

MMS THE RISING TIDE

A NEWSLETTER OF THE
NORTHEASTERN UNIVERSITY
MARINE SCIENCE CENTER
SUMMER 2011



Three Seas Program Offering Students a One-of-a-Kind Experience

The Three Seas Program, hosted by the Marine Science Center, offers undergraduate and graduate students a unique opportunity to broaden their knowledge of marine science. They do so by studying in three amazing locations alongside highly knowledgeable faculty who pursue vibrant research programs at Northeastern and other well-known universities.

Sonia Ahrabi-Nejad, a fourth-year undergraduate student at Northeastern, just finished her Three Seas experience. Sonia is a biology major with a concentration in marine science. She is currently working in a co-op position in the MSC's Outreach Program.

Could you give an overview of the Three Seas Program and how you got involved?

The Three Seas Program travels to three different locations: Nahant, Massachusetts; Bocas del Toro, Panama; and Friday Harbor, Washington. The material studied at each site reflects the characteristics of that area. The classes are taught by professors from Northeastern and from many other universities, and we were able to learn and conduct research in three amazing lab settings.

I first heard of the Three Seas Program at a Northeastern open house when I was applying to colleges, and it was one of the major reasons that I chose to come here as an undergrad. I have been interested in marine sciences my whole life, and this program was the perfect opportunity to work as a marine scientist and determine what area of research I liked the most.



Sonia is seen here conducting a fish survey while studying in Panama with the Three Seas Program.

What kind of research did you do while in Panama?

While in Panama we studied all aspects of reef ecology including: coral and *Symbiodinium* relationships with depth, territoriality of *Stegastes planifrons*, speed and direction of ocean currents, and changes of coral abundances over time.

Has Three Seas changed your research focus?

Before the Three Seas Program, I was not entirely sure what I wanted to study within marine biology. This program has helped me to realize what

aspects of marine studies I find most interesting, and would like to study in the future.

What was it like basically living abroad for a year? Did you find it easy to adapt to each semester's new location? Do you have any advice on how to make the transitions easier for students looking to get into Three Seas program?

It was amazing to be able to live abroad for the year. The semester in Nahant was a

continued on back cover



College of Science Introduces New Marine Biology Major

Starting this fall, Northeastern University will be offering students a Marine Biology major through the College of Science.

Northeastern University maintains the only major, year-round marine laboratory in the Greater Boston area. Its extensive rocky shoreline, flowing seawater system and central location within the Gulf of Maine all combine to provide outstanding resources for hands-on education and cutting-edge research in marine science.

The Marine Biology major replaces the current Marine Biology concentration at Northeastern University. The Marine Biology major will give students the opportunity to focus on the study of marine organisms, communities and ecosystems while gaining a solid background in molecular biology, genetics, physiology, ecology and evolution.

For any questions about the new Marine Biology major, please contact Geoffrey Trussell (g.trussell@neu.edu) or Matthew Bracken (m.bracken@neu.edu).

MSC's Beach Sister Program: Molding Young Women Into Future Marine Scientists



VIDEO: WHAT'S KILLING THE CARIBBEAN CORALS?

Northeastern Assistant Professor Steven Vollmer's research on White Band Disease was recently featured in the journal *Nature's* "Scientific Reports."

A geneticist with the Biology Department and Marine Science Center, Vollmer has spent over 10 years studying the endangered Caribbean Acroporid corals in Panama.

The report discusses the environmental factors contributing to the rise of coral disease and the unique filter method the Vollmer Lab is using to identify what is causing White Band Disease in these Caribbean corals.

Vollmer recently sat down with us to talk about these findings. Search "coral" on Northeastern's YouTube page to watch the video, or scan the QR code with your smart phone.



New Faculty Announcement

The Marine Science Center is excited to announce the hiring of Jonathan Grabowski as an Associate Professor for the Marine Science Center, effective August 31, 2011. Grabowski joins us from the Gulf of Maine Research Institute. He will focus his research on fisheries and sustainability. Welcome aboard!

Can you remember the first time you popped seaweed bubbles between your fingers? Coaxed a periwinkle out of its shell by humming? Marveled at an egret's impossibly long legs? Despite proximity to the ocean, many residents of seaside communities, particularly in urban areas, rarely get a chance to explore and experience such gems of our local coastal habitats.

