

The Syracuse Chemist

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SUNY-ESF's Adopt-a-Stream Still Going Strong Five Years Later!

By: Kelley J. Donaghy

In 2008 a group of SUNY ESF students organized a stream clean up in answer to a competition sponsored by the American Chemical Society's, Chemists Celebrate Earth Day Program. That event in 2008 brought together over 300 people to clean three area streams and won the National Competition. Since then, the Adopt-a-Stream event has become a cornerstone in the SUNY ESF General Chemistry Curriculum as the founding event for what has become The Service Track. The Service Track was recently highlighted in a *Journal of Chemical Education* paper and pictures of the event featured the cover of the November 2012 issue. (Donaghy, Saxton, *J. Chem. Educ.* **2012**, *89*, 1378-1383.)

This year on April 20th, 2013 another 200 students converged on area streams to pick trash and do chemical, biological and physical surveys. Butternut and Limestone Creeks were visited this



year and coincidentally, they were also the creeks surveyed and cleaned in 2008. The water quality measurements appeared to be similar from year to year, but the amount of trash accumulated was still surprising. ESF students pulled out bicycles, motor cycles, rusted metal drums, tires, bottles, wood, and countless other pieces of typical household trash. It took two trips with two full-size pick up trucks to deliver the trash to the Town of Dewitt's receiving site.

Despite the weather, a combination of sun, rain, sleet and snow, and the amount of trash the students found, the event was still a success. Service Track Teaching Assistant Maureen Bishop comments in her reflection paper, "Despite the sleet in April that graced us, I heard no complaints and saw no student deterred. I enjoy this project because it is so hands-on and allows me to do my part for the stream's health."

Syracuse Section Honors Young Chemists at the 34th Central New York Science and Engineering Fair

By: John Fleischman, photos by Bob Fleischman

Note: This article was written by John Fleischman before his passing on May 14th.

Onondaga Community College's SRC Arena was the location for the 34th annual Central New York Science and Engineering Fair on Sunday, March 24, 2013. The CNYSEF consisted of science, technology and engineering exhibits from almost 200 public, private and home schooled students in grades 4 - 12 located in Onondaga, Madison, Oswego, Cayuga and Cortland counties.

This year, the Syracuse Section's Best Chemistry Awards, which consisted of a certificate and \$10, \$20 or \$30 Barnes and Noble Bookstore gift cards, were given to the following students:

Grades 4 - 6			
Student	School	Topic	Award
Nicholas Schultz	Holy Family School Onondaga	Flocculation and Sedimentation	\$30
Inika Gajra	Tecumseh Elementary	The Best Way to Melt Ice	\$20
Madelyn Kilmer	Homer Intermediate	Crystallization	\$10

Grades 7- 9			
Student	School	Topic	Award
Rhea Saini	Christian Brothers Academy	Comparing the Level of Hardness of Water in Different Parts of Central NY	\$30
Bianca Melendez Martineau	Manlius-Pebble Hill	Dry Ice Put to the Test	\$20

Grades 10 - 12			
Student	School	Topic	Award
Olivia Shepard	Manlius-Pebble Hill	Alternative energy: Using Nanotechnology to Transfer Energy Between Bioluminescent Firefly Proteins & Fluorescent Quantum Dots	\$30
Alec Beaton	East Syracuse -Minoa	Quantitative Analysis of the Effects of Steeping Conditions on Aluminum Content in Tea	\$20
Snigdha Chatterjee	East Syracuse-Minoa	Examination of Treatment Methods for Onondaga Lake Sediment	\$10

In addition to her ACS Syracuse Section Award, Bianca Melendez Martineau was the recipient of the Alpha Chi Sigma Chemistry Award which recognizes outstanding accomplishments in fundamental or applied chemical engineering research.

