2018

The Coastal Monitor: Fall 2017/ Spring 2018

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As I sat there in the Members Lounge at the Explorers Club; the world center for exploration, getting ready for our first Spring Saturday Science for Students @ the EC lecture, I was putting together some notes on the accomplishments of our science students and CERCOM over the last few months since our last newsletter. Our visit to the Galapagos, a spectacular academic experience for our Molloy College students was at the top of my list! This was certainly not an epiphany but as I accumulated the items on this list, I was impressed not only with what we have conducted but much more important, almost seminal, is our diverse, expansive and integrated network of collaborators, projects and research. I say seminal in every aspect of a student’s beginning a career in the Sciences. This is a career, no matter what path taken, that will depend upon a passion for knowledge, constant observation and unrestricted exploration. CERCOM, the Field Station for the BCES Department at Molloy College, reflects all these attributes to Molloy College students. However, I believe most importantly instilling and building these characteristics into a good scientist, is the establishment of a network as early as possible. Not just a “Social Network” which Millennials and all youth are proficient in, but an “experiential network” that provides the foundation of science, education, and contributions to the global community. This Newsletter will reveal the “network” that is ingrained in the CERCOM mission for Molloy College, and what is provided to all science students no matter what their discipline or Major may be.

Understanding and studying science is what supports the human framework that civil society is built on. If you or someone you know cares to follow a career in science, they must begin this network through volunteering at museums, aquariums, environmental groups, NGO's and partaking in events, from lectures, conferences and colloquiums, so one’s background and approach to science, and life in general, will be broadened, integrated and diversified. Start your network at Molloy College’s CERCOM Field Station with a degree in Earth and Environmental, or Biological Sciences. I know you will have a special and rewarding life journey.

John T. Tanacredi, Ph.D.
Director of CERCOM, and Professor of Earth & Environmental Studies at Molloy College,
Department of BCES (Biology, chemistry, and Environmental Studies)
jtanacredi@molloy.edu
MEET THE STAFF

Regina T. Gorney ’04
Administrative Assistant to the CERCOM Field Station Director
With over 20 years at Molloy College, Regina manages the day to day activities at the CERCOM field station office, including organizing events for Earth and Environmental students and the general public that may be interested in CERCOM and its mission. Contact Regina at rgorney@molloy.edu if you would like to be on our email list or take a tour of the facility.

Kyle Maurelli
Scientific Research Technical Assistant
Kyle is new to Molloy College and CERCOM. While attending Stockton University, Kyle worked at the Long Island Aquarium in Riverhead. Kyle received his B.S. in Marine Biology, and is no stranger to aquatic systems. At CERCOM he is primarily responsible for coordinating, organizing and maintaining all activities and infrastructure required for living systems in the invertebrate Horseshoe Crab lab. In the field, his responsibilities include meteorological data collection and vessel excursions, with direction from CERCOM Director Dr. John Tanacredi. Contact Kyle at kmaurelli@molloy.edu or 516.323.3590 for questions regarding Molloy Crab Club, report results, and lab questions.

Volunteer Extraordinaire
Caroline Kane
Student Volunteer
A volunteer extraordinaire for Molloy College’s CERCOM. Caroline is currently pursuing her Associates degree at Suffolk Community College in hopes to transfer to Molloy College to pursue her Bachelor’s degree in Earth and Environmental studies. Caroline assists Mr. Kyle Maurelli in the lab and field. Caroline is currently working on a native species coral and other invertebrate tank for further CERCOM research. Her works are greatly appreciated.

WHY CERCOM MONITORING IS IMPORTANT

Since 2002 the data from monitoring stations performed by CERCOM has assisted scientists answer questions regarding water quality conditions, natural processes and enhanced waterway management decisions.

CERCOM is one field station out of a network of at least 16 water quality and weather monitoring stations in New York State. CERCOM, like other field stations in New York State, monitors various data every 15 minutes such as salinity, oxygen, and sea and tide levels.

