respectful and seemed to enjoy the various activities. Numerous NEAFS members and college students participated in the event. Everyone found it to be a very rewarding experience.


Ted Schwartz




Photography courtesy of Adam Hartley




# Northeastern Association of Forensic Scientists 2015 Annual Meeting




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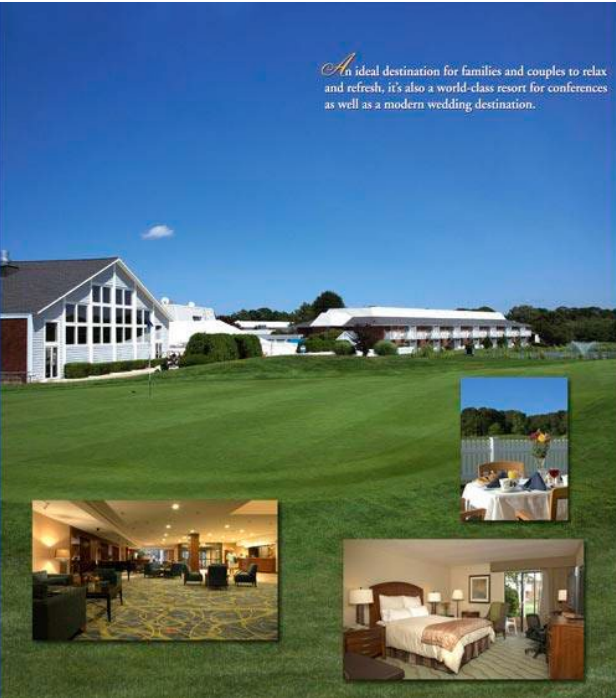


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## October 13th-17th, 2015

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## NEAFS Meritorious Service Award Winner

I wish to nominate Peter Diaczuk for the 2014 NEAFS Meritorious Service Award. As I am sure you are aware, Mr. Diaczuk is a past President of NEAFS and has been involved with the organization on several levels for many years. He has presented numerous talks, given workshops, been the official/unofficial photographer for NEAFS, and has been instrumental with the newsletter. Pete is a highly accomplished firearms examiner and criminalist. He has both his BS and MS degrees from John Jay College and recently completed his PhD.

In my view, he is the embodiment of the term “service”. Peter serves in the AAFS, AFTE, and the NY Microscopical Society, where he is past president. He is currently an adjunct instructor in criminalistics at John Jay College of Criminal Justice. Most of all, Pete likes to shoot at things and call it research.

He has given his heart and soul to NEAFS and it is my honor to nominate Pete for this award.

Sincerely,

David Fisher, MFS





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Carol DeForest Grant Award Winner  
Emily Myers  
Graduate Student, Cedar Crest College

“The Determination of Preservatives in Cosmetic Products by Liquid Chromatography Tandem Mass Spectrometry (LC-MS/MS),” Emily A. Myers\*, Thomas H. Pritchett, M.S. and Thomas A. Brettell, Ph.D., F-ABC, Cedar Crest College

Preservatives are commonly added to products, including cosmetics, in order to prevent spoilage and undesirable chemical changes, ultimately extending the product’s shelf life. A LC-MS/MS method has been developed which identifies and quantifies multiple preservatives in cosmetic products. LC-MS/MS data was acquired using an ABI Sciex 3200 QTRAP triple quadrupole mass spectrometer interfaced with a Shimadzu LC system. The instrument utilized electrospray ionization (ESI) and all samples were run in positive-ion mode monitoring. Chromatography was performed on a 5.0 cm x 3.0 mm x 2.7  $\mu\text{m}$  Raptor® biphenyl capillary column (Restek®). The strong mobile phase used was 0.1% formic acid in 2-propanol and the weak mobile phase used was 0.1% formic acid in HPLC grade methanol.

Various cosmetic product samples including, foundations, lipsticks, lotions, and toothpaste were prepared by adding approximately 100 mg to 5 mL of methanol:acetonitrile (1:1) and sonicated for 10 minutes. After sonication the solution was placed into centrifuge tubes and centrifuged for 5 minutes at 3000 rpm. After centrifugation the supernatant was carefully removed using disposable pipettes and filtered using a 0.2  $\mu\text{m}$  Millipore filter. Approximately 1 mL of the supernatant was added to a vial along with 60  $\mu\text{L}$  of the internal standard (BHA). Lastly, 2.0  $\mu\text{L}$  of sample was injected onto the LC column.