Kyrin Pollack, an 11th grader from Jamesville-Dewitt received the SUNY Cortland Excellence in Chemistry Award along with a copy of Theo Gray's book "*Theo Gray's Mad Science: Experiments You Can Do at Home - But Probably Shouldn't*" for her project "Antioxidant Gene Recombination: Swapping Yeast Genes TSA1 and TSA2.

John Drogo, one of Sally Mitchell's ESM students, received a SUNY Oswego Genius Olympiad award for his exhibit "He Lattice Energy Curve Analysis". With this award, John is invited to participate in the Genius Olympiad to be held at SUNY Oswego on June 18th - 21st this year.

The Syracuse Section would like to thank the members who participated this year for their service as judges, advisors, photographers and organization volunteers. It's through your involvement that we can encourage and promote chemistry and chemical education to our future generations.

The Central New York Science and Engineering Fair is always looking for people willing to help out as volunteers. The only requirements are an enthusiasm for science and technology and a willingness to share that enthusiasm with the student participants.

Some scenes from the 2013 Central New York Science and Engineering Fair.



Left: CNYSEF Participants at Onondaga Community College's SRC Arena, Sunday March 24, 2013 Right: Syracuse Section Chair Neal Abrams (left) with Nicholas Schultz (right) discussing his project on water treatment



Left: Olivia Shepard (left) presents her research to District Delegate John Fleischman (right). Right: Education Chair Joy Logan (far left) and the 2013 CNYSEF ACS Syracuse Section Award winners (L-R) Olivia Shepard, Alec Beaton, Snigdha Chatterjee, Rhea Saini, Bianca Melendez Martineau, Nicholas Schultz, Inika Gajra and Madelyn Kilmer

In Memoriam John F. Fleischman

Adapted from the Syracuse Post-Standard



John F. Fleischman, 53, died unexpectedly on Tuesday, May 14, 2013. He was a 1982 graduate of Le Moyne College and had worked at the Pall Trinity Company for 21 years as a senior research scientist. He formerly was a chemist at Will & Baumer Candle Company. Mr. Fleischman was an active member of the Syracuse section of the American Chemical Society, serving as a district delegate. He had served as a judge at the Scholastic Science Fairs and was a regular blood donor with the American Red Cross for decades. He was a lector and communicant of St. Mary's Church in Cortland, and was a former parishioner of Blessed Sacrament Church. As a loving husband and father, he was always very supportive of his family and proud of his son's many musical achievements. He was well-liked by everyone who met him, and he will be greatly missed. The Syracuse Section would like to dedicate this issue of the Chemist in memory of John.

National Winner for the CCED Poem Contest!

By: Sally Mitchell

The Syracuse local section has a national winner of the CCED 2013 Poem Contest: Alyssa Cregan, 8th grade student at Onondaga Central School, has won 1st place in the 6th-8th grade category. Alyssa will receive a \$300 check, certificate, and award letter mailed altogether to her school.

The American Chemical Society has sponsored an Illustrated Poem Contest for the past ten years celebrating Earth Day through an incredible interdisciplinary project incorporating art, English and science. This year, the Syracuse Section had 345 poems submitted for the Chemist Celebrate Earth Day Illustrated Poem Contest from the following schools and school districts:

Bishop Ludden, Baldswinville, Bridgeport, Cazenovia, East Syracuse Minoa, Fabius Pompey, Fayetteville-Manlius, Liverpool, Onondaga Central, Pembroke, Red Creek, Syracuse Academy of Science, and Westhill.

The winners of the contest will be invited to the Education Night celebration in June along with their families and teachers. Each local winner receives \$25 and their poem was been submitted to the national competition.