CERCOM’s Coastal watch on The Great South Bay, is instrumental in assisting ecosystem and water resource managers, research scientists, educators, emergency managers, as well as recreational users, over 15 years.
‘Tis the Season...
for Long Island Horseshoe Crab Inventory

Get involved with Molloy College’s Horseshoe Crab Monitoring program! You can help make a difference as a volunteer to help gather data on local beach habitats and Horseshoe Crab populations! Help protect our natural environment and our Long Island community.

To join go to www.molloy.edu/cercom/hscinventory

2018 HSC INVENTORY PROTOCOL:
SPRING TIDE SCHEDULE

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TO FIND OUR MONITORING LOCATIONS VISIT www.molloy.edu/cercom/hscinventory

1. Survey dates are the days before, during and after the spring tides of May, June, July and August.
2. Plan to arrive within 2 hours before and after the local posted high tide.
   a. Local high tides can be found at www.saltwatertides.com going to the “tide portion of the website.
   b. Get data for tide sites nearest your sites.
4. Wear footwear appropriate to walk up to knee deep (walking this deep may not be necessary.)
5. When you arrive, identify the boundaries of the beach.
   a. Beginning at one end, walk at the water’s edge and count and log all females (F) and males (M) on land and visible in the water.
6. Complete all site visits around the high tide.
7. Submit data by visiting www.molloy.edu/cercom/hscinventory

MOLLOY COLLEGE CRAB CLUB
ASK YOUR SCHOOL TO BE A MEMBER!

If your class is interested in participating or if you have any questions, please contact Kyle Maurelli at kmaurelli@molloy.edu, 516.323.3590

In the fall, at the beginning of the school year, consider joining the Molloy College Crab Club. The “Molloy Crab Club”, is a program where Molloy College connects middle and high school students the natural environment giving students a platform to observe the hatching and raising of horseshoe crab eggs in the classroom. At the end of the school year, the horseshoe crabs are returned to CERCOM and if convenient, your class is invited to personally return the horseshoe crabs, giving you and your class the opportunity to visit CERCOM, Molloy College Field Station.

This is a free educational program in which all horseshoe crab eggs, care sheet, and a supply list will be provided by CERCOM. This program has been ongoing since 2013 and many schools in the NYC and Long Island area have participated.
2017 Solar Eclipse Event at CERCOM Kicks-off Scholarship Donations for Molloy College Earth and Environmental Students

CERCOM had a spectacular event in celebration of Solar Eclipse Day, on August 21, 2017. Over 200 Molloy College friends, alumni, faculty, administrators, and staff attended. Ken Spencer, president of the Astronomical Society of Long Island (ASLI), was on hand and provided telescopes for a close look of the solar eclipse. Some of his pictures appeared in Newsday.

The weather certainly cooperated as CERCOM/Molloy College interns led tours of the Horseshoe crab lab, USGS Tide Gage, NOAA Weather Station, and conducted Seining Demonstrations for our Phytoplankton Monitoring Program for NOAA. This event highlighted CERCOM and the Earth and Environmental Studies program which led to donations to establish Scholarships for Molloy College Students in the Earth and Environmental Studies program. If you wish to make a donation to the Earth and Environmental Studies Scholarship Program, go to http://connect.molloy.edu/eesscholarship

COMING UP NEXT:

Friday, April 20, 2018
Molloy College
Earth Day Colloquium
“Ocean Acidification & Sea Level Rise”
FREE Admission

REGISTER AT http://connect.molloy.edu/earthday2018
APRIL 20 & 21 - SCHEDULE OF EVENTS

Friday, April 20, 2018
Day One

8:30 a.m.
Check-in / Walk in Registration-
Main Molloy College Campus Hagan 339

9:00 a.m.
Welcome - Edward J. Thompson - Molloy College,
VP for Mission and Advancement

9:15 a.m.
Introduction - Dr. John T. Tanacredi - Professor of Earth &
Environmental Sciences - Executive Director, CERCOM (Center for
Environmental Research & Coastal Oceans Monitoring)

9:30 a.m.
Keynote Speaker: David J. Manning - Director, Stakeholder Relations
External Affairs, Brookhaven National Laboratories
Topic: “Brookhaven National Labs and Long Island’s Role on Ocean
Acidification and Sea Level Rise as we approach 2020”