This method has the potential to be used in a forensic setting to compare and differentiate evidential cosmetic samples.



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George W. Neighbor Jr. Memorial Scholarship Award Winner  
Angelica Graver  
Senior, Cedar Crest College

Angelica has a Bachelor's Degree in Secondary Education from Temple University. She is certified in both general science and earth science. She completed her student teaching (receiving an A) and graduated with honors (Magna Cum Laude) in January 2012. However, Angelica realized her real passion was for the application of science and that she would not be completely happy as a high school teacher. After a difficult decision, she decided to use her savings to go back to school and pursue her dream of becoming a scientist. Angelica always loved forensic science and at Cedar Crest College she was able to pursue degrees in both Biochemistry as well as Forensic Science. Angelica has always been a perfectionist; aiming to try her best at all that she does. This has led to her induction into Gamma Sigma Epsilon (National Chemistry Honor Society) as well as Delta Delta Epsilon (International Forensic Science Honor Society). She also participated in the chemistry club and forensic science student organization on campus. Angelica's personal goal is to graduate with honors from Cedar Crest College with degrees in Biochemistry and Forensic Science. She hopes to continue her education and obtain her Master's in Forensic Science at some point in her future. To do this she hopes to get a job in a science laboratory setting, where she can apply and expand her scientific understanding and skills. Angelica feels that being an older student has helped her appreciate the importance of her education and caused her to strive to learn as much as she can in each class.





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George W. Neighbor Jr. Memorial Scholarship Award Winner  
Heidi Campbell  
Graduate Student, Cedar Crest College

Heidi's desire to pursue a career in forensic science originated as a youth, spending sick days and summer vacations at her mother's Commonwealth Attorney's Office in Staunton, Virginia. This outlet broadened her interest in the interplay between science and law, and how the two can be intertwined for justice. Heidi was presented the opportunity to observe the prosecution aspects of the law in trials, but she seemed to be more interested in the science and particularly the forensic science used in the cases. In high school, she participated in an internship at the local sheriff's office where she had the opportunity to visit the Virginia Department of Forensic Science Western Laboratory. Heidi was shown around the facilities and had hands on experience lifting fingerprints, which convinced her that she wanted to pursue a career in this field. Ultimately, she would love to be a forensic chemist in a Virginia state crime laboratory, and eventually progress to a federal crime laboratory where she can assist in examining the backlog of evidence by performing the skills and using the knowledge she has obtain from her graduate studies.

This passion continued to grow throughout her undergraduate career at James Madison University, where Heidi obtained a Bachelor of Science degree in chemistry and a minor in criminal justice. She began to participate in undergraduate research during her senior year using optical spectroscopy for applications in atmospheric, environmental, and materials chemistry. Research taught her that many questions cannot be answered upfront, but requires determination and meticulous laboratory techniques before answers can be derived. Research provided an alternative perspective to class material, allowing her to better grasp the concepts and producing her greatest accomplishments thus far in life. Prior to graduating, Heidi had co-authored three published scientific papers which she believes is an enormous achievement. For her latest paper, she completed the peer-review process and submission without the assistance of her advisor. This situation added to her feelings of achievement because she had to display leadership in a manner that most other undergraduates do not encounter.

Heidi has continued to enjoy research at the graduate level, studying DNA extraction from soil underneath a decomposing body in collaboration with the University of Tennessee. She is hoping to determine when human DNA first appears in the soil under the body, how long it remains, and at what depth can the detection of DNA be correlated to the time of body deposition. Though her background is not biology, she is learning the concepts and theories in a hands-on manner. Heidi has embraced the opportunity and challenges associated with material that is not in her field of study.

Heidi has a passion for the field, take on challenging projects, and work hard to make progress in research and the classroom. She strives for excellence as a student and will continue to do so as she pursues a career.



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We attended the Advanced STR & Y-STR Mixture Statistics 2-day workshop in Valhalla, New York on May 21-22, 2014. The workshop gave us a glimpse into how other similar labs are addressing the challenges we encounter when interpreting STR and Y-STR mixtures.