Beach Sister aims to change that, and beginning this summer, almost 200 girls in the city of Lynn will be getting their feet wet as part of this ambitious new initiative. Partnering with Girls Inc. of Lynn, the Marine Science Center's Outreach Program has cast a number of nets over recent months to garner resources in support of this program.

According to the Natural Resources Defense Council, Kings Beach in Lynn was ranked fourth worst in the nation in 2009 for beach water quality, with 71 percent of reported water samples collected exceeding EPA standards. This is a distressing indication of the severity of the pollution problem persisting in Lynn — an urban manufacturing and commercial center with a long, industrial past.

The City of Lynn is designated an Environmental Justice Community by the Massachusetts Department of Environmental Protection. According to the state's Environmental Justice Policy, this designation identifies "high-minority/low-income neighborhoods where the residents are likely to be unaware of or unable to participate in environmental decision-making or to gain access to state environmental resources."

The Beach Sister program will help to pave the way for girls to become more environmentally literate and to consider pursuing studies in marine sciences. It will do this by providing programs and experiences where girls can gain the knowledge and skills, and develop the attitudes and perceptions necessary to elicit environmentally

responsible behavior. The focus of programming will be on the coastal and marine resources of the greater Lynn watershed and Massachusetts Bay, and on the problems and issues that threaten these resources.

Beach Sister will deliver programs to each of the three main groups at Girls Inc. of Lynn, groups that are divided at the elementary, middle, and teen (high school) levels. Programs will include activities such as field trips to the shore, hands-on classroom presentations, community stewardship projects, family



Photo Credit: iStock Photo

events, and job shadow/internship opportunities.

Beginning in August, and in support of this program, the MSC is honored to host its first Americorps member.

Despite federal budget cuts that jeopardized many Americorps programs nation-wide, the Massachusetts Promise Fellowship was able to secure state funds this year to award the MSC a Fellow to coordinate the Beach Sister program in its first year.

Additional support for this program includes Massachusetts Service Alliance funding of three Commonwealth Corps members to deliver marine science content during the inaugural middle-school portion of Beach Sister this summer.

The Marine Science Center: Rich in History, Leader in Marine Biology

In a way, the East Point of Nahant has come full circle.

Northeastern University's Marine Science Center (MSC) sits atop East Point in Nahant. From this spot, you can experience breathtaking views of the ocean and the Boston skyline.

But the view is only part of what makes this location special. "Some of the seminal marine ecology research was done right here on East Point, so this place has had a really long history of marine biology," said Joseph Ayers, a biology professor at Northeastern University.

The Marine Science Center is located a short distance from the former summer cottage of Harvard professor Louis Agassiz, considered to be one of the founders of American marine biology in the mid-19th century. Agassiz is hailed as a pioneer of marine science education and promoted the formation of seaside laboratories. Moreover, MSC Director Geoff Trussell notes that, "modern experimental ecology got its start in Nahant with the classic work of Bruce Menge and Jane Lubchenco."

Dr. Lubchenco is a member of the National Academy of Sciences and currently serves as the head of the National Oceanic and Atmospheric Administration.

But that's not where it all began. If you go back even further – the 1600s – the town of Nahant was a maritime community. The town's small population was made up of people who were devoted to fishing. At that time, settlers were given home sites, but only if they spent time fishing.

In the early to mid-1800s, Boston's elite would spend their summers in a hotel that stood on what is now

the MSC property. Some of Nahant's popular residents included Henry Cabot Lodge and distinguished Harvard faculty.

During WWII, the MSC site was used by the military for the construction of defensive fortifications for Boston Harbor. The fortifications consisted of two 6-inch cannons, two large 16-inch coastal defense cannon bunkers, an associated plotting room and triangulation towers that still stand today. A Magnetic Loop Station to detect submarines was housed in two smaller bunkers near the tip of East Point.

In 1954, a Nike missile launcher site was constructed where an area known as Lodge Park now stands.