10:30 a.m.
Kevin McAllister, Founding President - Defend H2O
Topic: “Environmental Ramifications of Sea Level rise and the Actions
Required on Long Island to Safeguard Beaches, Wetlands, and Coastal
Natural Resources”

11:30 a.m.
Chris Schubert, Supervisory Hydrologist - United States Geological
Survey, NY Water Science Center Office Long Island, and the Chief of
the Environmental and Hydrologic Investigations Section,
Topic: “LI Hydrology and Ground Water Implications of Ocean
Acidification and Sea Level Rise”

1:30 p.m.
Paul Sieswerda, President, CEO - Gotham Whale,
Topic: "Human Induced Impacts to the Atlantic Ocean Whale Super
Highway"

2:30 p.m.
David Grant, Deputy Director - Shark Research Institute
Topic: “Impact of Ocean Acidification and Sea Level Rise in the Atlantic
Ocean on Shark Biology and Conservation”

3:30 p.m.
Sean O’Neill - Peconic Baykeeper
Topic: “The Effects of Climate Change, Sea Level Rise, and Ocean
Acidification on the Flora and Fauna of the Peconic Estuary”

4:30 p.m.
Kyle Maurelli, Scientific Research Technical Assistant - CERCOM at
Molloy College procedures for the 2018 Summer Horseshoe Crab
Monitoring Season – Volunteer Signup

6 p.m.
EES Fundraiser Neo-Tropical Bird Migration
(See flyer in this issue)

Saturday, April 21, 2018
Day Two

9:30 a.m.
Saturday Science for Students at the Explorer’s Club in NYC
Speaker: Mark Botton, Ph.D. Fordham University
Topic: My Career as a Professor and Researcher of the American
Horseshoe Crab, Limulus, polyphemus

Guest Free Event for Students with ID / $10 General Public
To Register call 212.628.8383 or email reservations@explorers.org

10:00 a.m.
Gotham Whale Cruise, Breezy Point, Rockaway, CG Station
Register by calling:
(There is a fee for this event)

11:00 a.m.
Natural History Film Viewing
Located at Amity Education Group, Centennial Hall Oakdale, LI
(Free Event)

Register at http://connect.molloy.edu/earthday2018

3:00 p.m.
Tours of CERCOM at Molloy College Labs (Center for Environmental
Research and Coastal Oceans Monitoring) – Kyle Maurelli, Scientific
Research Technical Assistant

132 Clyde Street, West Sayville, NY  (Free Event)
Register at http://connect.molloy.edu/earthday2018

7:00 p.m. to 10:00 p.m.
“Sky Observation” (weather permitting) and NASA Lecture on
Exobiology (Free Event)
Located at Amity Education Group, Molloy Hall, Oakdale, LI
Register at http://connect.molloy.edu/earthday2018

Contact Regina Gorney at rgorney@molloy.edu or 516.323.3594 for
more information and registration

EES NEO-TROPICAL BIRD MIGRATION FUNDRAISER
INFORMATION ON NEXT PAGE!
YOU’RE INVITED
To a Wine & Cheese Cocktail Reception
FUNDRAISER
$35 per person
Light Dinner Included

Professor Veit is broadly interested in the ecology of birds, with special emphasis on foraging behavior of seabirds and long-distance dispersal and vagrancy of birds in general.

Guest Speaker
Dr. Richard Veit
College of Staten Island, CUNY

Presenting:
“NEO TROPICAL BIRD MIGRATION”

April 20, 2018
6 PM - 9 PM
Molloy College,
Public Square Larini Room

Register at:
connect.molloy.edu/ED18EESfundraiser

RSVP By April 13, 2018
Contact Mary Scanio for more information
mscanio@molloy.edu  |  516.323.4703

Part of the Proceeds will go towards the Earth & Environmental Studies Scholarship
ATTORNEY IRVING LIKE, A LONG ISLAND ENVIRONMENTAL ICON, STATES HIS CASE TO DESIGNATE THE FIRE ISLAND NATIONAL SEASHORE AS A WORLD HERITAGE SITE AT LIMBA MEETING

On December 1, attorney Irving Like was the guest speaker hosted by Molloy College/CERCOM, at the Long Island Metro Business Action (LIMBA) meeting, which was held at the Courtyard Marriott in Ronkonkoma, where he emphasized the need to designate the Fire Island National Seashore (FINS) as a World Heritage Site. He was joined by Dr. John Tanacredi, Director, Center for Environmental Research and Coastal Oceans Monitoring (CERCOM), Molloy College, who is seeking to designate the horseshoe crab as a World Threatened Species, and Molloy College students who also attended the meeting.