The topics included:

Semi-continuous models that account for the possibility of allelic drop-out or drop-in

Estimating a probability of drop-out from validation data, and how this is dependent on the threshold

Incorporating a probability of drop-out and drop-in into likelihood ratio calculation

Introduction to Lab Retriever - A simple and free software program

Y-STR mixture deconvolution

Overview of the Y-STR mixture search tools available using the US Y-STR data set

The first day and a half of the workshop was instructed by Norah Rudin and Keith Inman from the Scientific Collaboration, Innovation & Education Group (a non-profit; the presentation is available at [scieg.org](http://scieg.org)). They stressed the differences between and strictures on calculating a likelihood ratio, or modified random match probability, or combined probability of inclusion/exclusion. Their opinion is that there may be quite a lot of useful data discarded from low-level mixtures when we cannot integrate the probabilities of drop-out and drop-in with a likelihood ratio calculation. Lab Retriever is offered as an open-source solution for such calculations. It can import data that has been exported from GeneMapper ID-X, with some modifications.

In order to use Lab Retriever, they explained that the lab must establish a threshold based on the noise of the baseline for our combination of kits and instruments, not based on the vague concept of being conservative, since this ultimately results in the loss of usable data. Using one such threshold and low-level data (such as that generated during sensitivity studies in a validation), the presenters did a practical demonstration of how to calculate the log regression that could be used, along with the average peak height of the sample being analyzed, to calculate a probability of drop-out,  $P(Do)$ . Importantly, they showed how different thresholds would yield different log curves, and also how different average peak heights would also fall along this curve, resulting in significant change of the  $P(Do)$ . They urged labs to consider their own threshold, and also what truly constitutes drop-out - a peak that is one rfu short of a (high) analytical threshold has not dropped out; you have ignored it.

We saw what calculations were being considered under the hood of the Lab Retriever program, and were walked through a locus-by-locus consideration of all the combinations of alleles in a profile. Finally we used the program itself.

Lynn Schneeweis and Stefany Harman from Massachusetts State Police Crime Laboratory gave presentations on the evaluation of Y-STR mixtures, major/minor designation, duplications, and the robustness of loci under the strain of high ratio of female-to-male in a sample -- an all-too-common situation when Y-STR analysis is employed.

They also discussed the use of the MSP Y-STR mixture tool and the results of the Y-STR validation studies conducted at MSP Crime Lab. Stefany Harman provided an in depth demonstration of the capabilities of the MSP Y-STR mixture tool she developed in-house (using the dataset provided by the US Y-STR curators), and made available at the US Y-STR website. Their tool makes use of all the data without

ignoring loci with no data, which is the most comprehensive search. Also, their tool has no calculation component because in Massachusetts, the courts have accepted as a statement of fact their raw results of number of observed matches ( $x$ ) within a certain size population ( $N$ ), rather than calculate the Clopper-Pearson exact interval 95% confidence interval.

Alanna Laureano from the Westchester County Forensic Laboratory (WCFL) gave an overview of the current Y-STR mixture interpretation methods employed at their laboratory. Also, she gave a detailed comparison of the Y-STR mixture tools available to forensic laboratories via the US Y-STR database website. Finally, she touched on the WCFL validation of Y-STR mixture separation methods and future trends in Y-STR mixture analysis.

This workshop was offered by NEAFS for free to members, like ourselves.

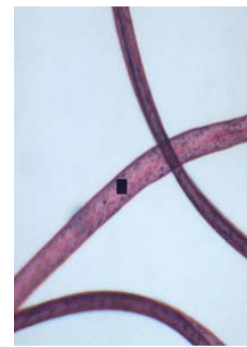
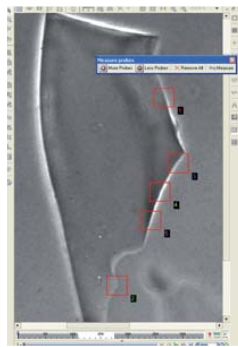
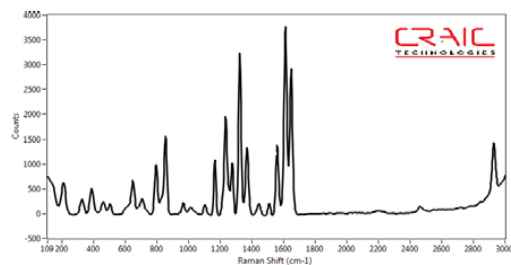


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## Women in Science Day

The Da Vinci Science Center and Cedar Crest College presented a special Women in Science Event on September 5<sup>th</sup>. The event was sponsored in part by NEAFS and featured activities for high school aged students led by female professionals in Science, Technology, Engineering and Mathematics (STEM) fields. I had the honor of representing NEAFS and met with students interested in the field of Forensic Science. The goal was to share my experiences and provide advice in hope that they could see the infinite opportunities available to them.