In 1961, the property came up as a GSA surplus. Six years later, Northeastern University acquired the land through the generous gifts of donors and the people of Nahant. When what was then known as the Marine Science Institute opened, Dr. Nathan "Doc" Riser became the Center's first director. He held that position until his retirement in 1985. Even after his retirement, Riser spent most of his time on the shores of East Point conducting research. "He was a classical taxonomist," said Ayers. "He did descriptive biology. His classic posture was down on his knees in the mud. He was just a really wonderful man."

The MSC was his second home until his passing.

Today, the MSC continues to be

a world recognized center for marine science research and education. The bunkers used during wartime are now filled with sea creatures and fossils that



Prof. Nathan "Doc" Riser (1969)

Some of the seminal marine ecology research was done right here on East Point, so this place has had a really long history of marine biology.

-Prof. Joseph Ayers, PhD

are used to educate children of all ages in the Nahant community and beyond. In addition to community outreach, the MSC also features lectures and unforgettable school visits.

This past spring, the Center hosted the 25th Annual Riser Lecture, given by Dr. Emmett Duffy of the Virginia Institute of Marine Science, which discussed the challenges and opportunities of biological diversity as the central organizing concept in marine conservation and management. "This distinguished lecture, as well as the continued effort of the MSC community to become a top coastal research center, are all motivated by Doc Riser's legacy," said Trussell. "We would make him proud."

The Center's rich history and cutting-edge research has made it an important part of Northeastern's framework, and its link to the community is helping build relationships with some of the future's brightest minds.

Source for Nahant History: <http://www.nahant.org/community/about.shtml>

MSC Makes Way For New Seawater System

Thanks to two separate projects, funded by both the National Science Foundation and Northeastern University's Facilities Division, the Marine Science Center is about to get a whole lot wetter. A dramatic upgrade is being made to the existing seawater system, which provides a continuous supply of seawater to the facility.

The old seawater system, originally constructed in the 1960s, has recently been plagued by clogging, challeng-

ing maintenance conditions, and an inability to meet ever-increasing demand.

Some of the improved features and benefits of the new system will include:

- Seawater storage capacity will be increased from 7,500 to 40,000 gallons, thus guaranteeing continued service, even in the high-demand summer months.
- Deeper intake valves, thus reducing

the amount of seaweed and storm-generated debris from entering the system.

- Settling tank employed to reduce the amount of sediment and other solids being circulated through the system.

The flowing seawater system is vital to the MSC's teaching, research and outreach mission and these upgrades will support the dramatic increase in activity at the MSC.



Northeastern University

College of Science

Marine Science Center
Northeastern University
430 Nahant Road
Nahant, MA 01908

Nonprofit Organization
U.S. Postage
PAID
Boston, MA
Permit No. 430

Three Seas Program Offering Students a One-of-a-Kind Experience continued from page 1

nice transition from Northeastern’s campus in Boston to a more secluded area.

The ability to live in Panama right on the Smithsonian campus was absolutely wonderful — there were sloths in my backyard and iguanas climbing the trees outside the dining hall.

University of Washington’s Friday Harbor Labs was a great location to readjust to America and still be in a naturally beautiful place. The differences of each location, along with their individual beauty, helped to make each destination a new adventure.

My advice to make the transitions easier would be to completely immerse yourself in everything above and below water — you may not get the chance to live in such amazing places again.

THANK YOU!



The Marine Science Center would like to thank Eastern Bank Charitable Foundation for their generous gift that will go toward supporting the Community Open House on October 1, 2011 from 10 a.m. to 3 p.m. The event is open to the public, so please come and check out the Center and the breathtaking views! If you are interested in making a gift to the Marine Science Center, please contact Patty Flint at p.flint@neu.edu.



Northeastern

The Rising Tide

Summer 2011

Director

Geoffrey Trussell, PhD

Faculty

Geoffrey Trussell, PhD

Joseph Ayers, PhD

Matthew Bracken, PhD

Donald Cheney, PhD

Slava Epstein, PhD

Jonathan Grabowski, PhD

Gwilym Jones, PhD

Rebeca Rosengaus, PhD

Steven Vollmer, PhD

Post-Doctoral Researchers

James Douglass, PhD

Luke Miller, PhD

Cascade Sorte, PhD

Staff

Sal Genovese, PhD

Carole McCauley

Sarah Phenix

Heather Sears

www.Northeastern.edu/marinescience