Mr. Like told those in attendance that the FINS needs to be protected because of the existential threat of climate change and rising sea levels, which, in turn, would have a ruinous effect not just on the environment, but on the economy and pose a threat to our national security. He fought Robert Moses’ plans to build a road on Fire Island from Field 5 at Robert Moses Park to the Shirley bridge — which would have destroyed the villages in its path — along with a group of concerned Long Islanders such as Paul Townsend, Founder, LIMBA and Murray Barbash, a conservationist builder. The group successfully lobbied Congress to create FINS.

Molloy College is collaborating with Mr. Like on this campaign. He said he is fortunate to work with a prominent Catholic college and pointed out that the designations they seek comply with Pope Francis' 2015 encyclical Laudato Si, which calls for action to address the existential threats of climate change and rising sea levels.

Among Mr. Like’s justifications for the designation for FINS included the seashore’s proximity to New York City — a world-class city and the seat of the United Nations — and one of the city’s National Heritage Sites (Statue of Liberty) and a National Historical Site (Ellis Island) and its ability to meet the World Heritage Site criteria as established by the United Nations Educational, Scientific and Cultural Organization (UNESCO). According to UNESCO, to be selected as a World Heritage Site, the nominated site must already be classified as a landmark and unique in some respect as a geographically and historically identifiable place with special cultural or physical significance. The FIC, Inc., has provided a student scholarship gift to explore this and other Earth and Environmental Science issues and concerns that Molloy College Earth and Environmental Science Students can research.

Dr. Tanacredi also reminded those in attendance that the horseshoe crab, which has been on this planet for 445 million years, is on the verge of possible extinction. He pointed out that, in parts of Asia, the horseshoe crab is considered a delicacy at many of its restaurants; in the U.S., it is used as bait, and pharmaceutical companies bleed them out and use their blood to develop life-saving medications.

According to Dr. Tanacredi, the horseshoe crab population is declining each year at an estimated 1% clip and loss of habitat at about 8% and if this continuously goes unchecked, the crab will be extinct within the next 10 years.

About LIMBA
Since 1968, LIMBA (Long Island Metro Business Action) has been Long Island’s catalyst for economic investment and improvement, sponsoring lively breakfast forums featuring Long Island business activists and government officials. Its mission is to promote and address issues that affect the quality of life on Long Island. For more information, call (631) 757-1698 or visit www.limba.net.
This past January, Molloy College students and trip leaders, Dr. John T. Tanacredi and Dr. Noelle Cutter, professors in the BCES department, embarked on a trip of a lifetime to the Galapagos Islands. When our plane landed on Baltra Island it was clear we were in paradise. Taking the cramped bus ride and packed out taxi boat to Santa Cruz was insignificant to the beautiful blue waters and scenery we were taking in. On our way to the tortoise reserve called Rancho Primicas our tour guide Christian had us stop to look at Los Gemelos. Los Gemelos which means twins was our first look at the unique botanicals the Galapagos Islands has to offer. They are called Los Gemelos because they are two sink holes side by side created from the collapse of the magma chambers from a volcano.

Being quiet here was important if you wanted to get a glimpse of the birds Charles Darwin saw when he was on the islands in the 1830s. Our tour guide knew to make a special call that would attract some of the birds, that made it easier to spot and identify the different species. Two endemic species we saw here was the Galapagos Mocking bird and the Galapagos Flycatcher. On our way to Los Gemelos from the boat dock, Christian told us to watch and feel the landscape change from very dry, hot with cactus and bare trees to a landscape that was more humid, colder, and had lots of vegetation. This was an example of the sub-climates of Galapagos. When arriving to the Rancho Primicas I was in complete shock and awe watching these creatures. Seeing pictures of these giants does no justice until being in front of one. Most of them were very slow but, they were so massive you couldn’t help but, be captivated. Many tortoise species are endangered living on the Galapagos Islands because early settlers used them for food and brought their farm animals that attacked the tortoises.