The winners were:

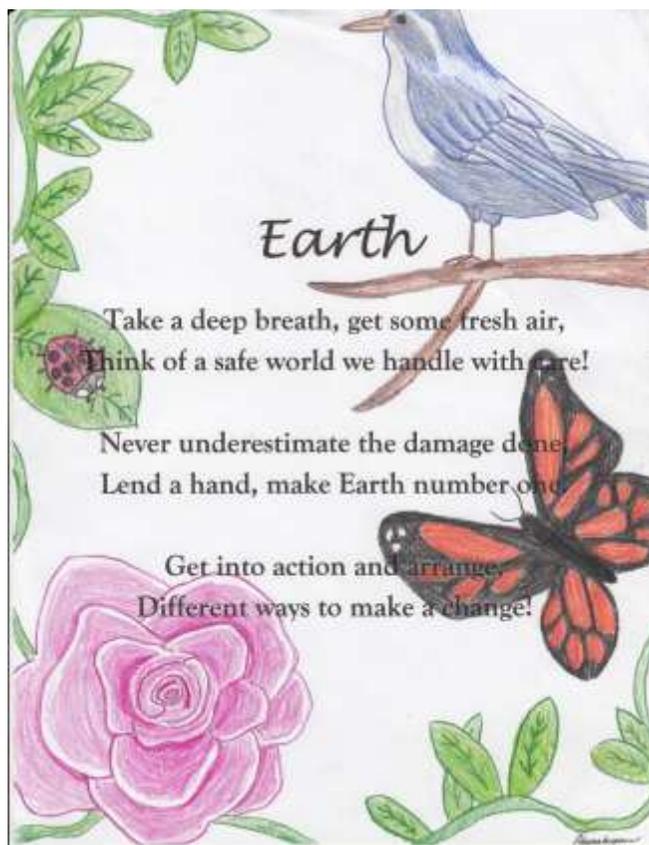
Kindergarten - 2nd grade: Joshua Penoyer, grade 2. Joshua's teacher is Anne Hogle and he attends Minoa Elementary School, Minoa NY. His haiku reads "Save the Earth" Keep the Earth clean now. Compost food, do not litter. Grow lots of trees now.

3-5th grade: Natalie Scerbo, grade 5. Natalie's teacher is Peter Crump and she attends Donlin Drive Elementary School, Liverpool, NY. Her poem reads "Save our Water" Clean water, dirty water, not enough to drink. Drip drop drip, wasted water down the sink. Take a short shower, Do not make it last an hour. If we believe, we may achieve. The world will be much clearer.

6-8th grade: Alyssa Cregan - grade 8. Alyssa's teacher is Renee Patterson and she attends Onondaga Central Jr./Sr. High School, Nedrow, NY. Her poem reads "Earth" Take a deep breath, get some fresh air, think of a safe world we handle with care! Never underestimate the damage done, lend a hand, make Earth number one. Get into action and arrange, different ways to make a change!

9-12th grade: Jennifer Vazquez- grade 10. Jennifer's teacher is Maxine Babcock and she attends Bishop Ludden Jr/Sr High School, Syracuse, NY. Her poem reads "Adhere to our Sphere" Within this sphere of majestic wonders, its base trampled, resources plundered. Day in day out we use without asking, and the sphere remains quiet, so far from relaxing. Stop, think, look what you borrow, ensure our sphere will survive tomorrow.

Thank you to the education committee and all of the volunteers who helped judge the contest. Keep getting the word out to the schools.



Fabius Pompey HEROS Science Club Awarded Coaches Grant to Partner with SUNY ESF Service Learning Students

By: Kelley J. Donaghy

This spring 20 rural elementary school students at Fabius Pompey Elementary School in Fabius, New York had a treat in their AFTer School HEROS (Homework, Exercise, Recreation On-Site) program this spring: Six weeks of chemistry immersion! They investigated polymer chemistry, density, acid base chemistry, photochemistry, thermochemistry and electrochemistry.

Teachers Jennifer Proper and Karen Valentine in combination with SUNY ESF associate professor of chemistry, Kelley Donaghy applied for and were granted a Science Coaches Award. The Science Coaches program is designed to encourage professionals in chemistry to become involved with teachers at local schools, the school receives a small grant and the chemistry professional agrees to visit the school at least six times throughout the school year.