Women are sadly still underrepresented in the STEM industries. The Women in Science Event was designed to encourage female students to consider careers in STEM fields. The highlight of the evening was a panel discussion led by Carmen Ambar, President of Cedar Crest College, and included prominent women in Space to coincide with the Da Vinci Science Centers exhibit "Space: A Journey to Our Future".

The panel included:

**Dr. Mary Ellen Weber**, Former NASA Astronaut

**Dr. Christyl Johnson**, Deputy Director for Technology and Research Investments for NASA's Goddard Space Flight Center

**Dr. Jennifer Byrne**, Vice President of Technical Operations - Aeronautics for Lockheed Martin Corporation

**Dr. Martha Collins**, Director of the Global Technology Centers for Air Products

**Brigadier General Miyako Schanely**, Deputy Commander of 412<sup>th</sup> Theater Engineer Command in Vicksburg, VA (first female Army Reserve Engineer to make general officer)

**Andrea Edge**, Research Assistant and Ph.D. Candidate at the University of Louisiana at Lafayette and former Cedar Crest College alum.

The evening was a rewarding experience for all in attendance regardless of your age or area of interest. The resounding theme throughout the night was **do something you love, while not shying away from hard work and the possibilities are endless**. Dr. Weber encouraged, "You'll remember the things you work the hardest for, you won't remember the things that were handed to you."





Open for Exciting Possibilities™

August 7, 2014

Ms. Janine Kishbaugh  
President  
National Association of Forensic Scientists  
P.O. Box 80378  
Springfield, MA 01138

Dear Ms. Kishbaugh:

Thank you for your \$1,000 sponsorship of our 1<sup>st</sup> Annual Women in Science event hosted by Da Vinci Science Center and Cedar Crest College.

Your sponsorship will allow UGI to have a female leader in a STEM Career attend the Women in Science dinner as a role model to the students who will be our guests that evening. Female leaders will be part of a table of 5 high school students and a college student with career interests that are similar. Following the dinner, there will be a panel presentation that female leaders and students will attend and a reception afterward for networking.

Thank you again for your support of this very special event. We look forward to seeing you.

Please contact me with any questions at 484-664-1002, Ext. 102.

Sincerely,

Thanks so much!

Judy Belaires, CFRE  
Director of Advancement and Community Relations

3145 Hamilton Blvd. Bypass, Allentown, PA 18103 • 484.664.1002 • [www.davincisciencecenter.org](http://www.davincisciencecenter.org)



The Da Vinci Discovery Center of Science and Technology, Inc. (or "Da Vinci Science Center" or "DSC") is an independent nonprofit organization with IRS 501(c)(3) status. Its federal tax identification number is 23-2824084. The official registration and financial information of the Da Vinci Science Center may be obtained from the Pennsylvania Department of State by calling toll-free, within Pennsylvania, 1.800.732.0999. Registration does not imply endorsement. Information about the organization's registrations in additional states is available on the web at [www.davincisciencecenter.org/disclosures](http://www.davincisciencecenter.org/disclosures).





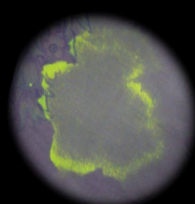
# So Good, It's Simply Criminal!

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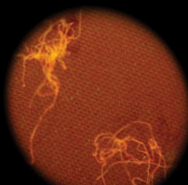
## **OPTIMAX™ Multi-Lite™ LED Forensic Inspection Kit**

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## Education

Moving forward in the areas of education/training, I have been working with Keith Mancini to possibly utilize the NEAFS site to organize and store educational/training documents including SOP's. Organized by discipline, this would allow us to post useful documents, making them available to all of our members. These could then be used to develop and enhance both employee training as well as our testing protocols. In Drug Chemistry for instance, we could post unknown spectra for review and comments. Our lab has a narcotic tablet database sorted by imprint that is used by law enforcement and DA's to determine possible drug charges. We also would be willing to post our Duquenois Levine validation spreadsheet that contains over 100 tested herbs and spices along with the reaction pictures.

Every lab has some great documents that would benefit other labs. By working together and combining our talents we improve our own lab, the profession as a whole, and NEAFS as an organization.

If you are interested in contributing please contact me at [JWesley@monroecounty.gov](mailto:JWesley@monroecounty.gov).