There are many different species of birds on the Galapagos Islands, one place to see these famous species was on South Seymour Island. The island is uninhabited by humans, here there are the Blue footed Boobys, Red footed Boobys, Galapagos Shearwaters, Galapagos Albatross, and the Magnificent Frigate bird.

While on the trail around South Seymour island mating season for the Magnificent frigate bird was over so, to see the male’s big red chest blown up was a pleasant surprise. We also visited Isabela Island, which is the largest of all the islands and is still larger if all the islands were combined. Isabela Island is home to six volcanoes, Alcedo, Cerro Azul, Darwin, Ecuador, Sierra Negra, and Wolf. All of the volcanoes are active today including Ecuador. While we were there we visited the Sierra Negra volcano. After a long grueling hike, up the volcano we not only got an incredible view we also got to see the remains from the last eruption from October 2005. One part of the trip that took me by surprise was the number of marine iguanas and sea lions everywhere. One of our tour guides that took us snorkeling called them the Dogs of the Sea. After spending one day on the island I could understand why they got this nickname. The sea lions are sometimes unavoidable because they lay on benches, in the walking paths, and the pups are very curious about humans and will actually come up to you. Our last stop to bring the whole trip together was a visit to the Charles Darwin Center. Here, we saw the conservation efforts of the tortoise species and the history of the unique ecosystem of the islands.

A special thank you goes out to our faculty tour leaders, Dr. Tanacredi and Dr. Cutter. Their discussions observations and leadership made this international academic travel experience one I will remember my whole life. Thank you Molloy College!
CERF CONFERENCE, PROVIDENCE RHODE ISLAND

November 2017

In Nov, 2017, Dr. Tanacredi, Professor of Earth and Environmental Sciences, and Director of CERCOM at Molloy College, coordinated with the IUCN – Scientific Specialty Groups Steering Committee, a full day of scientific research presentations on Global Horseshoe Crab conservation at the Biannual CERF Conference (Coastal and Estuarine Research Federation), held in Providence RI. CERF is the largest coastal/estuarine research symposium in the world with over 1,500 presentations, and 750 poster presentations on coastal and estuarine sciences. Dr. Tanacredi, along with Drs. Ruth Carmichael, University of South Alabama, Dauphin Island Sea Lab; Dr. Mark Botton Fordham University; Dr. S.G. Cheung and Dr. Paul Shin, Hong Kong City University, Co-Chaired, a full day of presentations from 8 countries. Dr. Tanacredi culminated the session with a final presentation on the economic and human health benefits of Horseshoe Crabs as well as emphasizing the problems and pitfalls of managing the only HSC breeding laboratory (CERCOM at Molloy College) in the United States. Over 125 participants attended each of his talks.

In collaboration with Dr. Vishal Shah, VP for Science Research at West Chester University, and Dr. Tanacredi, Director, CERCOM at Molloy College, presented a PowerPoint presentation and a student poster on HSC genetics work conducted by Viraj Joshi, a High School Honor’s student at CERCOM/Molloy College. Viraj Joshi won “Best Student Poster Presentation Award” at the 2017 CERF conference. Molloy College EES Students are progressing on a multi-year Horseshoe Crab Research project on the impacts of pH or Ocean acidification on juvenile Horseshoe Crab Conservation to be submitted to the 2019 International Conference on Horseshoe Crab Conservation to be held in China.

Did You Know?

CERCOM involves over 28 groups and academic institutions in its research and conservation programs.
NEW SCIENTIFIC RESEARCH TECHNICAL ASSISTANT
KEEPS THE MONITORING PROGRAM FUNCTIONING

Welcome aboard to CERCOM’s new Scientific Research Technical Assistant (SRTA), Mr. Kyle Maurelli under the direction of Dr. Tanacredi, Executor Director of CERCOM. Kyle is responsible for water quality monitoring of the Great South Bay, Horseshoe Crab monitoring of habitat for the species; Limulus polyphemus, phytoplankton monitoring and identification, daily meteorological data collection, aquaculture of CERCOM labs, aquaponics, coordinating Molloy College’s Crab Club, student Internship mentoring and training, and providing talks and tours for visiting groups.