What made this program particularly special was the combination of the service learning track at SUNY ESF and the Science Coaches program. College students in the service-learning track in General Chemistry at ESF spend 20 hours doing experiential service learning related to chemistry. "Service learning is defined as service to the community that combines and supplements course content and course objectives." (Donaghy and Saxton, *J. Chem. Ed.*, 2012, 89, 1378-1383.) In this project students prepared and demonstrated various experiments for the K-5 grade students that were simplified versions of the experiments they were doing in General Chemistry.



Left: HEROS students and ESF Service Learning Participants displaying the results of their acid base chemistry! Right: Learning about carbon dioxide with the What's New CO₂? kit.

Among the different activities carried out by the students, was acid base chemistry which culminated with tie dying. The differences between the two fibers were shown by what activated the fibers to receive the dye; vinegar for silk and soda ash for the cotton. Students used turmeric paper to decide what was an acid and what was a base then had fun splashing fiber reactive dye on the prepared fibers. Phase changes were demonstrated with liquid nitrogen ice cream and dry ice. While polymer properties were illustrated through old favorites such as slime and worms. The different densities of wood and liquids were found by encouraging students to learn about

calculating volume by measuring solids using a ruler and liquids using a graduated cylinder then using a balance for mass. Photochemistry was illustrated through the development of blueprint paper and sun paper. Finally, electrochemistry was illustrated by silvering bottles. In addition to stand alone experiments, Kids & Chemistry Kits were obtained from the American Chemical Society such as Jiggle Gels, Chemistry's Rainbow and What's New, CO₂?

At the end of the six week time period, the elementary students, teachers and parents of the elementary students were surveyed and more than 90% indicated that they had an increased interest in science because of the program and the teachers in particular commented "it got us thinking about how science is all around us and what we can do to incorporate more of it into the activities we plan for the kids". The elementary students were split in deciding what was their favorite activity but liquid nitrogen ice cream and silvering bottles were high on the list! Many indicated that they wanted to be science teachers when they grew up one elementary student commented "it is just so much fun, I want others to have fun learning!"

To close the loop on the service learning aspect of this project, the ESF students wrote reflection papers on their experiences and presented their experiences to their peers. Zachary Corey writes, "I believe the kids benefitted from the service, they were able to see a glimpse of cool and interesting aspects of chemistry. I personally benefitted from it as each day was a good review. Concepts also *stick* a lot more when you teach someone else and that has helped me greatly." Olivia Shutts commented that one particular young girl made her want to not only study marine mammals, "but to convey the issues of our oceans and the effect we have on it and the mammals to the public and get them as in love with the ocean as I am."

Thank you to the American Chemical Society for their support through the Coaches Program and the ACS Kids & Chemistry Kits Program as well as to Karen Valentine and Jennifer Proper for working with the ESF students and to Ms. Andrea Nardozi the principal at Fabius Pompey Elementary for being brave and letting us pilot the program in her school! This was a highly successful first attempt by everyone's standards!

If you are interested in having a program similar to this at your school, in your classroom, or after school program next spring, please contact Kelley Donaghy at kdonaghy@esf.edu.



Left: Nothing is more exciting than polymer chemistry that makes slimy gooey worms! Right: Turmeric paper, clear wax crayon and ammonia, sending secret messages using acid base chemistry!

Sustainability Grant Report: Earth Day Celebrations a Success!

By: *Venera Jouraeva*

Sustainability grant funds were well-spent to organize two Earth Day events on April 13. Cazenovia College Environmental Club paired with the American Chemical Society and the Cazenovia chapter of the Alpha Lambda Delta National First Year Honor Society (ALD), hosted the annual Chittenango Creek Clean-up, and followed by a Seedling Planting event in conjunction with the Cazenovia Preservation Foundation at the Willow Patch off of Chenango Street in Cazenovia.