Jim Wesley

# PRE-PACKAGED LIQUID HANDLING AUTOMATION SOLUTIONS

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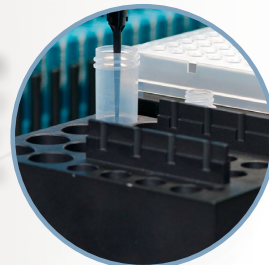
## **AutoLys STAR**

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## 2015 Training Scholarship Fund

The Northeastern Association of Forensic Scientists (NEAFS) is proud to offer its members a 2015 Training Scholarship Fund. Regular members, in good standing, are eligible to receive up to \$200 towards training, workshop or non-NEAFS meeting registration expenses. Detailed instructions and application forms are available on the NEAFS website. Simply click the “Training” link at the top of the screen and scroll down to the “NEAFS Training Scholarship Forms”.

The current application period is January 1<sup>st</sup>, 2015 to December 31<sup>st</sup>, 2015. Reimbursements will be issued on a first come, first serve basis and funding is limited. If you plan to attend a non-NEAFS meeting workshop, training or course during this application period and will not be funded by your agency or any other non-NEAFS related entity, we highly encourage your swift application for the 2015 Training Scholarship Fund.

Please visit the NEAFS [training](#) website to take advantage of this great NEAFS opportunity and to view upcoming training opportunities!

## Upcoming Training

The Chemical Heritage Foundation will be holding an in-depth course in postmortem interpretive forensic toxicology in Philadelphia, PA during January 26-30, 2015. This course will address all aspects of the investigation of toxicological death, from the scene investigation to the autopsy. For more information visit <http://forensicscienceeducation.us5.list-manage.com/track/click?u=6835cb04bb9dff65a92b8bbf9&id=44716a847a&e=e788f8a2fd>.

The Specialized Training Unit at the Miami-Dade Public Safety Training Institute in Doral, Florida will present a Math and Physics of Bloodstain Pattern Analysis Workshop during February 16-20, 2015. For information contact: Officer Rosa Holtz, Miami-Dade Public Safety Training Institute, Specialized Training Unit, Bldg. 300, 9106 N.W. 58th St., Doral, FL 33178; Voice: 305-715-5022; Fax: 305-715-5107 or E-mail: [rholtz@mdpd.com](mailto:rholtz@mdpd.com).

A workshop on Basic Crime Scene Photography with Low Light Techniques will be held in Baltimore, MD during February 23-27, 2015. For more information please view the announcement flyer or please contact Steven O'Dell at [steven.o'dell@baltimorepolice.org](mailto:steven.o'dell@baltimorepolice.org) (443-721-6387) Or Richard Remy at (410-396-2294).

The Specialized Training Unit at the Miami-Dade Public Safety Training Institute in Doral, Florida will be presenting a Bloodstain Pattern Analysis Workshop during March 9-13, 2015 and again during December 7-11, 2015. For information contact: Toby L. Wolson, MS, F-ABC, Criminalist Supervisor, Miami-Dade Police Department, Forensic Services Bureau, Forensic Identification Section, 9105 NW 25th Street, Doral, Florida 33172-1500; Voice: 305-471-3041; Fax: 305-471-2052 or E-mail: [twolson@mdpd.com](mailto:twolson@mdpd.com).

## ABC Reimbursement

The NEAFS Board of Directors has voted to reimburse the American Board of Criminalistics exam sitting fees for five NEAFS members (regular or associate) in good standing who pass the ABC exam. This offer is for any ABC exam taken in 2015. There will be an exam offered at the NEAFS Annual meeting in Hershey. After passing the examination, please fill out the ABC Examination Reimbursement Form ([www.neafs.org](http://www.neafs.org)) and email the completed form with proof of passing the exam to the NEAFS Certification Chair Mike Portzer at [certification@neafs.org](mailto:certification@neafs.org). The reimbursement is based on a first come first served basis. Remember you must pass the ABC exam to be considered for reimbursement.

Does anyone have an interest in old issues of the NEAFS Newsletter? We don't have a whole set but we have some from the 1990's and early 2000's. Please let us know, at your convenience, if there is any interest in these by emailing [publications@neafs.org](mailto:publications@neafs.org)

## *Missing Something*

Be sure to check the NEAFS website for the latest **Job Opportunities**.

**B.O.D. Meeting Minutes and Financial Statements** will now be placed in the Member Area of the NEAFS website. If you have trouble logging in please contact the web master, [webmaster@neafs.org](mailto:webmaster@neafs.org).