Each week from Memorial Day and Labor Day, Kyle Maurelli, with student interns, monitor 9 water quality locations within the Great South Bay collecting data on pH, temperature, salinity, dissolved oxygen, and clarity. Interning students are instructed on the proper function and use of a variety of analytical instruments. This data is then used for CERCOM’s annual water quality report and for long term trend analysis. CERCOM also monitors Phytoplankton for NOAA. Using a plankton tow, water samples are collected and stored for in lab analysis. All data is then submitted to NOAA, which is a repository of this data.

During the Horseshoe Crab spawning season, Mr. Maurelli schedules student interns and volunteers to take part in monitoring program for a total of 115 different beach sites throughout all of Long Island, extending from Brooklyn to Montauk. We record the total number of crabs and identify males and females. An annual HSC inventory report is completed, comparing the most recent numbers for total population and habitat use, over the last 18 years.

The CERCOM aquaculture labs maintain all activities and infrastructure required for living systems. Our living systems for adult Horseshoe Crab spawning produces over 100,000 eggs. Captive breeding of Horseshoe Crabs encourages year round spawning. Eggs are collected after each spawn and are provided proper care for hatching and further growth. Once eggs are hatched juvenile HSC’s will molt through all stages of development. CERCOM has produced over 20,000 juvenile HSCs in a single year.

New to CERCOM is an Aquaponics Demonstration system. Fresh water Aquaponics is a way of the future for sustainable farming. It allows agriculture
to occur without the need for soil and labor. The aquaponics demo is growing crops using only water, and fish by-products, as the growth media. Aquaponics is a fun way for students to learn more about the Earth’s nitrogen cycle, all while growing ready-to-eat vegetables.

Molloy’s Crab Club is an educational program that we provide for High School teachers and students. Teachers throughout Long Island and the boroughs of NYC, rear Horseshoe Crabs in the classroom. Enrolled schools are given a lecture on the importance of HSC conservation and are provided with HSC eggs that were spawned at CERCOM. These classes continue to hatch, collect carapaces (molts) and raise these juvenile crabs. Teachers are invited to visit our CERCOM facility at the end of the school year in order to return their crabs to us as well as understand more about the very important mission they helped take part in. This year we provided 20 different High Schools with eggs.

FOR ADDITIONAL INFORMATION OR QUESTIONS, CONTACT KYLE MAURELLI AT KMAURELLI@MOLLOY.EDU OR CALL 516.323.3590
CERCOM BY THE NUMBERS

14,175
Since 2004, data points collected each summer for Water Quality Monitoring In the Great South Bay

20,000
Juvenile Horseshoe Crabs and Larvae of Limulus Polyphemus at CERCOM, the Nation’s ONLY Captive Breeding Laboratory for Horseshoe Crabs

500+
Students attended Saturday Science For Students at The Explorer’s Club Scientist Career Lectures since 2014

115
Horseshoe Crab Habitat Monitoring sites each year from the tip of Brooklyn to the tip of Montauk on Long Island.

30+
Student Interns From Molloy College, And Other Academic Institutions Have Worked At CERCOM Throughout The Year

22
High Schools participating in the Molloy College Crab Club!

Upcoming Events

All lectures are open to the public for $10.00 each - Free for students with ID

Registration and light breakfast served at 9:30 a.m. – Lecture Begins at 10:00 a.m. and ends by noon

DATE: APRIL 21, 2018
My Career as a Professor and Researcher of the American Horseshoe Crab, Limulus polyphemus

Part of the Earth Day Celebration
Presenter: Mark Botton, Ph.D., Fordham University

DATE: MAY 5, 2018
My Career as a Developmental Biologist

Presenter: will be: Anthony J. Tolvo, Ph.D., Former Dean of Natural Sciences, Molloy College

To Register call 212.628.8383 or email reservations@explorers.org