Nearly 60 people showed up for the early morning creek clean up and about 25 volunteers came to plant trees. The group managed to clear up about two pick-up trucks worth of trash from the creek and its surrounding banks. The afternoon group planted white pine seedlings at King's Field, and trees and shrubs such as Pussy Willow, Witch Hazel, Wetland Rose, Highbush Cranberry, Rugosa Rose, and Red Osier Dogwood in the Willow Patch. The enthusiasm was enormous and the volunteers enjoyed each other's company and contributing to the environmental sustainability of Cazenovia community.

Organizers would like to thank the **American Chemical Society** for a \$500-sustainability grant that was used to purchase 200 seedlings, planting bars, gloves and beverages; **Earl Buyea and Douglas Green**, owners of **True Value Hardware Stores** in Cazenovia and Manlius, for the discount on gloves; **Tops General Manager, Joe Rizzo**, for donating donuts; and **Pat Carmeli**, proprietor of **The Pewter Spoon** in Cazenovia, for the discount on coffee. Many thanks go to **Judy Gianforte** of the **Cazenovia Preservation Foundation** and **Thomas Mullarney** of **Bartlett Tree Experts**, who gave lessons in proper planting bare-root trees and shrubs.

The Cazenovia College group of environmental activists looks forward to seeing everyone again for the Earth Day activities next spring.



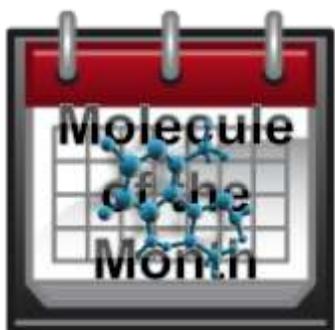
Early Morning Crew - Chittenango Creek Clean-up



Two of Three Tree Planting Teams at the Willow Patch



The First Team to Finish Planting!



Molecule of the Month

Identify the compound and submit your answers to our Quizmaster, Dr. Daniel Barr (dabarr@utica.edu) - the first person to answer correctly will get a special mention in the next issue of the Chemist!

This month's puzzle is in the form of a cryptogram: Each letter in this quote from a has been replaced using a random other letter (e.g. X for A, O for B, etc).

“ENWUTNU TUKUL ECRKUE X GLCDRUF BWPOCMP NLUXPWTY PUT FCLU” –
YUCLYU DULTXLH EOXB

Congratulations to Geoff Bechwith, who was the first to correctly answer last month's puzzle. The correct answer was: “Hot glass looks like cold glass” - anonymous

The Syracuse Section of the American Chemical Society Presents:

Education Night

An event to celebrate students in our community!

Join us in celebrating student achievement including Chemists Celebrate Earth Day (CCED) Poetry Contest Winners (**WE HAVE A NATIONAL WINNER!**), National Chemistry Week (NCW) Poetry Contest Winners and National Chemistry Olympiad Exam Participants (USNCO).

June 12th, 2013, Storer Auditorium in Ferrante Hall, on the Onondaga Community College campus

Social Hour: 6 to 7 pm (Light refreshments), Guest Speaker and Awards: 7 to 8:30 pm

Guest Speaker: Dr. Augustine (Gus) Silveira, Jr.



Dr. Augustine Silveira, Jr., formerly Chairperson of the Chemistry Department at the State University of New York at Oswego, is recipient of over 50 grants and awards. Dr. Silveira's work has been extensively published in national and international journals. He has steadily promoted the teaching of science through various projects at the national and state levels. He began collaborating with 2010 Nobel Chemistry Prize awardee Dr.

Ei-ichi Negishi in the early 1970's. Their collaborative research became part of the overall package that the Nobel honored.

To register for the event, please visit <http://ednight2013.eventbrite.com/> or scan the QR code below.



For more information contact Joy Logan, Education Chair, at 315-470-4811 or by email at sjlogan@esf.edu



Syracuse Chemist

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Organized as the Syracuse Chemical Society in 1902 and chartered as a section of the American Chemical Society in 1907, the Syracuse Section now includes Central New York counties of Cayuga, Cortland, Madison, Oneida, Onondaga, Oswego and Seneca.

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